Class 32 Report

Costco Fuel Facility
Re-Location

PREPARED BY
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PREPARED FOR	CLIENT ADDRESS
Costco Wholesale	730 Lake Drive, Issaquah, WA 98027

SITE ADDRESS	JURISDICTION	DATE	PROJECT NO.
13463 Washington Blvd., Culver City, CA 90292	City of Culver City	06/28/2024	10857.13

SUPPORTING ANALYSIS FOR A CLASS 32 EXEMPTION

I. Description of the Proposed Project

A. Project Site and Surrounding Uses

The Proposed Project will relocate the existing Costco fuel facility located at 13463 Washington Boulevard (Project Site) to the two developed parcels currently occupied by commercial buildings in the southwest corner of the existing shopping center. The Project Site comprises approximately 136,343 square feet (3.11 acres).

B. Existing Zoning and Land Use Designation

The Costco Wholesale (Costco) property is zoned Commercial Regional Retail (CRR), which permits the fuel facility. The existing fuel facility was previously approved as an ancillary use to the main Costco Warehouse under Tentative Parcel Map No. 52382, TPM No. 97-01 and Conditional Use Permit No. 97-01.

C. Proposed Project

The existing Culver City Costco is located at 13463 Washington Blvd in the City of Culver City California (City) and includes a Costco Warehouse and a Costco Gasoline fuel station with 16 vehicle fueling positions located in the south-east corner. In addition, there are several pad developments on the overall shopping center property, including fast food and small retail. The Proposed Project will relocate the gas station to the area with two currently unoccupied that housed a Verizon mobile phone store, Subway, a GNC shop, and a Starbucks Coffee. This will provide more space between the gas station queues and the main entrance at the Washington Blvd. & Glencoe Ave. traffic signal. The existing buildings will be demolished and, therefore, eliminate on-site trips associated with those land uses[1]. The existing gas station will also be demolished and developed with Costco warehouse member parking. (See Figure 1.)

The Proposed Project comprises a new 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. The relocated gasoline station will increase the number of dispensers from 8 dispensers (16 fueling positions) to 15 dispensers (30 fueling positions). However, there will be no increase in throughput (i.e., the total amount of gasoline to be dispensed yearly). The existing fuel facility will be demolished and removed from the site, and the existing commercial buildings will be demolished. The existing underground storage tanks and piping will be decommissioned and removed by State-certified contractors. Following demolition, the existing fuel facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state-of-the-art facility to provide a more efficient fuel purchasing experience for Costco members.

[1] The buildings were historically occupied and could be reoccupied again without any discretionary City approvals. Under applicable case law (North County Advocates v. City of Carlsbad (2015) 241 Cal. App. 4th 94), these uses are considered to be part of the CEQA baseline even though the buildings are currently unoccupied. Therefore, the technical analyses include a trip credit for the removal of these uses from the project site. Moreover, as the buildings were occupied when the historic traffic counts at area roadways were taken, not taking such a credit would overstate project impacts.

1. Business Hours of Operation

The relocated fuel facility would operate from 5:30 a.m. to 9:30 p.m. Monday through Friday, 6:00 a.m. to 8:00 p.m. Saturday, and 6:00 a.m. to 7:30 p.m. Sunday, which are the same hours the existing facility is open. The station will be available for Costco Warehouse members only and will require a Costco membership to access the fuel pumps. The relocated station would be manned by one Costco employee, who will oversee day-to-day operations and cleanliness at the site. An additional one to two employees will be brought on site as needed to help implement the queue management plan and for overall vehicle circulation. No other automotive or retail sales will be available at the station. The facility is anticipated to receive up to eight nighttime fuel deliveries spread out evenly between 10:00 p.m. and 6:00 a.m. (i.e., one fuel delivery per hour).

The proposed business hours of the gasoline station are compatible with the existing surrounding businesses in that the station provides a consumer service during typical gas station hours, same as the existing facility.

2. Parking & Circulation/Queue Management

The Proposed Project will remove 56 parking stalls for a total of 907 stalls for the overall shopping center. City parking standards do not require a minimum amount of parking stalls for the overall development. The overall development will continue to meet City parking requirements after the gasoline station is relocated.

The new fuel facility will continue to provide single-direction circulation with a full-length bypass lane between each dispenser island. The relocated facility will be equipped with a red-light/green-light system to indicate which pump is open and available to the next person in line along with CostcoPay (a key-fob pay system), which improves efficiency and helps shorten lines for waiting members.

3. Design

The canopy design includes a gray, metal canopy fascia with concrete masonry unit-wrapped canopy columns. The new controller enclosure is designed to match the fuel canopy and includes a gray, metal wrapped building. This design is consistent with the main Costco warehouse design.

4. Lighting and Signage

The under-canopy lighting will be flat lens LED light fixtures for the relocated canopy. Signage and any new parking lot lighting will also be LED. The new canopy signs will include 20-square-foot "Costco Wholesale" signs located and centered on each façade of the canopy. The new signs are also designed consistent with the main Costco warehouse signage for a unified design.

5. Entitlement Requests

The applicant is requesting the following discretionary approval from the City to permit construction of the Proposed Project:

- Conditional Use Permit Modification

In addition, the applicant will seek ministerial grading and building permits and other ministerial approvals to permit construction of the Proposed Project, UST Installation Permit and UST Removal Permit from the Certified Unified Program Agency, and permits from the South Coast Air Quality Management District (SCAQMD) to construct and operate the new fuel facility.

II. Evaluation of Class 32 Criteria

Generally, a discretionary action by the City requires environmental review pursuant to California Environmental Quality Act ("CEQA"). However, the CEQA Guidelines (Sections 15300 to 15332) include a list of classes of projects that have been determined to not have a significant effect on the environment, also known as Categorical Exemptions. If a project falls within one of these classes, it is exempt from the provisions of CEQA, and no further environmental review is required. The Class 32 "Infill" Categorical Exemption (CEQA Guideline Section 15332) (the Class 32 Exemption), exempts infill development within urbanized areas if it meets certain criteria. The class consists of environmentally benign infill projects that are consistent with the local General Plan and zoning requirements. The Proposed Project meets this exemption by adding a General Plan and zoning-compliant, relocated fuel facility use to a portion of an existing shopping center in a developed, urbanized area. Relocating the fuel facility on the Project Site will improve site circulation, as well as eliminate any potential off-site queuing.

This class of exemption is not intended for projects that would result in any significant traffic, noise, air quality, or water quality impacts. It may apply to residential, commercial, industrial, and/or mixed-use projects. A Class 32 Exemption applies to a project characterized as in-fill development by meeting the criteria described below:

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

(c) The project site has no value as habitat for endangered, rare or threatened species.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

(e) The site can be adequately served by all required utilities and public services.

The following is an analysis of each of the above criteria.

A. The Proposed Project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

The Project Site is subject to the Culver City General Plan.

1. Culver City General Plan

The General Plan serves as a blueprint for future growth and development in the City, and contains policies and programs designed to provide decision-makers with a basis for all land use related decisions. The General Plan addresses, among other subjects, land use, circulation, public safety, noise, and growth management.

The Land Use Element is a guide to the allocation of land uses in the City and provides a framework or context for the issues and subject areas examined in the other Elements of the General Plan.

The Project Site is designated as Regional Center ("RC") under the Land Use Element. RC allows a fuel facility as an ancillary use to the main Costco warehouse designation.

The relocation of the fuel facility will execute the following goals of the General Plan:

- LU Policy 7.B: Allow existing regional and community centers to upgrade and expand in response to changing market demands, to maintain their economic viability, with adequate mitigation of impacts to nearby residential neighborhoods.

  The Proposed Project will upgrade and expand the existing fuel facility and will reduce onsite vehicular congestion by providing more space between the gas station queues and the main entrance at the Washington Blvd. & Glencoe Ave. traffic signal. The new state-of-the-art facility will provide a more efficient fuel purchasing experience for Costco members.

- LU Policy 8.A: Support desirable retail establishments in proximity to residential neighborhoods that provide needed goods and services.

  The relocation and expansion of the members only fuel station will support the adjacent Costco warehouse.

- LU Policy 8.B: Ensure that development impact fees mitigate all resultant costs burdened on City infrastructure and services.

  The Proposed Project would pay all required impact fees.

- LU Policy 16.C: Encourage compatible commercial uses, through conditional expansion of commercial users, to adjacent residential lots in designated areas of Washington Boulevard.

  The Proposed Project is the relocation and expansion of the existing fuel facility and will be conditioned to ensure compatibility with adjacent residential lots through the conditional use permit modification.

2. Culver City Municipal Code

The Proposed Project is subject to Title 17 – Zoning Code of the Culver City Municipal Code ("CCMC"). As set forth in the table below, the Proposed Project would comply with the applicable provisions of the CCMC.

Development Standard	**Requirement**	**Response**
Maximum Building Height	56 feet	The maximum height of the canopy is approximately 17 feet from finished grade with a 14-foot 6-inch clearance.
Minimum Front Building Setback	15 feet	The Proposed Project will maintain the required setback.
Minimum Side Building Setback	None	Not applicable.
Minimum Side Street Building Setback	15 feet	The Proposed Project will maintain the required setback.
Minimum Rear Building Setback	None	Not applicable.

Off-Street Parking	None	The Proposed Project will remove 56 stalls for a total of 907 stalls for the overall development.
Landscaping	Minimum 5-foot landscape strip along street frontages.	The Proposed Project will provide a minimum 12-foot landscape strip along Washington Boulevard and Walnut Avenue in the vicinity of the fueling facility and a minimum 9-foot landscape strip along Washington Boulevard in the vicinity of the new parking
Signs	Maximum sign area of 1.5 square feet/1 linear foot of elevation (not to exceed 40% of wall area). (North/South Facades: 141.5 linear feet of canopy elevation = 212.25 sq. ft. sign area) ((141.5 linear feet x 3 feet) x 40% = 169.8 sq. ft. maximum sign area) (East/West Facades: 92 linear feet of canopy elevation = 138 sq. ft. sign area) ((92 linear feet x 3 feet) x 40% = 110.4 sq. ft.	The project will include one 20-square-foot "Costco Wholesale" sign on each façade of the canopy.

Development Standard	Requirement	Response
Exterior Lighting	All exterior light sources, including canopy, flood, and perimeter, shall be energy efficient, stationary, and shielded or recessed within the roof canopy to ensure that all light, including glare or reflections is directed away from adjoining properties and public rights-of-way.	Under-canopy lighting and parking lot lighting will be installed with flat lens LED lighting fixtures and lighting will be directed downward to prevent offsite glare.
Design Criteria	Architectural designs shall be consistent in quality and appearance with the overall development.	The canopy design is consistent with the design of the main Costco Warehouse and will include a metal-wrapped canopy fascia with concrete masonry unit wrapped canopy columns.

3. Conclusion

As discussed above, the Proposed Project is consistent with the applicable General Plan designation and all applicable General Plan policies, as well as with the applicable zoning designation and regulations. Therefore, the Proposed Project satisfies the first criterion for a Class 32 Exemption.

B. The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

As shown in Figure 1, the Project Site Map, the Project Site is located within a portion of an existing shopping center in Culver City and is entirely surrounded by urban uses. The Project Site (consisting of the area where the fueling station and landscape screening will be relocated to and the area of the existing gas station to be demolished and replaced with parking) has a total area of approximately 3.11 acres. The Project Site includes all areas that will be physically changed.[2] No new development or construction activity related to the Proposed Project will occur in the other portions of the shopping center, including the existing Costco Warehouse and other pad parcels, nor will the existing operations at these uses change as a result of the Proposed Project. These uses and areas are part of the existing physical environment prior to

[2] CEQA Guidelines Section 15378(a) provides: "'Project' means the whole of an action, which has a potential for resulting in either a direct ***physical change in the environment***, or a reasonably foreseeable indirect ***physical change in the environment***…" (Emphasis added.) See *Protect Tustin Ranch v. City of Tustin*, 70 Cal.App.5th 951 (2021) (Upholding use of Class 32 CEQA exemption for 2.38 acre project site included within 12-acre existing shopping center as project site was below 5-acre maximum).

the Project that will not change as result of the Project. Therefore, they comprise the environmental baseline and are not part of the Proposed Project.[3]

Therefore, the Proposed Project satisfies the second criterion for a Class 32 Exemption.

C. The Project Site has no value as habitat for endangered, rare or threatened species.

The Project Site is located in a highly urbanized area within the City. The current location of the fuel facility is fully developed as is the relocation site. The surrounding area is fully developed with urban infrastructure and does not contain any significant areas of natural open space or areas of significant biological resource or habitat value. The Project Site is developed with the existing fuel facility, two retail buildings, and asphalt-paved parking areas. There are ornamental trees and other vegetation located on-site as landscaping within the surface parking areas. According to the U.S. Fish and Wildlife Service (USFWS) Threatened & Endangered Species Active Critical Habitat Report, no candidate, sensitive, or special status species identified in local plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the USFWS have been recorded or exist on the Project Site. Furthermore, no critical habitat was identified in the U.S. Environmental Protection Agency's NEPAssist mapping tool.

The Proposed Project would relocate seven and remove 33 non-protected trees and zero protected trees on the Project Site. While the removal of non-protected trees would not be considered a significant impact under CEQA, the removal of these trees has the potential to impact nesting bird species if they are present at the time of tree removal. Nesting birds are protected under the Federal Migratory Bird Treaty Act (MBTA) (Title 16, United States Code, Section 703 et seq., see also Title 50, Code of Federal Regulation, Part 20) and Section 3503 of the California Fish and Game Code. In accordance with the MBTA, tree removal activities would take place outside of the nesting season (February 15–September 15), if and to the extent feasible. To the extent that vegetation removal activities must occur during the nesting season, a biological monitor would be present during the removal activities to ensure that no active nests would be impacted. If active nests are found, a 300-foot buffer (500 feet for raptors) would be established until the fledglings have left the nest. Accordingly, with adherence to the Federal Migratory Bird Treaty Act and the State Fish and Game Code. Therefore, the Proposed Project would have a less than significant impact on endangered, rare, or threatened species or their habitat.

Therefore, the Proposed Project satisfies the third criterion for a Class 32 Exemption.

D. Approval of the Proposed Project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

1. Traffic

The following traffic impact analysis summarizes and incorporates the information set forth in the Culver City Costco Fuel Station On-Site Relocation Transportation Study prepared by Kittelson & Associates (KA) dated May 29, 2024 (Traffic Analysis). The Traffic Analysis is included as Attachment 1 to this document.

[3] CEQA Guidelines Section 15125(a) provides: "An EIR must include a description of the physical environmental conditions in the vicinity of the project … at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

a) Programs, Plans, Ordinances, And Policies

As set forth in detail in the Traffic Analysis, the Proposed Project would not conflict with or preclude the ability of the City to implement its programs, plans, ordinances, and policies related to the transportation system.

b) VMT Analysis

On July 13, 2020, the City updated the Transportation Study Criteria and Guidelines, which include methodologies and criteria to evaluate land use and transportation projects from a VMT standpoint. Regional serving retail projects should be evaluated to determine their effect on vehicle trip length and VMT.

As set forth in detail in the Traffic Analysis, a VMT estimate was developed for the Proposed Project that takes into account the fact that the fuel station exists on the Project Site today, and the Project is an on-site relocation to this existing use, not the addition of a new use. The membership of a Costco warehouse is not related to or affected by the size of its fuel facility, and the existing demand for gas by members of the Culver City Costco warehouse would remain after the expansion. The proposed Project relocates the existing fuel station on site and removes four existing retail/commercial uses on the site (Verizon store, Subway, GNC, and Starbucks), resulting in fewer vehicle trips to the site overall. Specifically, the Proposed Project would result in a net decrease of 331 daily trips. Regarding trip lengths, the Project would be replacing trips from retail uses with trips to a gas station. Retail stores and restaurants in urban areas normally attract trips from a larger area compared to gas stations, as gasoline is a commodity that can be found in multiple locations in the West Los Angeles and Culver City area, and most consumers normally do not divert from their routes to buy gasoline. Additionally, a Costco membership is needed to use the gas station, and trips associated with the gas station are typically associated with trips to the warehouse. Conversely, retail uses have a larger number of employees that typically drive longer distances, and consumers normally drive longer distances to purchase goods and services. In summary, as the Project would generate fewer daily trips and the trip lengths associated with the Project would be shorter, the Project would result in a net decrease in VMT and, therefore, would not result in a significant impact.

c) Geometric Design Standards

As set forth in detail in the Traffic Analysis, the Project will not cause a substantial increase in on-street hazards due to geometric design or incompatible uses and, therefore, not result in a significant impact related to CEQA. The intersection queuing analysis concluded that the Project may result in increased queuing but would not result in new locations where the available storage would be exceeded at study intersections on public street approaches. Therefore, the Proposed Project would not result in a significant impact.

d) Emergency Access

The Proposed Project will retain the existing emergency access driveway on Walnut Avenue. The Proposed Project will maintain this emergency access during construction. As the Proposed Project will result in a net reduction in vehicle trips, it will not impede emergency access on area roadways. Therefore, the Proposed Project would not result in a significant impact.

2. Noise

The following noise impact analysis summarizes and incorporates the information set forth in the Costco Fuel Station Relocation Project prepared by Acoustical Engineering Services, Inc (AES) dated May 2024 (Noise Report). The Noise Report is included as Attachment 2 to this document.

a) Construction Noise Impacts

The following Project Design Features would be implemented as part of the Project to reduce the construction-related noise impacts:

PDF-1: Temporary noise barriers would be provided at the following locations to block the line-of-sight between the construction equipment and the adjacent noise sensitive uses.

- Along the project's western property line. The noise barrier shall provide minimum 20 dBA noise reduction (minimum 16 feet high, relative to local grade elevation) at the residences across the Project Site to the west (receptor location R1).
- Along the project's northern property line. The noise barrier shall provide minimum 5 dBA noise reduction (minimum 6 feet high, relative to local grade elevation) at the residences to the northwest (receptor location R5).
- Along the existing fuel station eastern property line. The noise barrier shall provide minimum 12 dBA noise reduction (minimum 12 feet high, relative to local grade elevation) to the residences across the Project Site to the east (receptor location R3).

PDF-2: The Project contractor will use power construction equipment with properly operating and maintained noise shielding and muffling devices, consistent with manufacturers' standards.

PDF-3: The Project construction activities will avoid concurrent construction with the Washington Boulevard Stormwater and Urban Runoff Project (City's Sewer Project) as follows:

- Avoid concurrent construction within 500 feet of the City's Stormwater Project and receptor location R1
- Avoid concurrent construction within 400 feet of the City's Stormwater Project and receptor location R3
- Avoid concurrent construction within 100 feet of the City's Stormwater Project and receptor location R4

The estimated noise levels from on-site temporary construction activities would temporarily increase ambient noise levels in the immediate vicinity of the Project Site. However, the construction noise level would be below the significance threshold with implementation of the specified Project Design Features. As such, Project-specific construction noise impacts would be less than significant.

b) Construction Vibration Impacts

The estimated vibration levels from Project on-site temporary construction activities would be below the significance threshold for building damage at the nearest off-site buildings to the north, south, east and west. Therefore, temporary vibration impacts associated with Project on-site construction activities would be less than significant.

The estimated vibration levels from the Project's on-site temporary construction activities would be below the 80 VdB significance threshold pursuant to human annoyance at all off-site vibration sensitive receptors. Therefore, Project-level vibration impacts from on-site construction activities with respect to human annoyance would be less than significant.

c) Operational Noise Impacts

Noise levels associated with the fuel station typical operation would include running product dispensers, vehicle circulation, and arrival, unloading and departure of a delivery truck. The estimated overall noise levels from the product dispensers and vehicles range from 13.5 dBA (L_{eq}) at receptor R2 to 43.6 dBA (L_{eq}) at receptor location R1, which would be below the existing ambient noise levels. As such, the estimated noise levels at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) above ambient noise levels.

The estimated noise levels from the product delivery truck operation range from 30.3 dBA (L_{eq}) at receptor R2 to 52.5 dBA (L_{eq}) at receptor location R4, which would be consistent with the existing ambient noise levels. As such, the estimated noise levels increase at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) increase over the ambient noise levels.

In addition, a noise analysis was conducted to evaluate the potential sleep disturbance associated with the product delivery trucks. The potential sleep disturbance was analyzed using the Sound Exposure Level (SEL) and based on the recommended SEL noise limit from the LAX South Airfield Improvement Project EIR. The estimated SEL noise level at all off-site receptors ranged from 65.9 dBA SEL at the exterior of receptor R2 to 88.1 dBA SEL at the exterior of receptor R4, which would be below the maximum exterior noise limit of 94 dBA SEL (assuming windows open). In addition, the estimated SEL at the interior of the residence, with the window opens (worst-case noise scenario) would be approximately 52.9 to 75.1 dBA SEL, which would be below the 81 dBA SEL interior noise limits.

A temporary 80 KVA generator would be used for the new fuel facility operation. The temporary generator for the new fuel facility operation would be used 24 hours per day, on a temporary basis. The estimated generator noise levels would be below the Project significance threshold at all off-site noise receptors.

A composite operational noise analysis was performed to evaluate the noise impacts (concurrent operation) from all Project-related noise sources, including product dispensers, vehicle queueing, and product delivery truck operations. The Project would result in a maximum increase of 0.1 dBA CNEL at receptor R2 to 2.4 dBA CNEL at receptor R1. The increases in noise levels due to Project operations (all noise sources) at off-site receptors R1, R2, R3, and R5 would be below the 5 dBA CNEL significance threshold, as the estimated noise levels would be below 65 dBA CNEL. The estimated noise level increase at off-site receptor R4 would be below the 3 dBA CNEL significance threshold for noise level greater than 65 dBA CNEL. Therefore, the composite operational noise level impacts due to Project operation would be less than significant.

3. Air Quality

The following air quality impact analysis summarizes and incorporates the information set forth in the Costco Culver City Project Air Quality/Health Risk Technical Report prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll), dated May 2024 (AQ Analysis). The AQ Analysis is included as Attachment 3 to this document.

a) Air Quality Analysis

(1) Introduction

The AQ Analysis provides an air quality assessment of the Proposed Project in compliance with the requirements of CEQA. Specifically, emissions of criteria air pollutants (CAP) associated with construction and operation of the Proposed Project were estimated in order to evaluate if the Proposed Project would cause significant air quality impacts. The AQ Analysis concludes that the Proposed Project would not cause significant air quality impacts. A brief description of the methodology and results of the analyses are provided in the following sub-sections.

(2) Methodology

Ramboll developed a criteria area pollutant (CAP) emission inventory for the construction and operation of the Proposed Project. Sources of construction emissions related to the Proposed Project include off-road equipment, fugitive dust, off-gassing from paving, architectural coatings, and on-road mobile sources. The Proposed Project would also generate emissions during operation from area sources (architectural coatings, consumer products, and landscaping), energy sources (natural gas and electricity), and mobile sources (passenger cars and fuel delivery trucks).

Ramboll utilized the California Emission Estimator Model version 2020.4.0 (CalEEMod®)[4] to quantify the CAP emissions associated with construction and operation of the Proposed Project. CalEEMod® is a state-wide program designed to calculate both criteria pollutant emissions from development projects in California developed under the auspices of the South Coast Air Quality Management District (SCAQMD), with input from other California air districts, and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources, such as the USEPA AP-42 emission factors[5], CARB's on-road and off-road equipment emission models, such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies, such as the California Energy Commission (CEC) and CalRecycle.

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. Ramboll used default factors for the Los Angeles County area (within the SCAQMD's jurisdiction) for the emissions inventory, unless otherwise noted in the methodology descriptions below.

[4] SCAQMD. 2020. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/.

[5] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors.

(3) Results

(a) Criteria Air Pollutant Emissions

(i) Mass Daily Emissions

Table 4-6 to the AQ Analysis presents the maximum daily CAP emission estimates from construction of the Proposed Project. As shown in this table, the construction emissions for the Proposed Project are less than the SCAQMD mass daily significance thresholds for all pollutants. Therefore, impacts would be less than significant.

Table 4-9 to the AQ Analysis presents the maximum daily CAP emission estimates from Proposed Project operations. As shown in the table, the operational emissions for the Proposed Project are less than the SCAQMD mass daily significance thresholds for all pollutants. Therefore, impacts would be less than significant.

(ii) Localized Ambient Air Quality

Ramboll evaluated the localized ambient air quality impacts from on-site construction and operational activities for carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$) using SCAQMD's localized significance thresholds (LSTs) methodology[6]. As shown in Table 7-1 to the AQ Analysis, the Proposed Project's localized construction and operation emissions would not result in an exceedance of SCAQMD's LSTs. Hence, the proposed construction and operational activities do not result in a significant localized impact for air quality.

(b) Health Risk Assessment

Table 5-4 to the AQ Analysis presents the health risk assessment for toxic air contaminants (TACs) for each receptor type during construction. Table 5-3 to the AQ Analysis presents the health risk assessment for TACs for each receptor type during operation. As shown in the tables, the Proposed Project TAC emissions are below the SCAQMD thresholds for cancer risk, chronic hazard index and acute hazard index. Hence, the Proposed Project would not cause a significant health risk impact during construction or operation.

(4) Conclusion

As described in the results section, the AQ Analysis concludes that the Proposed Project would not cause a significant air quality impact.

b) Regulatory Compliance Measures

As conditioned, the applicant must obtain approval from SCAQMD prior to the issuance of the building or grading permit and must comply with all SCAQMD regulations and obtain a Permit to Construct and Permit to Operate with respect to the Proposed Project.

[6] SCAQMD. Final Localized Significance Threshold Methodology. June 2003, Revised July 2008. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

In addition to the analysis set forth in the AQ Analysis, compliance with these regulatory compliance measures will ensure that construction and operation of the Proposed Project would not cause any significant impacts to air quality.

4. Water Quality

Fuscoe Engineering, Inc. (Fuscoe) prepared the Preliminary Final Hydrology/MS4 Study Costco Culver City Gas Station Relocation for the Proposed Project, dated September 29, 2022, Revised May 31, 2024 (Hydrology Report), which is included as Attachment 4. Based on the proposed site development layout and grading, following development of the Proposed Project the site will follow similar drainage patterns as in the existing conditions, with flow being routed to on-site catch basins before ultimately being discharged to the existing infrastructure in Washington Boulevard. All on-site drainage will be collected in a proposed private storm drain system and treated before discharging to the public street. Water quality treatment will be provided via a detention system and a modular wetland on the Project Site. Fuscoe determined that the Proposed Project's hydrology and MS4 (Municipal Separate Storm Sewer Plan) site program meets the design requirements as specified by the Culver City Hydrology and Low Impact Development (LID) Manuals. In addition, the Proposed Project will include water quality best management practices (BMPs), LID BMPs, and source controls to reduce pollutants in storm water discharges.

The following addresses CEQA Appendix G threshold questions related to hydrology and water quality.

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

During construction, the Proposed Project would implement an Erosion Control Plan that specifies BMPs and erosion control measures to be used during construction to manage runoff flows. These BMPs would be designed to reduce runoff and pollutant levels in runoff during construction. Therefore, impacts to water surface water quality during construction would be less than significant.

During on-site grading and building construction, hazardous materials, such as fuels, paints, solvents, and concrete additives, could be used and would therefore require proper management and, in some cases, disposal. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials releasing into groundwater. However, compliance with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous waste, would reduce the potential for the construction of the Proposed Project to release contaminants into groundwater. Therefore, the Proposed Project would not result in any substantial increase in groundwater contamination through hazardous materials releases, and impacts on groundwater quality during construction would be less than significant.

Under the existing conditions, there are no water quality BMPs implemented within the project area. Under the proposed conditions, biofiltration BMPs will be implemented as part of the site design. Based on the implementation of water quality BMPs consistent with the MS4 Stormwater Permit, no violations of any water quality standards or waste discharge requirements are anticipated during operation and are considered less than significant. Infiltration has not been proposed as a storm water quality solution; therefore, groundwater quality would not be affected.

Operational activities which could affect groundwater quality include spills of hazardous materials and leaking underground storage tanks (USTs). The four USTs that will be installed as part of the Proposed Project will undergo preinstallation testing to verify structural integrity and employ safety features such as

primary and secondary containment systems, spill containment and overfill prevention systems, and leak detection systems. Therefore, with compliance with applicable regulations, impacts to groundwater from the USTs would be less than significant.

The development of the expanded fuel facility would incrementally increase the use of on-site hazardous materials during operations. However, compliance with all applicable regulations regarding the handling and potentially required cleanup of hazardous materials would prevent the Proposed Project from affecting or expanding any potential areas of contamination, increasing the level of contamination, or causing regulatory water quality standards at an existing production well to be violated. Furthermore, operation of the Proposed Project would not require extraction from the groundwater supply. The Proposed Project is not anticipated to result in releases or spills of contaminants that could reach a groundwater recharge area or spreading ground or otherwise reach groundwater through percolation. Therefore, impacts to groundwater quality would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The existing site condition is 95% impervious, and infiltration and associated groundwater recharge is highly limited due to very little pervious area. Under the proposed condition, site perviousness will remain nearly the same and thus will allow the same or more incidental groundwater recharge through proposed landscaping areas. Neither the existing condition nor the Proposed Project include any groundwater pumping onsite. Therefore, impacts related to decreasing groundwater supplies is less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in a substantial erosion or siltation on- or off-site;

During construction, the Proposed Project would be required to comply with all applicable City grading permit regulations that require necessary measures, plans, and inspections to reduce sedimentation and erosion. Through compliance with all NPDES General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, Proposed Project construction would not result in substantial erosion or siltation on- or off-site.

Under the existing condition, an existing storm drain system collects flows from the project areas and conveys the flows to improved storm drain facilities on Washington Boulevard before being ultimately discharged into Marina Del Rey. The site is currently 95% impervious. and the on-site and off-site storm drain systems are fully hardened and improved and are not susceptible to erosion on-site or off-site.

Under the proposed condition, the site will remain 95% impervious, and the proposed on-site storm drain will not be susceptible to erosion. The existing off-site storm drain systems will continue to be utilized. Thus, the project will not result in any increase in erosion on or off-site, and impacts are considered less than significant.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Construction activities are temporary, and flow directions and runoff volumes during construction will be controlled. Through compliance with all NPDES General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, the Project would not

substantially alter the project site drainage patterns during construction in a manner that would result flooding on- or off-site.

During operation, the proposed project will not significantly alter the rate or amount of surface runoff that could impact flooding on-site or off-site. Under the proposed conditions, peak flow runoff will slightly decrease due to improved site design and a proposed storm drain system will collect runoff to minimize on-site flooding. Due to the slight decrease in proposed runoff conditions, impacts related to off- site flooding are considered less than significant.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

As discussed above, the project would implement an Erosion Control Plan that specifies BMPs and erosion control measures to be used during construction to manage runoff flows and prevent pollution. These BMPs would be designed to contain stormwater or construction watering on the Project Site such that runoff will not impact off-site drainage facilities or receiving water. Therefore, impacts during construction would be less than significant.

Implementation of the project will result in a decrease in proposed runoff, and the existing and proposed storm drain systems are adequately sized to accommodate flood flows. Increases in runoff water will not exceed the capacity of existing or planned stormwater drainage systems. Therefore, impacts during operation would be less than significant.

iv) impede or redirect flood flows?

The site is located in FEMA flood zone X, and therefore is located within an area of minimum flood hazard. In addition, the existing and proposed storm drain systems are adequately sized to accommodate flood flows. Further, implementation of the project will result in a small decrease in proposed runoff. As such, the project would not alter the existing drainage pattern of the Project Site in a manner that would impede or redirect flood flows, and impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project is not located in an area subject to flood hazard, tsunami or seiche. The project is not located adjacent to a major body of water and is over 1.5 miles from the Pacific Ocean. The project site is not in a hillside area and is not at risk of mudflow. Therefore, impacts related to release of pollutants due to project inundation are considered less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed above in the responses to (a) and (b) above, the project would implement BMPs to filter, treat, and reduce stormwater pollutants prior to discharge from the project site in accordance with applicable regulations. Non-stormwater runoff associated with typical operations of the Project Site would also be filtered by the BMPs provided on-site prior to discharging from the Project Site. Therefore, the Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

5. Conclusion

Based on the foregoing, the Proposed Project satisfies the fourth criterion for a Class 32 Exemption.

E. The Project Site can be adequately served by all required utilities and public services.

The Project Site is located in an urbanized area within an existing shopping center. The Proposed Project relocates the existing gas station. The infrastructure for the utilities required to serve the Proposed Project is already in place and serve the existing gas station. The nominal increase in demand for utilities would be offset by the decrease from demolition of the existing fueling facility and commercial buildings.

The Proposed Project has no residential uses and, like the existing fuel facility, will only employ one regular employee. Therefore, the Proposed Project can be adequately served by existing police and fire services, schools, parks, and libraries.

Therefore, the Proposed Project can be adequately served by all required utilities and public services and satisfies the fifth criterion for a Class 32 Exemption.

III. Exceptions to Categorical Exemptions

Section 15300.2 of the State CEQA Guidelines provides exceptions to the exemptions depending on the nature or location of a project, including the following:

1. The project and successive projects of the same type in the same place will result in cumulative impacts;

2. There are unusual circumstances creating the reasonable possibility of significant effects;

3. The project may result in damage to scenic resources, including, but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within an officially designated scenic highway;

4. The project is located on a site on any list compiled pursuant to Government code section 65962.5, as being affected by hazardous wastes or clean-up problems; or

5. The project may cause a substantial adverse change in the significance of an historical resource.

A. Cumulative Impacts

The Proposed Project and successive projects of the same type in the same place would not result in cumulative impacts.

1. Traffic

As noted above, development of the Proposed Project would not result in any significant traffic impacts. Moreover, the City would review any related project for consistency with transportation plans and VMT impacts. Each related project would be required to comply with applicable City design standards and therefore would not substantially increase hazards. Further, as the Proposed Project will maintain emergency access during construction and will result in a net reduction in vehicle trips, it would not result in a significant cumulative impact to emergency access.

2. Noise

Noise attenuates rapidly with distance and due to intervening barriers, such as buildings or landscaping. The City's Washington Boulevard Stormwater and Urban Runoff Project is the only related project in close enough proximity to the Project Site that, when combined with the Proposed Project, could potentially result in cumulative construction noise impacts. However, implementation of the Project Design Feature identified in the Noise Report will ensure that such cumulative impacts would be less than significant.

Vibration also attenuates rapidly with distance. The City's Washington Boulevard Stormwater and Urban Runoff Project is the only related project in close enough proximity to the Project Site that, when combined with the Proposed Project, could potentially result in cumulative construction vibration impacts. However, implementation of the Project Design Feature that avoids concurrent construction in proximity to sensitive receptors will ensure that such cumulative impacts would be less than significant.

Regarding mobile noise sources during operations, it generally requires a doubling of traffic volumes to result in a perceptible increase in traffic noise. As shown in the Traffic Analysis, the Proposed Project would result in a net reduction in trips and would therefore not result in a doubling of traffic volumes on any roadways. Accordingly, cumulative noise impacts from operational traffic would be less than significant.

3. Air Quality

Cumulative air quality impacts from construction and operation of the Proposed Project, based on SCAQMD guidelines, are analyzed in a manner similar to project-specific air quality impacts. The SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed utilizing the same significance criteria as those for project specific impacts. Therefore, according to the SCAQMD, individual development projects that generate construction or operational emissions that exceed the SCAQMD recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions.

Thus, as discussed above, because the construction-related and operational daily emissions associated with Proposed Project would not exceed the SCAQMD's recommended thresholds, these emissions associated with the Proposed Project would not be cumulatively considerable. Therefore, cumulative air quality impacts would be less than significant.

4. Water Quality

The Proposed Project would not result in any significant water quality impacts. Like the Proposed Project, any other projects in the vicinity would be required to implement stormwater BMPs pursuant to Water Quality Management Plans. Mandatory structural BMPs in accordance with the NPDES water quality program and LID requirements would result in a cumulative reduction of surface water runoff, as the development in the vicinity of the Project Site is limited to infill development and redevelopment of existing urbanized areas. Therefore, by means of regulatory compliance by the Proposed Project and other projects, cumulative water quality impacts would be less than significant.

5. Utilities and Public Services

As noted above, the Proposed Project is consistent with the General Plan, the Project Site is served by existing utilities infrastructure, and the Proposed Project is not expected to result in significant new demand for utilities or public services. Adequate capacity exists to serve the Proposed Project, and it would not result in any significant cumulative impacts associated with utilities or public services.

B. Unusual Circumstances

As noted in the analyses presented herein, there are no unusual circumstances that exist in connection with the Proposed Project or surrounding environmental conditions that have the potential to result in significant environmental impacts. The Project Site is located in an urbanized area of the City and is consistent with the existing physical arrangement of the properties within the vicinity of the Project Site. The zoning designation for the Project Site is Commercial Regional Retail, the General Plan land use designation for the Project Site is Regional Commercial. The Proposed Project is permitted under the zoning and General Plan.

The Proposed Project constitutes infill development within a portion of an existing commercial shopping center along a major commercial thoroughfare and in close proximity to significant transportation facilities. There are no features of the Proposed Project, such as its size or location, that distinguish it from others in the exempt class. The relocated fuel facility is generally consistent with other gas stations in the City and other Costco fuel facilities in the area, including the existing fuel facility on the Project Site.

Therefore, no unique or unusual circumstances exist with respect to the Proposed Project that would give rise to a reasonable possibility of a significant effect upon the environment.

C. Scenic Highways

The Project Site is located in an urbanized area and does not contain any scenic resources. The Project Site is not bordered by or within the viewshed of any designated scenic highway.[7] Further, there are no protected trees or unique geologic features on-site. The Proposed Project would not damage any scenic resources within an officially designated scenic highway.

D. Historical Resources

The existing fuel facility was constructed in 2002. Based upon information set forth in the Limited Phase II Environmental Site Assessment 13431 and 13455 Washington Boulevard Culver City Gasoline Station Relocation prepared by Kleinfelder, dated December 1, 2021 (Phase II ESA), included as Attachment 5, the two commercial buildings to be removed were also constructed in approximately 2002. These buildings are utilitarian in design. Accordingly, there are no historical resources on the Project Site.

The immediate vicinity of the Project Site is developed with a shopping center and other commercial uses. There are no historical resources located in the vicinity of the Project Site.

Therefore, the Proposed Project would not cause a substantial adverse change in the significance of an historical resource.

E. Hazardous Materials

Pursuant to Government Code Section 65962.5(a), the Department of Toxic Substances Control (DTSC) shall compile and update as appropriate, at least annually, a list of all hazardous waste facilities subject to corrective action (pursuant to Section 25187.5 of the Health and Safety Code), all land designated as hazardous waste property or border zone property (pursuant to Section 25220 of the Health and Safety Code), all information received by the DTSC on hazardous waste disposals on public land (pursuant to

[7] https://dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf; https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

Section 25242 of the Health and Safety Code), and all sites listed pursuant to Section 25356 of the Health and Safety Code.

Pursuant to Government Code Section 65962.5(b), the Department of Health Services (DHS) shall compile and update, at least annually, a list of all public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code.

Pursuant to Government Code Section 65962.5(c), the State Water Resources Control Board shall compile and update, at least annually, a list of all underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code, a list of all solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the DTSC pursuant to subdivision (e) of Section 13273 of the Water Code, and a list of all cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.

Pursuant to Government Code Section 65962.5(d), the local enforcement agency shall compile, at least annually, a list of all solid waste disposal facilities from which there is a known migration of hazardous waste. The California Integrated Waste Management Board shall compile the local lists into a statewide list, which shall be submitted to the Secretary for Environmental Protection and shall be available to any person who requests the information.

The Project Site and adjoining properties are not listed in the EnviroStor database, as confirmed in the Phase II ESA. In addition, the Project Site is not listed for cleanup, permitting, or investigation of any hazardous waste contamination on any of the lists published pursuant to Government Code Section 65962.5. Therefore, the Project Site is not located on a site that the DTSC and the Secretary for Environmental Protection have identified as being affected by hazardous wastes or clean-up problems.

Figures:

1 Project Site Map

Attachments:

1 Culver City Costco Fuel Station On-Site Relocation Transportation Study prepared by Kittelson & Associates, dated May 29, 2024.

2 Costco Fuel Station Relocation Project prepared by Acoustical Engineering Services, Inc., Inc., dated May 2024.

3 Costco Culver City Project Air Quality/Health Risk Technical Report prepared by Ramboll Americas Engineering Solutions, Inc., dated May 2024.

4 Preliminary Final Hydrology/MS4 Study Costco Culver City Gas Station Relocation for the Proposed Project, prepared by Fuscoe Engineering, Inc., dated September 29, 2022, revised May 31, 2024.

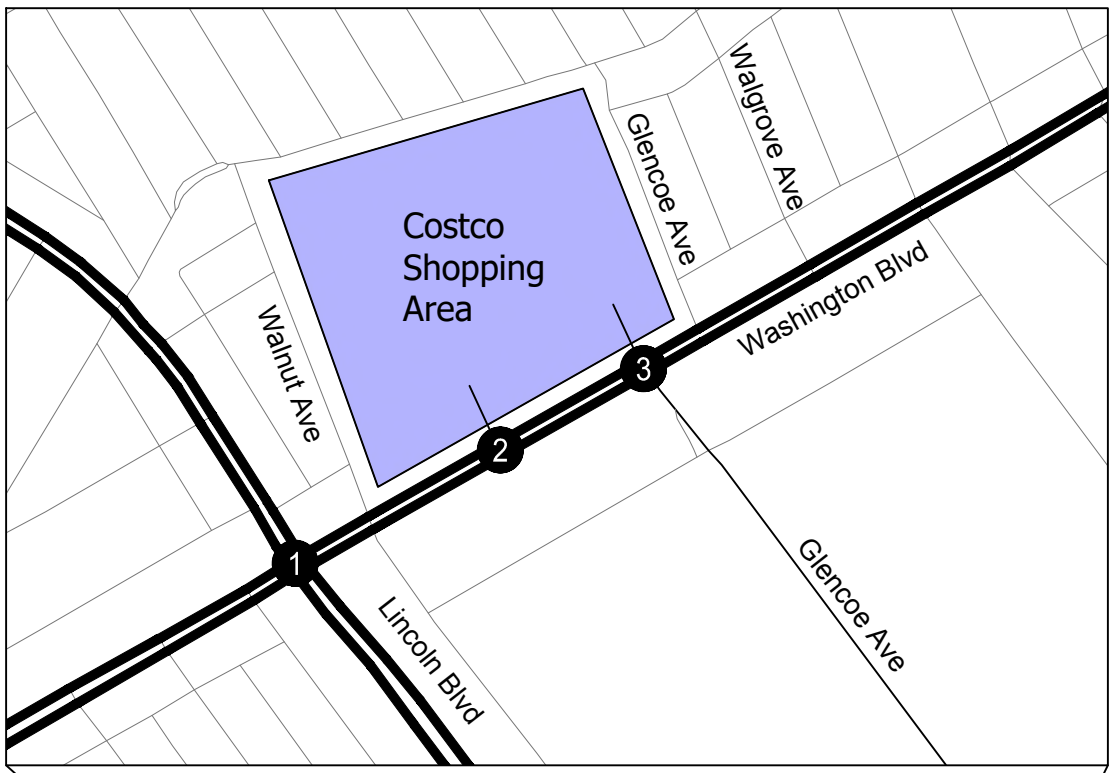
5 Limited Phase II Environmental Site Assessment 13431 and 13455 Washington Boulevard Culver City Gasoline Station Relocation prepared by Kleinfelder, dated December 1, 2021.

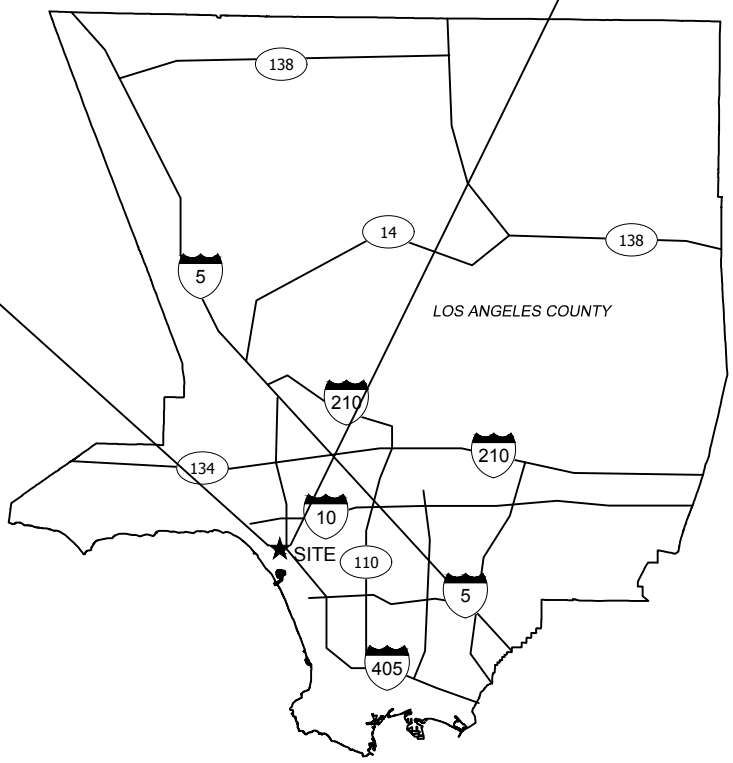
6 Protect Tustin Ranch v. City of Tustin, 70 Cal.App.5th 951 (2021)

Figure 1

Project Site Map

(Attached)





Project Location
Culver City, California

Figure
1

(##) - Study Intersections

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Attachment 1

Culver City Costco Fuel Station On-Site Relocation Transportation Study
prepared by Kittelson & Associates, dated May 29, 2024.

(Attached)

KITTELSON & ASSOCIATES

CULVER CITY COSTCO FUEL STATION ON-SITE RELOCATION TRANSPORTATION STUDY

13431-13463 WASHINGTON BOULEVARD, CULVER CITY

May 29, 2024

Inside front cover

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Costco Culver City Fuel Station On-Site Relocation Project Transportation Study

13431-13463 Washington Boulevard, City of Culver City

Prepared for:
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999 Lake Drive
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Project Number 24944

May 29, 2024

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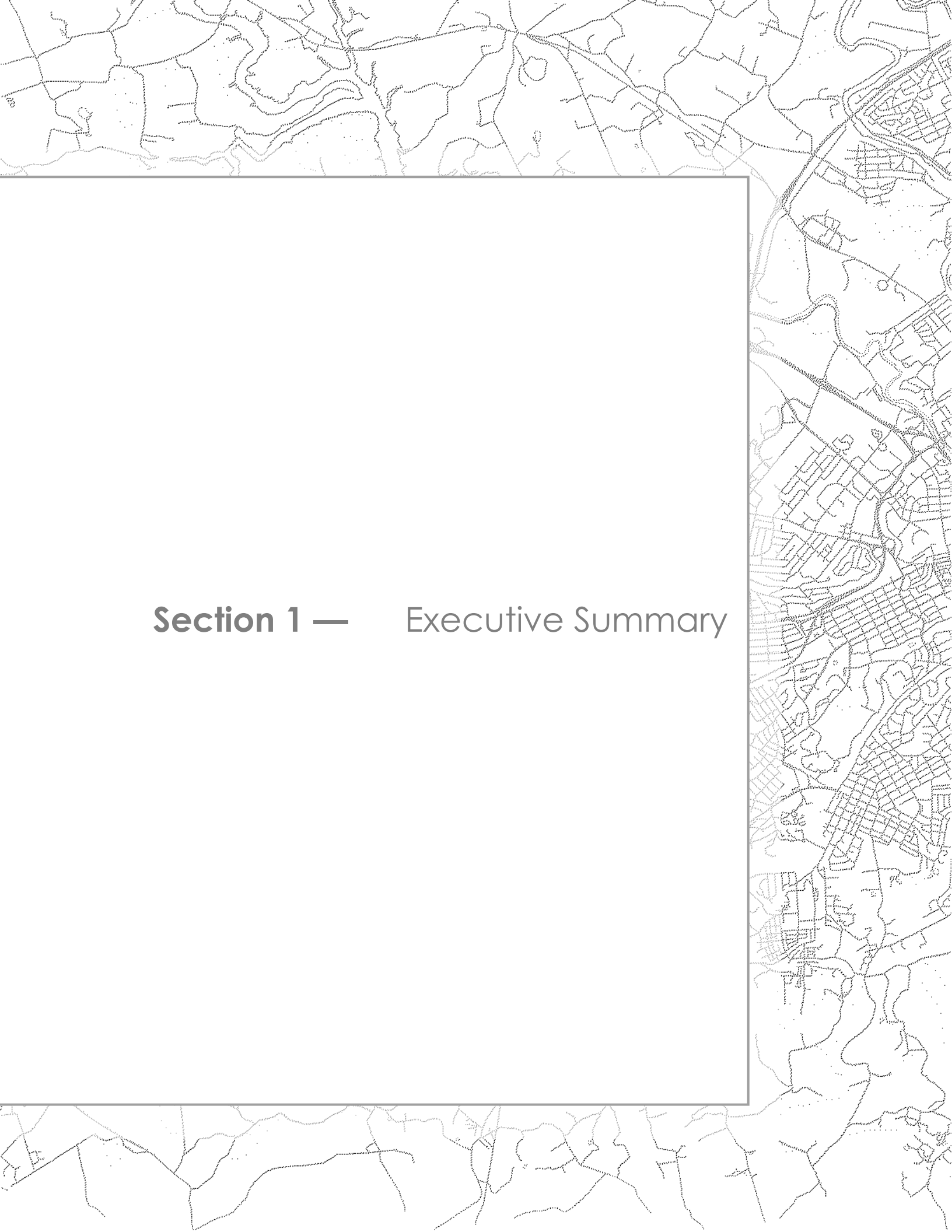


Section 1 — Executive Summary

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The Project proposes the relocation of an existing Costco Gasoline fuel station located within the Culver City Costco Warehouse shopping area, located at 13463 Washington Boulevard in Culver City, California. The property is currently developed with a Costco warehouse and a sixteen (16) vehicle fueling position Costco Gasoline fuel station located on the southeast corner of the property. In addition, there are several pad developments on the property including a fast-food restaurant and other retail uses. The project includes a new, approximately 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three (3) 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. In addition, temporary noise barriers will be provided along the project's western property line, northern property line, and the existing fueling facility's eastern property line; the power construction equipment will contain noise shielding and muffling devices, consistent with manufacturers' standards; and a portion of the project construction activities will not occur concurrently with the City's Washington Boulevard Stormwater and Urban Runoff Project, as further described in the Noise Study, prepared by Acoustical Engineering Services, Inc., dated February 2023.

The existing fueling facility will be razed and removed from the site and the existing currently unoccupied commercial buildings will be demolished. The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fueling facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state of the art facility to provide a more efficient fuel purchasing experience for Costco members.

As discussed above, the on-site relocation will move the gas station to the southwest corner of the site to provide better on-site circulation and fuel station queue management. The relocation will also expand the fuel station to thirty (30) vehicle fueling positions to better serve peak period demand and reduce peak period queuing, wait times, and idling. The new location is currently occupied by retail buildings and a coffee shop with a total area of 6,890 square feet, and a Starbucks Coffee with an area of 1,590 square feet. These buildings will be demolished and therefore existing permitted trips associated with those land uses will be eliminated. [1] The on-site relocation and expansion will improve site circulation and service provided to Costco members.

The project is anticipated to be constructed during the first half of 2023 and last for 6 months. The proposed fuel station will retain the same operating hours as the existing station, operating approximately from 5:30 AM to 9:30 PM Monday through Friday, from 6:00 AM. to 8:00 PM on Saturdays, and from 6:00 AM to 7:30 PM on Sundays.

The expansion and relocation of the Culver City Costco Gasoline fuel station (along with the removal of existing retail uses) will result in a reduction in net new trips to the site. The Project is estimated to approximately reduce 13 weekday PM peak hour net new trips (6 inbound, 7 outbound) and 14 Saturday midday peak hour net new trips (8 inbound/6 outbound). On a daily basis, the Project would result in 331 fewer trips during the weekdays. While Saturday daily estimates are not available, a comparison between the peak hour trips on weekdays and Saturdays suggest that the net daily trip reduction would also occur on Saturdays.

[1] Under applicable case law (*North County Advocates v. City of Carlsbad* (2015) 241 Cal. App. 4th 94), these uses are considered to be part of the CEQA baseline even though the buildings are currently unoccupied. Therefore, this analysis includes a trip credit for the removal of these uses from the Project site. Moreover, as the buildings were occupied when the historic traffic counts at area roadways were taken, not taking such a credit would overstate post-Project traffic conditions.

SCOPE OF THE ANALYSIS

Kittelson & Associates, Inc. (Kittelson) has prepared a transportation study for the Costco fuel station on-site relocation project ("Project") at the existing Costco development on Washington Boulevard in Culver City, California. This study was prepared in consultation with City of Culver City (City) staff and consistent with the Culver City *Transportation Study Criteria and Guidelines (*"Guidelines"*) (*dated June 8, 2020) as well as a Memorandum of Understanding (MOU).

The study evaluated potential project impacts in terms of vehicle miles traveled (VMT), provided an evaluation of potential operation impacts for auto, bicycle, and pedestrian modes, and provided an evaluation of potential impacts during project construction, as summarized below.

A post-occupancy traffic count analysis of the development will be provided by the applicant if required by the City of Culver City. The analysis would be used to confirm the findings in this transportation study and would verify that the project would not result in any additional traffic impacts that would require additional mitigation measures and/or conditions of approval on the project.

SUMMARY OF CEQA ANALYSIS

CONSISTENCY WITH PROGRAMS, PLANS, ORDINANCES, & POLICIES

This transportation analysis evaluated potential for the project to preclude the ability of Culver City to implement its goals and policies. A review of key policies was conducted including the City's General Plan Circulation Element, the City's Neighborhood Traffic Management Program, Short Range Transit Plan and the Bicycle and Pedestrian Action Plan, among others. It was concluded that the proposed Project would not conflict with or preclude the ability of Culver City to implement its programs, plans, ordinances, and policies related to the transportation system.

VMT IMPACT ANALYSIS

On June 8, 2020, the City of Culver City updated the Transportation Study Criteria and Guidelines, which includes methodologies and criteria to evaluate land use and transportation projects from a VMT standpoint. Regional serving retail projects should be evaluated to determine their effect on vehicle trip length and VMT.

The Project would result in a net decrease of 331 daily trips. The Project would be replacing trips from retail uses with trips to a gas station, which on average consist of shorter trip lengths compared to those of retail trips. In summary, as the Project would generate fewer daily trips and the trip lengths associated with the Project would be less, the Project would result in a net decrease in VMT and therefore not result in a significant impact.

POLICIES & GEOMETRIC DESIGN STANDARDS

The Project will not cause a substantial increase in on-street hazards due to geometric design or incompatible uses and therefore not result in a significant impact related to CEQA. The intersection queuing analysis concluded that the Project may result in increased queuing but would not result in new locations where the available storage would be exceeded at study intersections on public street approaches.

SUMMARY OF NON-CEQA OPERATIONAL AND CONSTRUCTION ANALYSES

INTERSECTION LOS AND DELAY

Table 1 summarizes the LOS and delay at the three study intersections during the weekday PM peak hours. With Project traffic under existing and background (project opening) year conditions, there is no degradation in LOS or major changes in delay at the study intersections. Therefore, the Project would not degrade intersection operations in terms of LOS or delay during the weekday PM peak hour.

Table 1 – Intersection LOS Summary Table, Weekday PM Conditions

ID	Intersection	Existing		Existing Plus Project		Background		Background Plus Project	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	62.7	**E**	62.7	**E**	67.5	**E**	67.7	**E**
2	West Access & Washington Boulevard	7.1	A	9.3	A	6.8	A	8.9	A
3	Glencoe Avenue & Washington Boulevard	41.8	D	41.9	D	48.6	D	50.8	D

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

Table 2 summarizes the LOS and delay at the three study intersections during the Saturday peak hours. With Project traffic under existing and background year conditions, the intersection of West Access & Washington Boulevard would change from LOS A to LOS B, which is considered acceptable in terms of operations. There is no degradation in LOS or minor changes in delay at the intersections of Lincoln Boulevard & Washington Boulevard, and Glencoe Avenue & Washington Boulevard. Therefore, the Project would not degrade intersection operations in terms of LOS and delay on Saturdays.

Table 2 – Intersection LOS Summary Table, Saturday Peak Hour Conditions

ID	Intersection	Existing		Existing Plus Project		Background		Background Plus Project	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	48.1	D	48.1	D	51.5	D	51.4	D
2	West Access & Washington Boulevard	9.3	A	11.3	B	8.9	A	11.0	B
3	Glencoe Avenue & Washington Boulevard	49.7	D	53.2	D	68.6	**E**	75.8	**E**

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

INTERSECTION QUEUES

The Project would increase the queue length and exceed the turn lane storage at the following locations on public streets:

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday – the 95th percentile queue at this intersection is currently exceeding the available storage at this location, in a condition where the queue extends to the adjacent eastbound through lane on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. The Project would increase the 95th percentile queue. Modifications to the signal timing would alleviate this queue but would result in an increase in the queue compared to no project conditions.

- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday - the 95th percentile queue at this intersection is currently exceeding the available storage at this location, in a condition where the queue extends to the adjacent westbound through lane on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. The Project would nominally increase the 95th percentile queue by less than one vehicle. Modifications to the signal timing would offset the queue increase.
  - Northbound left-turn lane; weekday PM and Saturday- the 95th percentile queue at this intersection is currently exceeding the available storage at this location. The Project would nominally modify the queue length by less than one vehicle at this location. The queue would be contained within the northbound approach of Glencoe Avenue and would not extend to the next driveway at Beach Avenue. This would not substantially affect circulation in the area, and no modifications are recommended to address this condition.

Project-related traffic would result in an increase in the queues at the eastbound left turn lane West access at Washington Boulevard, at a location where the queue already extends past the available storage. The project will be conditioned to either the installation of a battery backup and a Video Detection camera for the existing traffic signal, or payment of a $30,000 in-lieu fee.

NEIGHBORHOOD CUT-THROUGH TRAFFIC

The Project would not add new access driveways to the circulation network. All vehicular ingress and egress would continue to occur via Washington Boulevard. No access driveway will be constructed on Walnut Avenue. Walnut Avenue and Zanja Street already have traffic calming measures that restrict cut-thought traffic on those streets. Because the Project would result in a net decrease in traffic, and because site access would continue to occur primarily via the existing access driveways at Washington Boulevard, the Project would not add cut-through traffic to the nearby residential neighborhoods.

In addition, the Project would not add vehicle trips to the study area and therefore not exacerbate cut-through traffic through the neighborhood by causing additional congestion to the study area.

POTENTIAL IMPACTS TO NON-AUTO MODES

Pedestrian and Bicycle Circulation

The existing Costco site provides decorative paving at all on-site pedestrian walkways and courtyards. The gasoline station would not generate a substantial number of pedestrian traffic to/from the warehouse and other parts of the shopping area. The new parking lot area at the location where the existing gas station is located will continue to be connected with decorative paving at all on-site pedestrian walkways and courtyards.

The Project does not include any off-site work that would adversely impact off-site bicycle and sidewalks. In addition, the proposed gasoline station would not create a substantial increase in pedestrian and bicycle activity. As such, the Project would not impact off-site pedestrian and bicycle facilities and should not be required to provide any off-site bicycle and pedestrian improvements.

Bicycle Parking

Short-term bicycle parking is provided at the main Costco warehouse. The fuel facility is not required to provide parking stalls as it is an ancillary use to the main Costco warehouse, and no goods, other than fuel, are sold at the facility. In addition, the Project will remove approximately 29 parking stalls, and the California Green Building Code only requires new bicycle parking for any new parking provided. Based on the above information, the provision of additional short-term bicycle stalls should not be required for the fuel facility.

Transit

The Project does not include any off-site work and does not impact the existing bus stops along Washington Boulevard. In addition, the Project is not anticipated to generate a significant number of additional trips to the site. As such, improvement measures are not warranted.

CONSTRUCTION

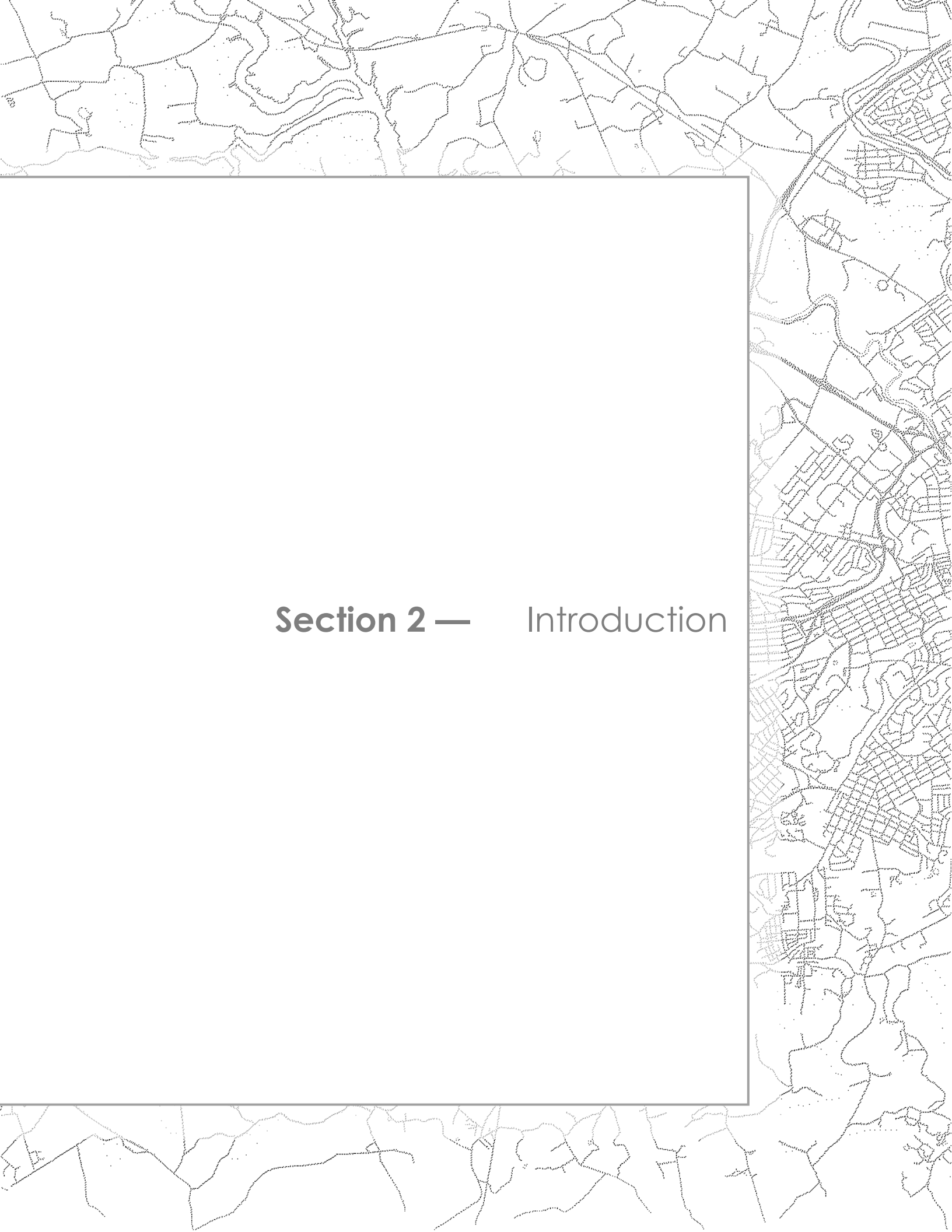
Construction of the Stormwater Project was scheduled to start in January 2022 and be completed in November 2022. However, the start of the project has been delayed. It is possible that the construction activities for both projects may overlap. As a project design feature of the Project, there would be no overlapping construction with the Washington Boulevard Stormwater close to certain nearby receptors, as described in Section 6.

During the Stormwater Project construction, the work zone traffic control plan outlines the closure of one lane of through eastbound traffic and the center median lane, as well as temporary removal of on-street parking along Washington Boulevard between the western Costco Wholesale driveway and Redwood Avenue. Furthermore, several pedestrian crosswalks will be closed during the project construction, but only across Washington Boulevard. Sidewalks along Washington Boulevard are to remain open and untouched by the project construction.

During the Stormwater Project construction, traffic in the vicinity of the Costco warehouse area could be affected by temporary lane closures, turn restrictions, potential alterations to bus stops, restrictions to local access driveways, and temporary loss of curbside parking. Traffic mitigation identified in the Washington Boulevard Diversion Traffic Management Plan, prepared by Albert Grover and Associates in December 2018, would include:

- Work zone traffic control and changeable message signs
- Facilitate flow on Washington Boulevard and alternative routes
- Intelligent project staging and work activities

To minimize congestion related to construction traffic, Costco will prepare a construction management plan in consultation with the City of Culver City, which will establish truck haul routes, access driveways, staging, parking and loading areas and traffic controls such as signage, pavement markings, cones, barricades, flaggers and other elements. The construction management plan will be submitted to the City and be approved prior to obtaining construction permits.



Section 2 — Introduction

INTRODUCTION

PURPOSE OF TRANSPORTATION STUDY & STUDY OBJECTIVES

Kittelson & Associates, Inc. (Kittelson) has prepared a transportation study for the Costco fuel station on-site relocation project ("Project") at the existing Costco development on Washington Boulevard in Culver City, California. This study was prepared in consultation with City of Culver City (City) staff and consistent with the Culver City *Transportation Study Criteria and Guidelines (*"Guidelines"*)* (dated July 13, 2020) as well as a Memorandum of Understanding (MOU) (dated February 5, 2021) agreed to by both the City and Los Angeles Department of Transportation (LADOT). The scope for this transportation analysis was developed in consultation with City of Culver City and City of Los Angeles staff. A copy of the Memorandum of Understanding is included in Appendix A.

This study evaluates the impacts to the transportation system associated with the Project and involves:

- Assessment of the project site access, internal circulation, off-site traffic operations, parking, potential conflicts with pedestrian and bicyclists, and impacts to transit facilities;
- Review of potential inconsistencies with existing City programs, plans, ordinances, and policies;
- Assessment of the Project's Vehicle Miles Traveled (VMT) impact compared to the City's adopted thresholds;
- Assessment of impacts and mitigations related to geometric design and emergency access; and
- Potential transportation impacts during construction.

PROJECT DESCRIPTION

The Project proposes the relocation of an existing fuel station located within the Culver City Costco Warehouse shopping area, located at 13463 Washington Boulevard in Culver City, California. The property is currently developed with a Costco warehouse and a sixteen (16) vehicle fueling position Costco Gasoline fuel station located on the southeast corner of the property. In addition, there are several pad developments on the property including a fast-food restaurant and other retail uses.

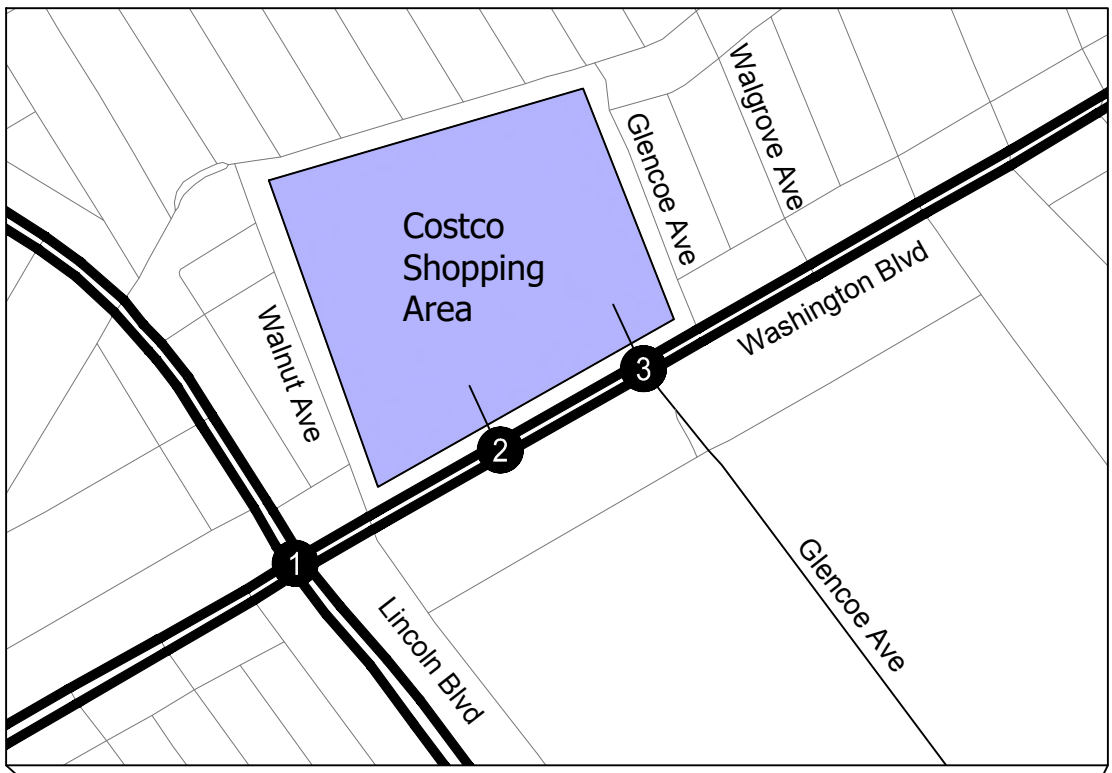
The project includes a new, approximately 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three (3) 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. In addition, temporary noise barriers will be provided along the project's western property line, northern property line, and the existing fueling facility's eastern property line; the power construction equipment will contain noise shielding and muffling devices, consistent with manufacturers' standards; and a portion of the project construction activities will not occur concurrently with the City's Washington Boulevard Stormwater and Urban Runoff Project, as further described in the Noise Study, prepared by Acoustical Engineering Services, Inc., dated February 2023.

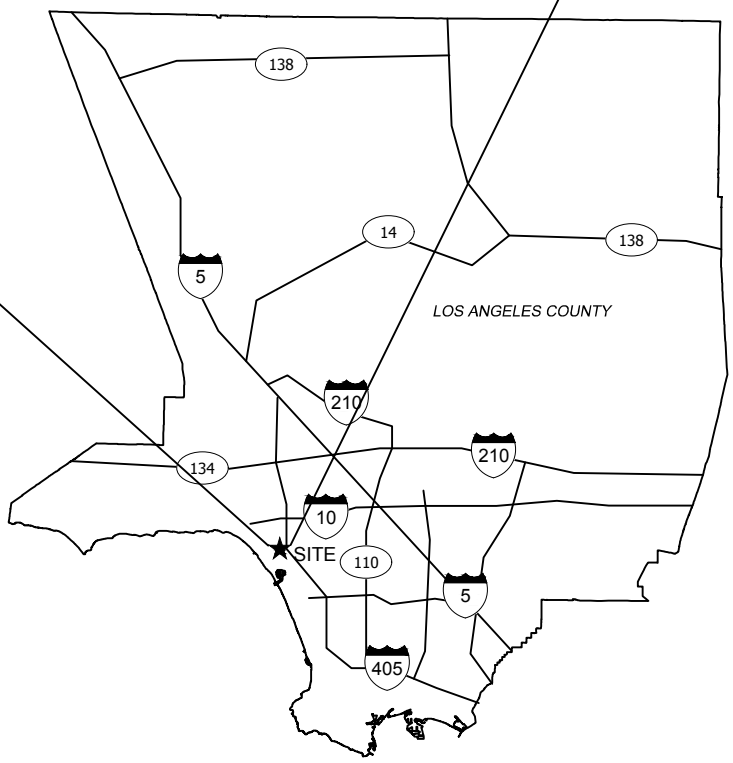
The existing fueling facility will be razed and removed from the site and the existing commercial buildings will be demolished. The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fueling facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state of the art facility to provide a more efficient fuel purchasing experience for Costco members.

The on-site relocation will move the gas station to the southwest corner of the site to provide better on-site circulation and fuel station queue management. The relocation will also expand the fuel station to thirty (30) vehicle fueling positions to better serve peak period demand and reduce peak period queuing, wait

times, and idling. The new location is currently occupied by commercial buildings with a combined total gross floor area of 8,480 square feet. The buildings previously housed a Verizon mobile phone store, a Subway sandwich shop, and a GNC shop with a total gross floor area of 6,890 square feet, and a Starbucks Coffee with a gross floor area of 1,590 square feet. These buildings will be demolished and therefore eliminate existing permitted trips associated with those land uses. The existing fuel station will also be demolished and converted into additional parking for the site. The on-site relocation and expansion will improve site circulation and service provided to Costco members. The project is anticipated to be constructed during the first half of 2023 and last for 6 months. The proposed fuel station will retain the same operating hours as the existing station, operating approximately from 5:30 AM to 9:30 PM Monday through Friday, from 6:00 AM. to 8:00 PM on Saturdays, and from 6:00 AM to 7:30 PM on Sundays.

Figure 1 shows the Costco shopping area location, and Figure 2 depicts the Costco shopping area and project site plan.





Project Location
Culver City, California

Figure
1

(##) - Study Intersections

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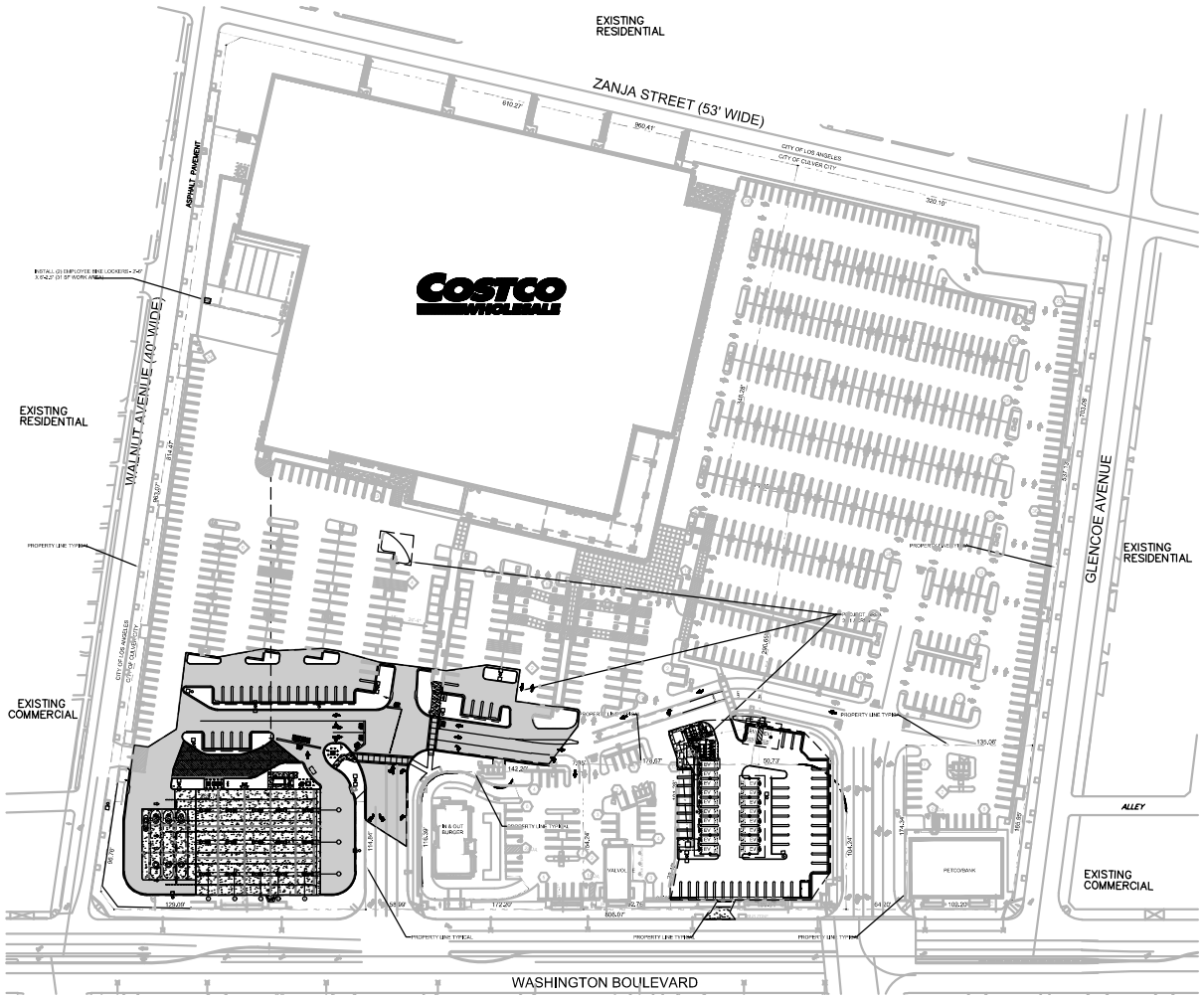
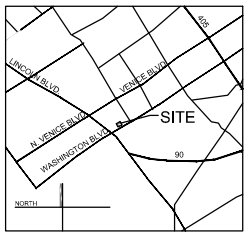


VICINITY MAP



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1" = 50'-0"

COSTCO WHOLESALE
CULVER CITY, CA
#479

13463 WASHINGTON BLVD.
CULVER CITY, CA 90292

94-0630-37
FEBRUARY 7, 2024

CONCEPT
SITE PLAN
OVERLAY

DD10-19

COSTCO WHOLESALE CONCEPT SITE PLAN OVERLAY

CULVER CITY, CALIFORNIA FEBRUARY 7, 2024

Proposed Site Plan
Culver City, California

Figure
2

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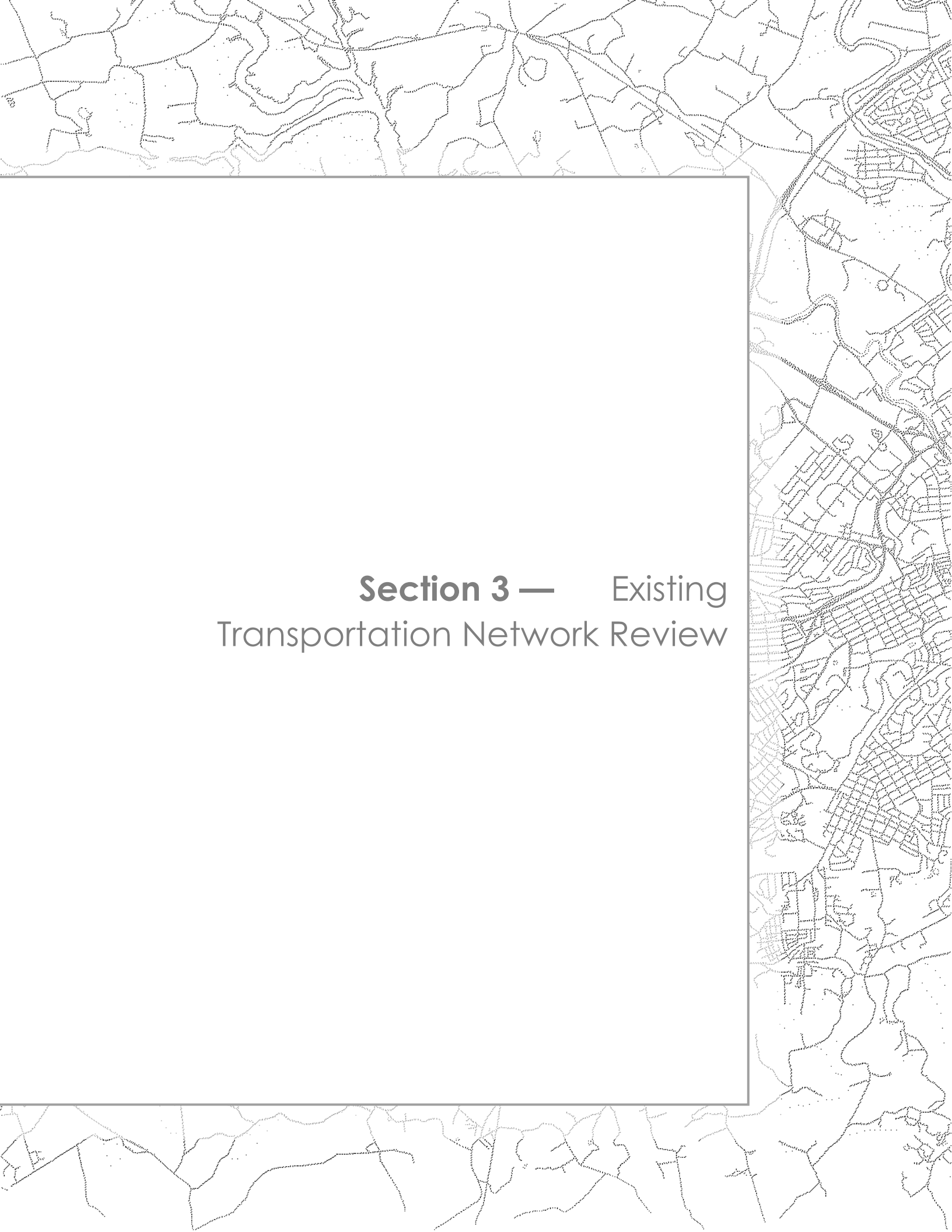
KITTELSON & ASSOCIATES



Section 3 — Existing Transportation Network Review

EXISTING TRANSPORTATION NETWORK REVIEW

ROADWAY NETWORK

ARTERIALS

Washington Boulevard is a major east-west arterial that runs from Venice Beach, through Downtown Los Angeles, east to Santa Fe Springs Road in Whittier where it merges with Whittier Boulevard. Within the vicinity of the Project, Washington Boulevard has a speed limit of 35 miles per hour and has two travel lanes in each direction plus turn lanes at certain intersections. Metered on-street parking is generally provided on both sides of the street, which mainly abuts commercial land uses. Shared lane markings are present near the Project site, and bicycle lanes are present west of Lincoln Boulevard and east of Redwood Avenue. The main access points for the Project site are from Washington Boulevard.

Lincoln Boulevard is a major north-south arterial that runs from Sepulveda Boulevard near Los Angeles International Airport to San Vicente Boulevard in Santa Monica. Lincoln Boulevard runs just west of the Project site. Within the vicinity of the Project, Lincoln Boulevard has a speed limit of 40 miles per hour and has two to three travel lanes in each direction (two lanes north of Washington Boulevard and three lanes south of Washington Boulevard). Bicycle facilities are not present. Free on-street parking is available on both sides of the street:

- South of Washington Boulevard: two-hour parking (7 AM to 6 PM on east side; 9 AM to 4 PM on west side)
- North of Washington Boulevard: one-hour parking (varies between 9 AM to 4 PM and 8 AM to 6 PM)

Venice Boulevard is a major east-west arterial that runs from Venice Beach to Main Street in Downtown Los Angeles, where it becomes 16th Street. Within the vicinity of the Project, Venice Boulevard has a speed limit of 35 miles per hour and three travel lanes in each direction, with a raised center median. Bicycle lanes are present on both sides of the street.

COLLECTORS

Zanja Street is an east-west collector roadway that runs just north of the Project site. The roadway serves mostly residential land uses and allows free on-street parking (with some restrictions). Through movements are restricted for eastbound vehicles at Walnut Avenue – vehicles must turn right at the all-way stop-controlled intersection.

Glencoe Avenue is a north-south collector roadway that runs just east of the Project site. The roadway serves mostly residential land uses and allows free on-street parking (with some restrictions).

LOCAL ROADS

Walnut Avenue is a local north-south roadway that runs just west of the Project site. Apart from truck access to the Project site, the roadway primarily serves residential land uses. Through movements are restricted for northbound vehicles at Elm Street (vehicles must turn left) and for southbound vehicles at Zanja Street (vehicles must turn right; northbound vehicles are restricted from turning right).

Walgrove Avenue is a local north-south roadway that runs east of the Project site. Two-hour on-street parking is available on both sides of the street.

EXISTING TRANSIT SERVICE

Transit service is provided by LA Metro, Culver CityBus, and Santa Monica Big Blue Bus near the Project site, mainly along Venice Boulevard, Washington Boulevard, and Lincoln Boulevard. Table 3 presents the transit routes that serve the Project area.

Table 3 – Existing Transit Service

Agency	Transit Line	Description
LA Metro	Rapid Line 733	Rapid line offering service between Santa Monica and Downtown Los Angeles, primarily along Venice Boulevard
	Local Line 33	Local line offering service between Santa Monica and Downtown Los Angeles, primarily along Venice Boulevard
Culver CityBus	Line 1	East-west line on Washington Boulevard/Fairfax Avenue from Venice Beach to the West Los Angeles Transit Center. Key route connecting Downtown Culver City and Venice Beach to the Metro E Line Light Rail Station
	Line 2	Weekday community circulator that connects Washington Boulevard and Lincoln Boulevard with the Westfield Culver City Mall and Corporate Pointe, providing access to LA Metro lines and Santa Monica's Big Blue Bus lines
Santa Monica Big Blue Bus	Route 3	Runs mainly on Lincoln Boulevard, from LAX to Downtown Santa Monica

Source: Kittelson & Associates, Inc. 2021
Note: Table reflects transit service as of February 1, 2021

Several bus stops are located near the Project site, including one serving Culver Citybus Lines 1 and 2 along the Project frontage on Washington Boulevard. The following bus stops are located within the vicinity of the Project site.

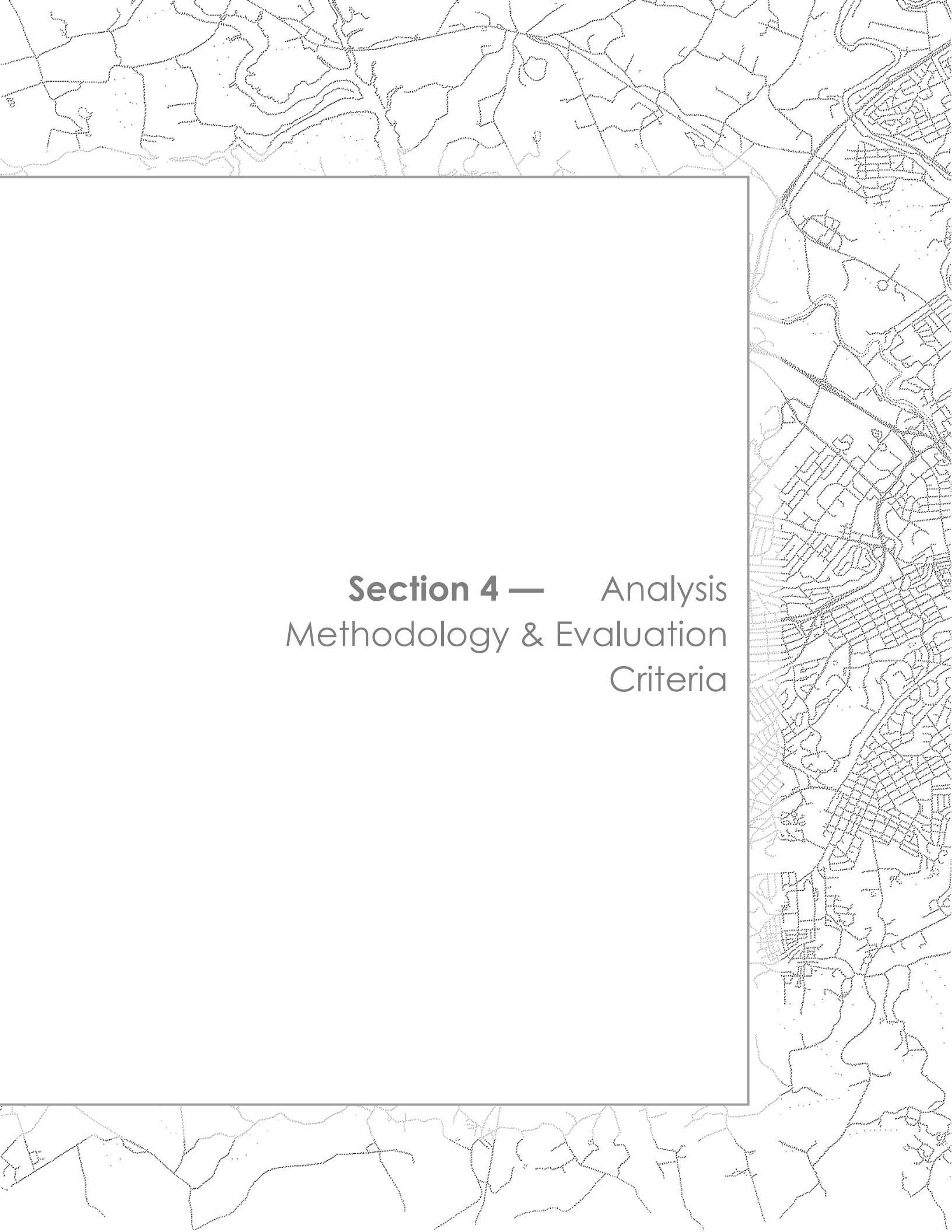
- LA Metro
  - Venice Boulevard/Lincoln Boulevard – Eastbound and Westbound (733 and 33)
  - Venice Boulevard/Walgrove Boulevard – Eastbound and Westbound (733 and 33)
  - Venice Boulevard/Glyndon Avenue – Eastbound and Westbound (33 only)
- Culver CityBus Line 1
  - Washington Boulevard/Lincoln Boulevard – Eastbound and Westbound
  - Washington Boulevard/Glencoe Avenue (near Vitamin Shoppe) – Eastbound and Westbound
  - Washington Boulevard/Redwood Avenue – Eastbound and Westbound
- Culver CityBus Line 2
  - Washington Boulevard/Redwood Avenue (near Taco Bell) – Westbound
  - Washington Boulevard/Glencoe Avenue – Westbound
  - Washington Boulevard/Lincoln Boulevard – Westbound
  - Lincoln Boulevard/Zanja Street – Westbound
  - Lincoln Boulevard/Venice Boulevard – Westbound
- Santa Monica Big Blue Bus
  - Lincoln Boulevard/Venice Boulevard – Northbound and Southbound

PEDESTRIAN & BICYCLE FACILITIES

The following bicycle facilities are present near the Project site:

- Bicycle Lanes – Class II
    - Washington Boulevard, west of Lincoln Boulevard
    - Washington Boulevard, east of Redwood Avenue
    - Venice Boulevard, entire length near Project
- Bicycle Shared Lanes (Route) – Class III
    - Washington Boulevard, between Lincoln Boulevard and Redwood Avenue

The abutting streets to the site including Walnut Avenue, Glencoe Avenue and Walgrove Avenue, contain sidewalks on both sides. There are no bikeways on connecting streets to the site. In the vicinity of the Project site, both sides of Washington Boulevard include sidewalks. The intersection of Glencoe Avenue at Washington Boulevard has crosswalks and pedestrian signal heads on the northern, southern, and eastern legs. The intersection at the west driveway and Washington Boulevard has crosswalks and pedestrian signal heads at the northern and eastern legs.



Section 4 — Analysis Methodology & Evaluation Criteria

ANALYSIS METHODOLOGY & EVALUATION CRITERIA

This section describes the methodology and significance criteria used for the California Environmental Quality Act (CEQA) transportation analysis, and the methodology used to evaluate the existing and future non-CEQA traffic operating conditions of the Project study area.

CEQA TRANSPORTATION ANALYSIS

METHODOLOGY/CEQA CHECKLIST & SIGNIFICANCE CRITERIA

According to the City of Culver City's Traffic Impact Study (TIS) Guidelines, CEQA-related potential impacts would occur if a land development project would:

- *Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

The proposed Project will be qualitatively evaluated to determine if it is expected to conflict with a relevant programs, plans, ordinances, and policies related to the circulation system. For the purpose of this analysis, the Project could result in a significant impact if it results in a conflict with any of the programs, plans, ordinances, and policies listed in Section 5 under the CEQA Transportation Analysis discussion. A conflict could occur if the proposed Project would preclude the ability of Culver City to implement its goals or policies.

- *Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)(1)?*

Regional serving retail projects should be evaluated to determine their effect on vehicle trip length and VMT. It is accepted that regional serving retail may be responsible for substituting longer trips for short ones. The applicable metric is the total VMT generated by a retail project. The threshold of significance for retail projects, as discussed below, if any net positive change in citywide VMT.

A project has a significant impact related to VMT if it results in VMT greater than the following thresholds:

  - Residential Use – Daily home-based daily VMT/capita – 15 percent below existing levels
  - Work Use – Daily home-based-work VMT/employee – 15 percent below existing levels
  - Regional Retail – Total VMT – Any net positive change in citywide VMT

For the purpose of this analysis, the Project would result in a potentially significant impact if it would result in a net positive change in citywide VMT.

- *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Any project that causes a substantial increase in on-street hazards due to geometric design will potentially result in a significant impact. The method for determining geometric design impact involves examining the existing interactions on roadways around the project site between vehicles to vehicles, vehicles to bikes, and vehicles to pedestrians, and determining how those interactions may change with the proposed project.

NON-CEQA TRAFFIC OPERATIONS ANALYSIS

STUDY INTERSECTIONS

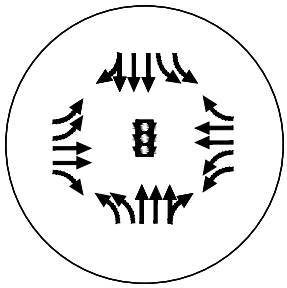
Traffic operations and queue lengths for the following signalized intersections were analyzed using methodologies from the *Highway Capacity Manual* (HCM), 6th Edition (Transportation Research Board, Washington, D.C., 2016). The study intersections were selected based on estimated trip distribution patterns and in consultation with the City. The following delay scenarios were analyzed:

- Existing
- Existing Plus Project
- Background Base
- Background Plus Project
- Background Plus Project with Improvements

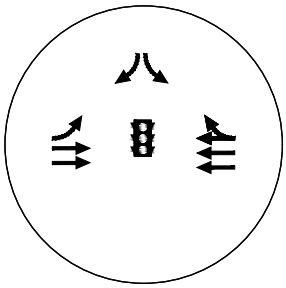
Background base corresponds to the project opening year condition in 2023 without project. Figure 3 shows the location of these intersections and the existing lane configurations and traffic control devices. All study intersections are signalized. The following are the study intersections and their jurisdictions:

- Washington Boulevard & Lincoln Boulevard (Los Angeles)
- Washington Boulevard & Project Driveway – West Access (Culver City)
- Washington Boulevard & Glencoe Avenue – East Access (Culver City)

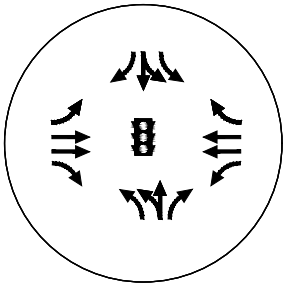
1 Washington Boulevard & Lincoln Boulevard



2 Washington Boulevard & Project Driveway



3 Washington Boulevard & Glencoe Avenue



- EXISTING TRAFFIC SIGNAL

Study Intersections
Existing Lane Configurations & Traffic Control Devices
Culver City, California

Figure 3

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METHODOLOGY

Intersection Level of Service Analysis

"Level of service" describes the operating conditions experienced by users of a facility. Level of service (LOS) is a qualitative measure of the effect of several factors, including speed, travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated "A" through "F," from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity while LOS F represents over capacity or forced flow conditions. In general, LOS D or better is considered acceptable while LOS E and LOS F are not. These conditions are generally described in Table 4.

All intersection level-of-service evaluations used the peak 15-minute flow rate during the weekday PM and Saturday peak hours. The peak hours were identified as the worse four consecutive 15-minute periods between 4 and 6 PM on weekdays, and between 11 AM and 1 PM on Saturdays. These represent the critical time periods for evaluation based on peak demand on the surrounding transportation system and the peak demand at the Costco fuel station. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. During all other periods, the transportation system likely will operate under conditions better than the conditions described in this report.

Table 4 – General Level of Service Definitions

LOS	Description
A	**Free Flow or Insignificant Delays**: Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	**Stable Operation or Minimal Delays**: The ability to maneuver within the traffic stream is only slightly restricted, and control delay at signalized intersections are not significant.
C	**Stable Operation or Acceptable Delays**: The ability to maneuver and change lanes is somewhat restricted, and average travel speeds may be about 5 percent of the free flow speed.
D	**Approaching Unstable or Tolerable Delays**: Small increases in flow may cause substantial increases in delay and decreases in travel speed.
E	**Unstable Operation or Significant Delays:** Significant delays may occur, and average travel speeds may be 33 percent or less of the free flow speed.
F	**Forced Flow or Excessive Delays**: Congestion, high delays, and extensive queuing occur at critical signalized intersections with urban street flow at extremely low speeds.

Source: *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2016

Intersection analysis was conducted using the operational methodology outlined in the HCM at all intersections, as operationalized by the Synchro version 10 software tool. The HCM procedure calculates a weighted average stop delay in seconds per vehicle at an intersection and assigns a level of service designation based on the delay. Table 5 presents the relationship of average delay to level of service.

Table 5 – Signalized Intersection Level of Service Definitions

Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions
≤10.0	A	LOS A represents free-flow travel with excellent levels of comfort and convenience and the freedom to maneuver.
>10.0 and ≤20.0	B	LOS B has stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
>20.0 and ≤35.0	C	LOS C has stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
>35.0 and ≤55.0	D	LOS D represents high-density, but stable flow. Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.
>55.0 and ≤80.0	E	LOS E represents operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
>80.0	F	LOS F is used to define forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

Source: Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2016

Intersection Queuing Analysis

Intersection queuing analysis was conducted for the study intersections. Expected intersection queues and how they compare to intersection geometry and available queue storage influence traffic operations. The average and 95th percentile queues, as reported by Synchro 10 HCM methodology, were used to assess queuing at all study intersections. The queue storage was estimated based on the striped queue storage shown in Google Earth and field verification.

INTERSECTION ANALYSES EVALUATION CRITERIA

Intersection performance measures reported in this study include LOS and queuing. Transportation system operations were compared to applicable evaluation criteria for the City of Culver City and the City of Los Angeles. The sections below summarize each of the respective agency standards and evaluation criteria.

Culver City Intersection Delay and Queuing Evaluation Criteria

The study area includes study two intersections (#2 and #3) in Culver City, where the following criteria applies. Queuing conditions would be considered substantial if trips generated by the Project cause the queue lengths at nearby intersections to exceed the available capacity. This would apply for the Culver City study intersections.

The driveway LOS and queuing analysis should address the following questions:

- Would the project's driveways on arterial highways be limited to improve the pedestrian and bicycle environment?
- Would the location of project driveways relative to side streets or other driveways adversely affect left-turn queuing?
- Would the location of project driveways or sidewalls of structures affect motorists' visibility of vehicles, pedestrians, or bicyclists?

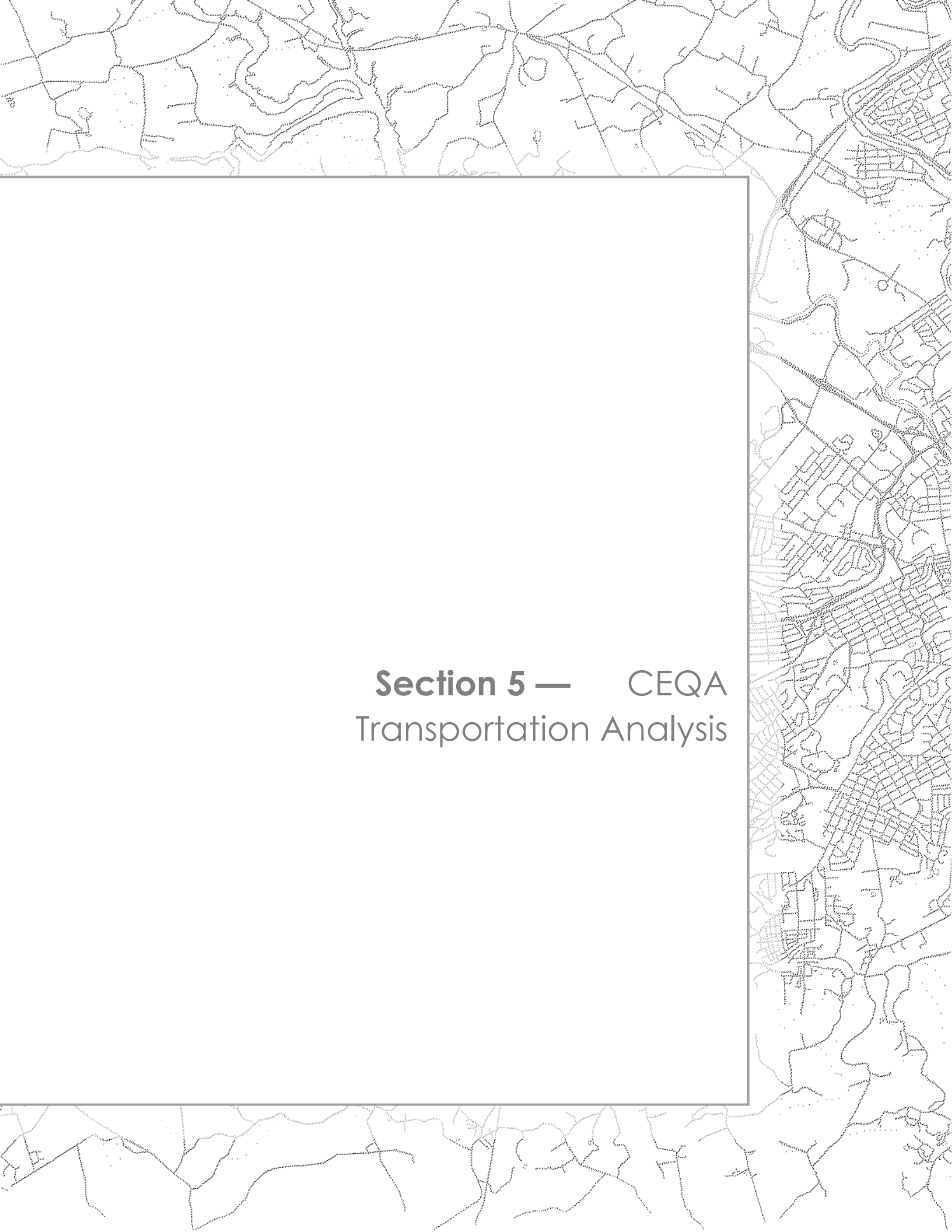
Los Angeles Intersection Delay and Queuing Evaluation Criteria

The study area includes intersections (#1) in Los Angeles, where the following criteria applies. For land use and transportation projects, the City of Los Angeles Transportation Assessment Guidelines calls for a quantitative evaluation of the project's expected access and circulation operations. According to the guidelines, project access is considered constrained if the project's traffic would contribute to unacceptable queuing on an Avenue or Boulevard (as designated in the City of Los Angeles Mobility Plan 2035) at project driveway(s) or would cause or substantially extend queuing at nearby signalized intersections. Unacceptable or extended queuing may be defined as follows:

- Spill over from turn pockets into through lane
- Block cross streets or alleys
- Contribute to "gridlock" congestion. For the purposes of this section, "gridlock" is defined as the condition in which traffic queues between closely spaced intersections impedes the flow of traffic through upstream intersections.

POST-OCCUPANCY TRAFFIC ANALYSIS

A post-occupancy traffic count analysis of the development will be provided by the applicant if required by the City of Culver City. The analysis would be used to confirm the findings in this transportation study and would verify that the project would not result in any additional traffic impacts that would require additional mitigation measures and/or conditions of approval on the project. The study will be prepared approximately six months to a year after project construction or at a time where traffic patterns are no longer impacted by COVID-19 conditions.



Section 5 — CEQA Transportation Analysis

CEQA TRANSPORTATION ANALYSIS

The following provides an evaluation of the Project's (1) potential conflicts with City's programs, plans, ordinances, and policies, (2) impacts in terms of VMT, and (3) potential geometric design hazards.

PROGRAMS, PLANS, ORDINANCES, AND POLICIES

The City has many programs, plans, ordinances, and policies related to the transportation system in Culver City. The following discusses the primary programs, plans, ordinances, and policies related to the Project and the study area:

TRAFFIC CODE, CHAPTER 7.05: MOTOR VEHICLE AIR QUALITY MANAGEMENT

Chapter 7.05 of the Culver City Municipal Code outlines the requirements for new developments regarding transportation demand and trip reduction measures, maintenance, and violations and resulting penalties. Per Section 7.05.15, the requirements in this chapter are applicable to projects that result in a net increase of twenty-five thousand (25,000) or more gross square feet of floor area. The proposed Project does not meet this threshold and therefore is not required to meet the development standards and trip reduction measures provided in the code.

CITY OF CULVER CITY GENERAL PLAN CIRCULATION ELEMENT

The currently adopted Circulating Element (1994) includes several goals and policies related to the Project area, such as improving traffic flow, expanding public transit service and ridership, providing convenient and pleasant pedestrian access, and minimizing traffic hazards and accidents. As demonstrated in this study, the Project would generate a net reduction in trips and would not degrade intersection operations in terms of LOS and delay on Saturdays. Also, the Project would not add new access driveways to the circulation network; all vehicular ingress and egress would continue to occur via Washington Boulevard. No substantial hazards related to design have been identified. Finally, the Project would not include any off-site work and would not impact off-site bicycle and sidewalks; therefore, the Project would not result in significant impacts to off-site pedestrian and bicycle facilities. In summary, the Project would not conflict with the goals and policies in the General Plan Circulation Element.

CITY OF CULVER CITY GENERAL PLAN LAND USE ELEMENT

The currently adopted Land Use Element (1996) is intended to guide land use and development with Culver City by designating the general distribution, intensity, and development policies regarding various land uses. The land use map designates the Project location as a "Regional Center", which allows large-scale commercial uses that serve regional residential and business communities. Policy 24.C specifically calls for development of this Project site as a regional serving commercial center. The Project does not conflict with policies or goals stated in the Land Use Element or propose a change in land use or function.

NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

This analysis evaluates the potential for Project traffic that can adversely affect the character and function of local streets in the vicinity of the Project site cut-through trips. Cut-through trips are defined as those which feature travel along local streets (e.g., Walnut Avenue, Glyndon Avenue, Louella Avenue, Glencoe Avenue, and Zanja Street) with residential land-use frontage, as an alternative to traveling through major streets (e.g., Washington Boulevard and Lincoln Boulevard) to access a destination that is not within the neighborhood within which the local street is located. Effects on residential streets near the Project site are determined[1] based on the following analysis:

- Assess the potential for cut-through traffic generation and preventive measures such as traffic calming subject to community input
- Assess the potential for neighborhood parking intrusion and preventive measures

The City of Culver City Transportation Impact Guidelines sets criteria to determine if a project creates significant conditions on a local residential street. The thresholds are shown in Table 6 below.

Table 6 – Culver City Related Projects

Projected ADT With Project	Significant Project-Related Increase in ADT Volume
999 or Less	120 or more
1,000 to 1,999	12 percent or more of final ADT
2,000 to 2,999	10 percent or more of final ADT
3,000 or More	8 percent or more of final ADT

Source: City of Culver City Transportation Impact Guidelines

The Project would not add new access driveways to the circulation network. All vehicular ingress and egress would continue to occur via Washington Boulevard. The project will retain the existing emergency access driveway on Walnut Avenue. This driveway is gated and not available for customer and employee use. No new access driveways would be accessible to customers and employees through nearby local streets. Walnut Avenue and Zanja Street already have traffic calming measures that restrict cut-through traffic on those streets. Because the Project would result in a net decrease in traffic, and because site access would continue to occur primarily via the existing access driveways at Washington Boulevard, the Project would not add cut-through traffic to the nearby residential neighborhoods.

Sometimes cut-through traffic can be exacerbated by development projects that add vehicle trips to congested arterial street segments. However, the Project would not add vehicle trips to the study area or cause any intersection levels of service to degrade to unacceptable levels and therefore would not exacerbate cut-through traffic by causing additional congestion to the study area.

GATEWAY NEIGHBORHOOD DESIGN GUIDELINES

The Project does not fall within the Gateway Neighborhood area and the Gateway Neighborhood Design Guidelines are therefore not applicable.

GATEWAY ADJACENT NEIGHBORHOOD DESIGN GUIDELINES

The Project does not fall within the Gateway Adjacent Neighborhood area and the Gateway Adjacent Neighborhood Design Guidelines are therefore not applicable.

[1] Per City's Transportation Impact Guidelines.

RESIDENTIAL PARKWAY GUIDELINES

The Project is not located along a Residential Parkway and the Residential Parkway Guidelines are therefore not applicable.

UPPER CULVER CREST HILLSIDE DESIGN STANDARDS

The Project does not fall within the Upper Culver Crest area and the Upper Culver Crest Hillside Design Standards are therefore not applicable.

SHORT RANGE TRANSIT PLAN

The Project does not include any off-site work and does not impact the existing bus stops along Washington Boulevard. In addition, the Project is not anticipated to generate additional transit trips to the site, as it would consist of a fuel station.

Because the Project would not generate new transit trips and would not affect transit service, placement of bus stops or bus lanes, the Project would not conflict or impact transit service or conflict with Culver City's transit planning efforts.

BICYCLE AND PEDESTRIAN ACTION PLAN

The new parking lot area where the existing gas station is located will continue to be connected with decorative paving at all on-site pedestrian walkways and courtyards.

Culver City's Bicycle and Pedestrian Action Plan supersedes the 2010 *Bicycle and Pedestrian Master Plan* and sets an overall vision and actions to establish walking and cycling as viable modes of travel for all trip types. The plan recommends the following active transportation improvements near the Project site.

- Class II bicycle lanes on Washington Boulevard, between Lincoln Boulevard to Zanja Street
- Improved pedestrian crossings
    - Washington Boulevard/Glencoe Avenue – Restripe existing crosswalks as continental (across Glencoe and driveway)
    - Washington Boulevard/Beethoven Street – Restripe existing crosswalks

The following provides a review of the internal pedestrian circulation and the site's connectivity with Washington Boulevard, including sidewalks and transit service/bus stops.

Pedestrian and Bicycle Circulation

The existing Costco site provides decorative paving at all on-site pedestrian walkways and courtyards. Two (2) 4-foot-wide pedestrian accesses will continue to be provided from the warehouse to Washington Boulevard. Pedestrian walkways throughout the parking area provide a pedestrian-friendly environment that will not be impacted by the Project.

The proposed gasoline station would not generate a substantial amount of pedestrian traffic to/from the warehouse and other parts of the shopping area. Internal pedestrian paths and crosswalks would connect the sidewalk on Washington Boulevard via the west/left side of the western access driveway to a pedestrian path oriented in the north-south direction towards the warehouse. These paths would be linked with new crosswalks as follows: (1) a continental crosswalk on the south leg of the intersection and (2) a continental crosswalk on the east leg of the intersection.

The crosswalks at the Project driveway/Washington Boulevard and Glencoe Avenue/Washington Boulevard intersections and the *Keep Clear* marking on Washington Boulevard will be re-striped as a result of the City's stormwater control project; therefore, a refresh is not required for the Costco Fuel Facility project.

The project includes the repairment of three (3) sidewalk panels along Washington Boulevard fronting the project site. The project will also close the existing gas station exit driveway, so there will be minor off-site work associated with that closure. As the egress driveway from the gas station is eliminated, vehicles would no longer cross the pedestrian path, improving pedestrian experience.

The proposed gasoline station would not create a substantial increase in pedestrian and bicycle activity and will provide improvements to sidewalks and crosswalks noted above. As such, the Project would not impact off-site pedestrian and bicycle facilities and would not conflict with the Bicycle and Pedestrian Action Plan.

Bicycle Parking

Short-term bicycle parking is provided at the main Costco warehouse. The City requirement to provide bicycle parking correlates to minimum parking requirements for new buildings (e.g., 5 percent of required parking spaces). Based on previous discussions with City staff, the fuel facility is not required to provide parking stalls as it is an ancillary use to the main Costco warehouse and no goods, other than fuel, are sold at the facility. In addition, the Project will remove approximately 29 parking stalls, and the California Green Building Code only requires new bicycle parking for any new parking provided. Based on the above information, the provision of additional short-term bicycle stalls is not needed for the fuel facility.

As demonstrated, the Project would not impact off-site pedestrian and bicycle facilities and would not conflict or impact bicycle and pedestrian travel and inhibit implementation of potential pedestrian and bicycle improvement projects or conflict with Culver City's bicycle and pedestrian planning efforts.

LOCAL ROAD SAFETY PLAN

Culver City is currently developing a comprehensive Local Road Safety Plan (LRSP) to identify traffic safety improvements to reduce fatal and severe injuries. The plan has not yet been published, it is antecipated to be considered by City Council in the fall of 2021.

SUMMARY OF PROGRAMS, PLANS, ORDINANCES, AND POLICIES

In summary, the proposed Project would not conflict with or preclude the ability of Culver City to implement its programs, plans, ordinances, and policies related to the transportation system.

VEHICLE-MILES TRAVELED ANALYSIS

Senate Bill 743 (SB 743) was signed into law in September 2013. Senate Bill 743 (Steinberg, 2013) requires changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. SB 743 changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts and identified vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. Since the bill has gone into effect, automobile delay, as measured by "level of service" and other similar metrics, no longer constitutes a significant environmental effect under CEQA. Auto-mobility (often expressed as "level of service") may continue to be a measure for the local agency planning purposes. In December 2018, the California Governor's Office of Planning and Research (OPR) and the State Natural Resources Agency submitted updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law approved the updated CEQA Guidelines, thus implementing SB 743 and making VMT the primary metric used to analyze transportation impacts. The final text, final statement of reasons, and related materials are posted at http://resources.ca.gov/ceqa. The changes have been approved by the Office of the Administrative Law and are now in effect. For land use and transportation projects, SB 743-compliant CEQA analysis became mandatory on July 1, 2020.

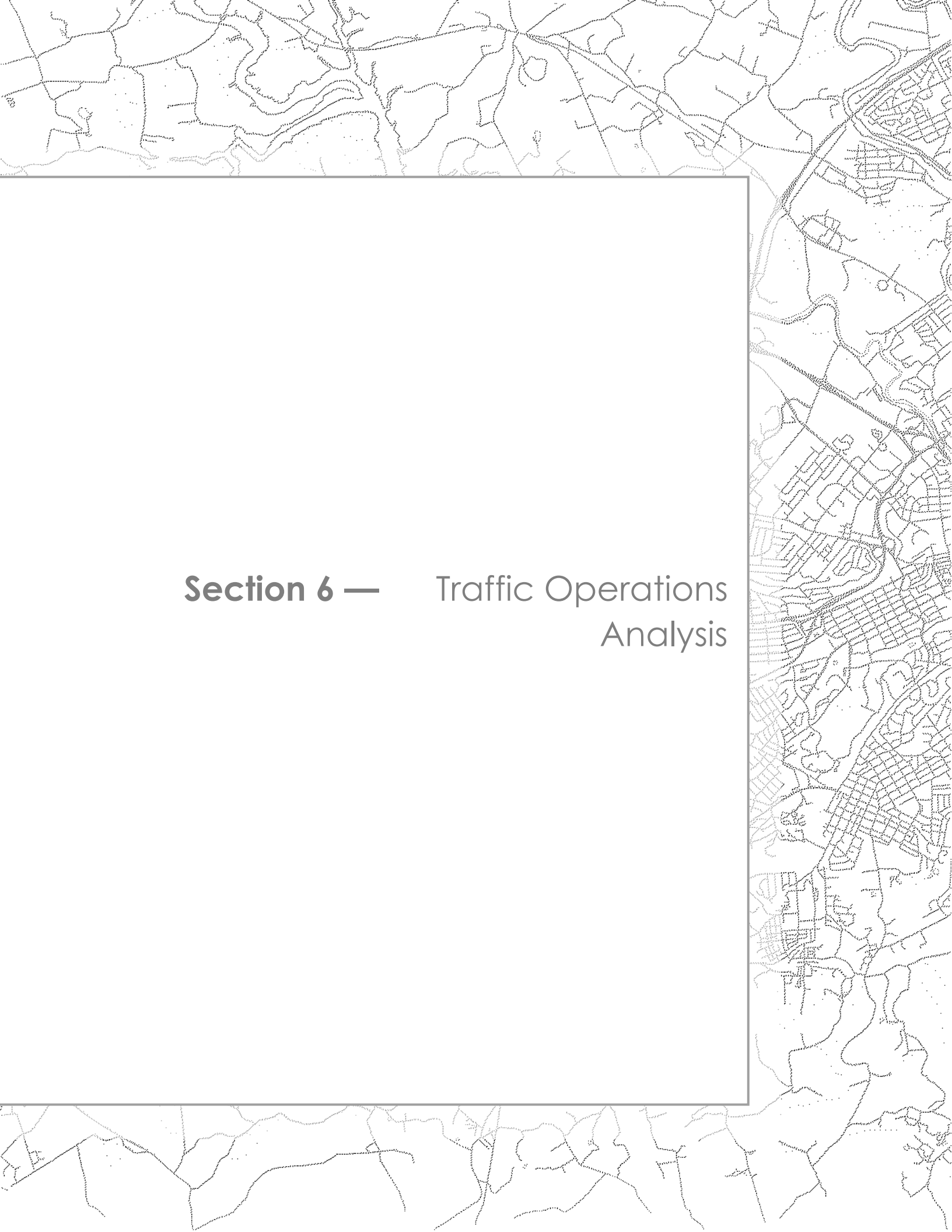
On July 13, 2020, the City of Culver City updated the Transportation Study Criteria and Guidelines, which includes methodologies and criteria to evaluate land use and transportation projects from a VMT standpoint. Regional serving retail projects should be evaluated to determine their effect on vehicle trip length and VMT. VMT provides an indication of the amount of travel in the roadway system by multiplying the number of trips by the distance traveled. For example, 10 vehicles taking 10-mile trips each would result in a total of 100 VMT. In developing a VMT estimate for the fuel station expansion, it is important to recognize that the fuel station exists on site today, and the Project is an expansion an on-site relocation to this existing use, not the addition of a new use. The membership of a Costco warehouse is not related to or affected by the size of its fuel facility, and the existing demand for gas by members of the Culver City Costco warehouse would remain after the expansion. The proposed Project relocates the existing fuel station on site and removes four existing retail/commercial uses on the site (Verizon store, Subway, GNC, and Starbucks), resulting in fewer vehicle trips to the site overall. Specifically, using Costco trip rates, the project would result in a net decrease of 331 daily trips. Regarding trip lengths, the Project would be replacing trips from retail uses with trips to a gas station. Retail stores and restaurants in urban areas normally attract trips from a larger area compared to gas stations, as gasoline is a commodity that can be found in several locations in the west Los Angeles and Culver City area, and most consumers normally do not divert from their routes to buy gasoline. Additionally, a Costco membership is needed to use the gas station, and trips associated with the gas station are typically associated with trips to the warehouse. Conversely, retail uses have a larger number of employees that typically drive longer distances, and consumers normally drive longer distances to purchase goods and services.

In summary, as the Project would generate fewer daily trips and the trip lengths associated with the Project would be less, the Project would result in a net decrease in VMT and therefore not result in a significant VMT impact.

GEOMETRIC DESIGN HAZARDS

As previously discussed, the method for determining geometric design impact involves examining the existing interactions on roadways around the project site between vehicles to vehicles, vehicles to bikes, and vehicles to pedestrians, and determining how those interactions may change with the proposed project. The project would not generate additional vehicular and pedestrian and bicycle traffic. The project site would not alter site access driveways or introduce new off-site crosswalks or modify the location of sidewalks, crosswalks, bike lanes and transit stops. Therefore, this analysis focuses on the potential for project traffic to result in greater queues at intersections.

To determine potential design hazards, intersection queuing analysis were conducted for the study intersections to identify locations where the queue length would exceed the available turn pockets (see Section 6). The intersection queuing analysis concluded that the Project would not result in new locations where the available storage would be exceeded at study intersections on public street approaches.



Section 6 — Traffic Operations Analysis

TRAFFIC OPERATIONS ANALYSIS

EXISTING CONDITIONS

EXISTING TRAFFIC VOLUMES

Due to atypical traffic conditions associated with the COVID-19 pandemic, turning movement counts were not collected at study intersections, as they would not represent typical traffic conditions in the area. Instead, existing (2020) volumes were developed using historic counts (included in Appendix B) and applying adjustments, as described below:

- Costco Accesses on Washington Boulevard: Weekday PM peak hour and Saturday midday turning movement counts were collected in 2018 for both the Glencoe Avenue/East Costco Access & Washington Boulevard and the West Costco Access & Washington Boulevard study intersections for the Washington Boulevard Diversion Project. According to the LA County 2010 Congestion Management Program, growth in the area near the 2020 is estimated to be 0.5 percent per year. To be conservative and consistent with other traffic impact studies prepared for projects in Culver City, an annual growth rate of 1 percent per year was utilized. Therefore, for the intersections of Glencoe Avenue/East Costco Access & Washington Boulevard and the West Costco Access & Washington Boulevard, a growth rate of 1 percent per year growth rate was applied to the 2018 weekday PM peak hour and Saturday midday peak hour turning movement counts to estimate typical 2020 volumes.
- Washington Boulevard & Lincoln Boulevard: Historical weekday PM peak hour counts were obtained from the City of Los Angeles traffic count database. Traffic counts for this intersection were retrieved for the years 2009, 2011, and 2019. The average growth rate is negative between the previous years and 2019. The most recent 2019 traffic counts were used and adjusted by applying a growth rate of 1 percent per year that was estimated in the LA County 2010 Congestion Management Program to estimate typical 2020 weekday PM peak hour counts.

  Because no Saturday midday turning movement counts are available, an adjustment of 4.2 percent was applied to the 2020 weekday PM peak hour counts to obtain 2020 Saturday midday peak hour counts. This rate was determined by comparing the westbound and eastbound through movements at the intersections along Washington Boulevard during the weekday PM peak hour and Saturday midday peak hour. The average difference between the weekday PM and Saturday midday is 4.2 percent (1.7% WB/6.7% EB).

The latest signal timings for signalized intersections were obtained from Culver City and the City of Los Angeles Department of Transportation. Figure 4 shows the existing 2020 traffic volumes for the three study intersections for the weekday PM and Saturday midday peak periods. As previously discussed, a post-occupancy traffic count analysis of the development will be provided by the applicant if required by the City of Culver City. The analysis would be used to confirm the findings in this transportation study to confirm the traffic generated and intersection operations after the Costco fuel station and Washington Boulevard stormwater and urban runoff projects are completed.

EXISTING CONDITIONS INTERSECTION ANALYSIS

As previously discussed, the operational intersection analysis was conducted using the HCM methodology and reflecting the weekday evening commute and Saturday peak hour conditions. Table 7 summarizes existing traffic operations. As shown in Table 7, the existing signalized intersections operate at Level of Service ranging from "A" to "E" or better during the weekday PM peak hour and Saturday midday peak hours. Appendix C contains the year 2020 existing conditions Synchro worksheets.

Table 7 – Existing Conditions Intersection Operations

ID	Intersection	Weekday PM		Saturday Peak	
		Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	62.7	**E**	48.1	D
2	West Access & Washington Boulevard	7.1	A	9.3	A
3	Glencoe Avenue & Washington Boulevard	41.8	D	49.7	D

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

Existing Signalized Queuing Analysis

Signalized queues at the intersection of Lincoln Boulevard and Washington Boulevard and at the two access intersections are summarized in Table 8.

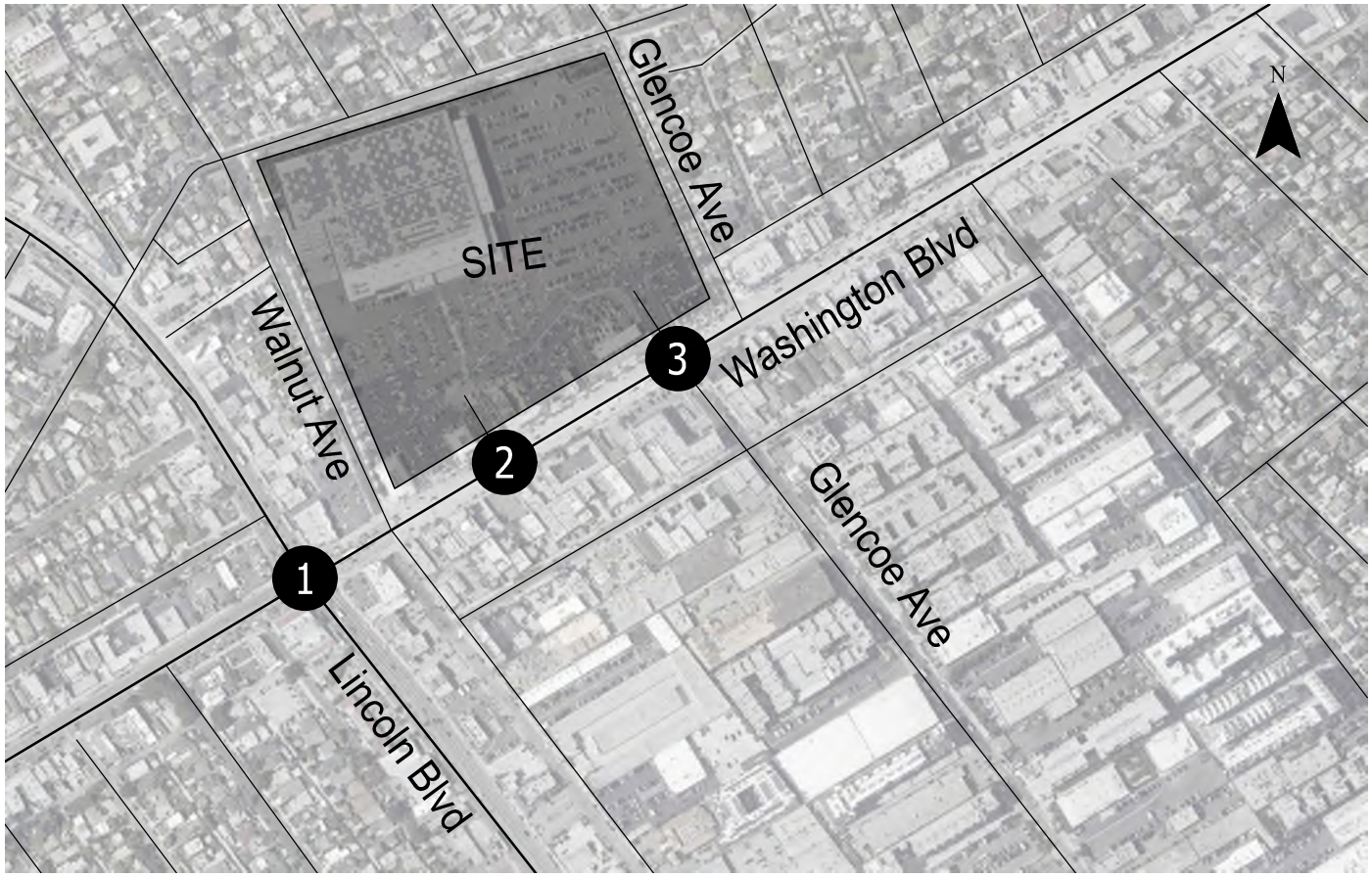
Table 8 – Existing Queuing at Intersections

ID	Intersection	Movement	Available Storage (ft)	Average | 95th Percentile Queue	
				Weekday PM	Saturday Midday
1	Lincoln Boulevard & Washington Boulevard	EBL	250	28 | 53	18 | 33
		EBR	350	209 | 322	227 | 349
		WBL	350	167 | 262	91 | 122
		WBR	470	46 | 86	48 | 92
		NBL	400	206 | 370	160 | 290
		SBL	200	62 | 98	47 | 74
2	West Access & Washington Boulevard	EBL	170	30 | 63	79 | **181**
		SBL	175	91 | 146	136 | **213**
		SBR	175	105 | 161	113 | 173
3	Glencoe Avenue & Washington Boulevard	EBL	375	14 | 37	17 | 36
		EBR	435	14 | 80	30 | 108
		WBL	300	219 | **523**	226 | **407**
		WBR	150	80 | **207**	118 | **257**
		NBL	145	136 | **203**	107 | **174**
		NBR	400	0 | 90	54 | 91
		SBL	165	**187** | **270**	**173** | **270**
		SBR	165	0 | 30	0 | 33

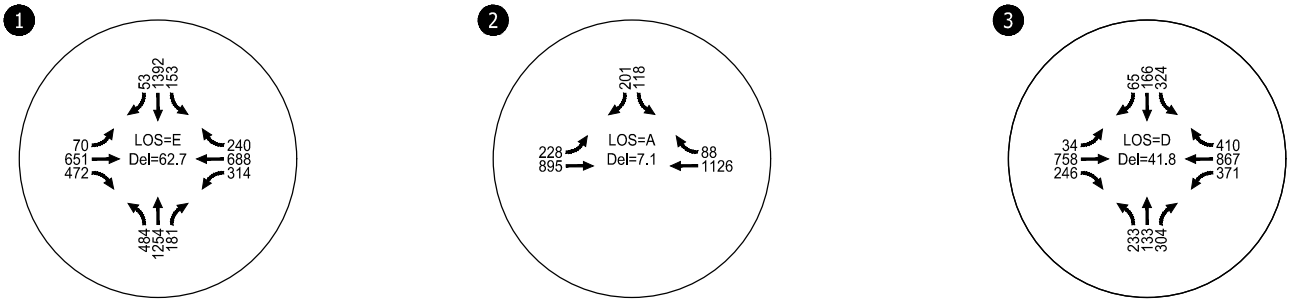
Source: Kittelson & Associates, Inc. 2021

Table 8 shows that the existing 95th percentile queues exceed available storage at the following locations:

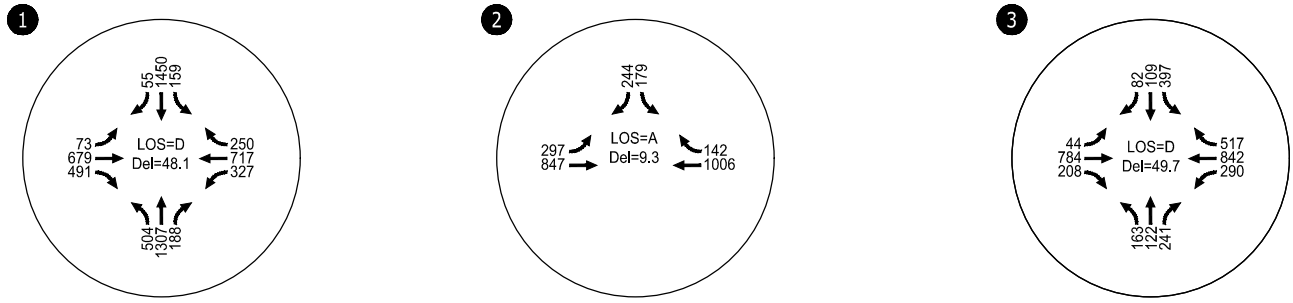
- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday
  - Southbound left-turn lane (internal driveway); Saturday
- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday
  - Westbound right-turn lane; weekday PM and Saturday
  - Northbound left-turn lane; weekday PM and Saturday
  - Southbound left-turn lane (internal driveway); Saturday



Weekday PM Peak Hour



Saturday Midday Peak Hour



Existing Traffic Volumes & Operations
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure 4

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EXISTING PLUS PROJECT CONDITIONS

PROJECT TRIP GENERATION & DISTRIBUTION

Costco Trip Generation Database

For the past 17 years, Kittelson has maintained a database of traffic data and travel characteristics for Costco Wholesale, including data about their fuel stations. The database contains transportation information such as trip rates, trip type percentages (total, pass-by, internal), and parking demand for Costco locations in the United States, as well as for locations in Canada and Mexico. The database is updated and refined whenever new Costco traffic counts or information become available to Kittelson.

The Costco transportation database contains a large quantity of data related to Costco fuel stations. Trip generation rates and trip type information for over 50 Costco Gasoline facilities located throughout the U.S. are included. Costco has invested significant time and effort into developing this use-specific trip generation database for its warehouses and fuel stations. Because of membership requirements and the nature of Costco sales, Costco members have unique travel characteristics and patterns which are different from those of customers of other supermarkets. These unique characteristics and patterns exist in the trip generation for Costco warehouses, Costco Gasoline facilities, and the interaction of trips between the two.

The Costco-specific trip generation data presented herein follows nationally accepted practices for trip generation data collection as recommended by the Institute of Transportation Engineers (ITE) and presents a robust dataset upon which to confidently and accurately predict the trip generation of the expansion of the Culver City Costco Gasoline fuel station.

Before & After Fuel Expansion Data Summary

In developing a trip generation estimate for the Project, it is important to recognize that the fuel station exists on site today and that the Project is an on-site relocation and expansion of that station. The membership of Costco does not change with the expansion or on-site relocation of a fuel facility, and the general demand for fuel at the Culver City Costco will not change. Therefore, it is unlikely that the trip generation of the fuel station will increase directly in proportion to the increased number of fueling positions. Instead, the additional fueling positions will serve to more efficiently and effectively process the current peak demand at the fuel station, thus reducing wait times, vehicles queuing, and vehicle idling. This has been confirmed through before and after data collection at other Costco Gasoline expansion locations.

Kittelson has reviewed before and after data from other comparable Costco Gasoline facility expansion sites to determine a representative relationship between new trip generation and the addition of fueling positions to an existing fuel station.

Kittelson used trip generation counts at six Costco Gasoline facility locations that have expanded in size to study the relationship between trip generation and the fuel station expansion. These locations include sites where fuel stations have expanded from 16 fueling positions to 22 or 24 fueling positions. Currently, we do not have a sufficient database with 30 fueling positions; therefore, the trip rates are based on the sample for 24 fueling positions. The comparable expansion sites identified are:

- Rancho Del Rey, California
- NE San Jose, California
- Concord, California
- Rohnert Park, California
- Cypress, California
- Portland, Oregon

To work with a representative sample size, Costco provided fuel transactions collected on an hourly basis for a period before and after the expansion at each of these locations. Only data collected during the same months of the year before and after the expansion were included in this summary; for example, fuel transactions for the months of March and April before the expansion were compared to fuel transactions for the months of March and April after the expansion. The total number of weekday PM peak hour and Saturday midday peak hour trip ends counted for the seven listed sites are provided in Table 9 and Table 10, respectively. Note: the total number of trip ends does not reflect any reductions due to internal capture, pass-by, or diverted trips.

As shown in Table 9 and Table 10, each of the sites recorded some increase in the number of peak hour fuel transactions. However, the increase found in most situations is significantly less than what would be calculated from a direct linear relationship to the number of additional fueling positions. Using a linear relationship, expanding the gas bar from 16 to 22 fueling positions would equate to an increase in activity or trip generation of 38 percent, and expanding from 16 to 24 positions would equate to an increase of 50 percent. However, the before and after data show an average increase of 26.5 percent and 33.5 percent in fuel transactions during the weekday PM peak hour and Saturday midday peak hour, respectively.

These data demonstrate that increasing the number of fueling positions at the Culver City fuel station will not result in a direct linear increase in trip generation. The before and after data capture the change in demand that results from reducing peak hour queues and wait times at the fuel stations due to latent demand and more efficient peak operations. In all cases, peak queues and wait times are significantly reduced. Those members who previously chose not to purchase fuel because of the wait times will likely do so after the expansion when operations are improved.

Table 9 – Weekday PM Peak Hour Growth

Location	Average Weekday PM Peak Hour Trips Generated				
	Fueling Positions	**Before Expansion**	**Fueling Positions**	**After Expansion**	**Percent Difference**
Rancho Del Rey, CA	16	414	24	676	63.3%
NE San Jose, CA	16	474	24	458	-3.4%
Concord, CA	16	470	24	550	17.0%
Rohnert Park, CA	16	426	24	498	16.9%
Cypress, CA	16	472	24	654	38.6%
Portland, OR	16	N/A	24	404	N/A
Average					**26.5%**

Source: Kittelson & Associates, Inc. 2021

Table 10 – Saturday Midday Peak Hour Trip Growth

Location	Average Weekday PM Peak Hour Trips Generated				
	Fueling Positions	**Before Expansion**	**Fueling Positions**	**After Expansion**	**Percent Difference**
Rancho Del Rey, CA	16	N/A	24	678	N/A
NE San Jose, CA	16	494	24	686	38.9%
Concord, CA	16	520	24	700	34.6%
Rohnert Park, CA	16	518	24	606	17.0%
Cypress, CA	16	514	24	740	44.0%
Portland, OR	16	462	24	616	33.0%
Average					**33.5%**

Source: Kittelson & Associates, Inc. 2021

Weekday daily trip rates for the existing site were calculated based on trip generation counts for fueling facilities with 16 positions. For the proposed Project, the daily trip rates are based on trip generation counts for sites ranging from 22 to 24 fueling positions. The trip rates were then multiplied by the number of fueling positions to calculate the number of daily trips with the existing and proposed gas station.

Trip Credits

The data collected at existing Costco Gasoline fuel stations indicate the trip generation characteristics described below for internal trip capture between the fuel station and the warehouse, as well as pass-by trips and diverted trips capture from the surrounding street system. The unique nature of Costco operations and its membership requirements result in different trip characteristics than those observed at typical fuel stations summarized in the standard reference *Trip Generation Manual*, published by the Institute of Transportation Engineers (ITE). The percentages of pass-by or diverted trips at Costco fuel stations is considerably lower than those quoted in the ITE *Trip Generation Manual* for typical fuel stations. Correspondingly, membership requirements also have a significant effect on trip internalization (or sharing of trips) between the warehouse and the fuel station. Fewer people exclusively visit a Costco fuel station (in comparison to a typical standalone fuel station) because they have another primary purpose (i.e., a trip to the warehouse) for visiting the site,

Internal Trips

A key finding from the studies conducted at Costco warehouses with fuel stations is that approximately 34 percent of the PM peak hour trips to and from Costco fuel stations and 35 percent of the Saturday midday trips are internal capture trips. Internal capture trips account for those members who patronize both the warehouse and the fuel station during a single visit to the Costco site. As such, although they account for a trip to both the warehouse and the fuel station, they only account for one overall vehicle trip to the site and on the surrounding transportation system. Based on studies, including surveys at Costco fuel stations and membership card transaction data, on average 34 percent and 35 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, are members whose main purpose to the site is to visit the Costco warehouse. At some sites, this number ranges as high as 75 percent.

Internal capture data was analyzed from daily transactions at the Costco warehouse and at Costco Gasoline at the Culver City site for the entire year of 2019. The data was filtered to the same member transactions during times when the warehouse and the gas station were open. A review of the 2019 data at the Culver City location (see sample in Attachment A) indicates that the average weekday internal capture rate is 35.8 percent, 36.4 percent for Saturdays, and 38.4 percent for Sundays. In other words, in an average weekday, 35.8 percent of transactions at the warehouse also resulted in gasoline transactions. However, to remain conservative, the average rates of 34 and 35 percent for all warehouses described above applied to this analysis.

Pass-By & Diverted Trips

Another key trip characteristic that must be considered is that of pass-by trip capture. Pass-by trips represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose (e.g., a trip from work to home) and stop into the site in-route during their normal travel. As such, pass-by trips do not result in a net increase in traffic on the surrounding transportation system and their only effect occurs at the immediate intersections and site access driveways where they become turning movements. Based on studies of customer surveys at Costco Gasoline fuel stations, an average of 37 percent and 33 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, can be classified as pass-by trip capture from the surrounding street system. This is lower than the average pass-by rate (45 percent) quoted in the ITE *Trip Generation Manual* for typical service stations and is attributable to the unique travel characteristics that result from Costco's membership requirements.

Diverted trips are similar to pass-by trips in that they represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose and stop into the site in-route during their travel. However, as the name indicates, diverted trips divert from the normal roadways on which they would be traveling to go to the Costco site. Based on studies of customer surveys at Costco Gasoline fuel stations (see sample survey in Attachment A), an average of 37 percent and 36 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, can be classified as diverted trip capture from the surrounding street system.

Diverted and pass-by trips are accounted for in the evaluation of the internal circulation and project driveways and intersections, as these trips ingress and egress the site.

Trip Generation

In order to best evaluate the on-site trip impact of expanding and relocating the Culver City Costco Gasoline fuel station, the existing land uses were calculated to understand the trips brought to the site currently. Due to the stay-at-home order related to COVID-19, realistic counts at the driveways and fuel station could not be obtained. Therefore, Kittelson's Costco trip counts database was used to calculate the average weekday PM peak hour and Saturday midday peak hour for a sixteen (16) vehicle fueling station. Internal, pass-by, and diverted trip percentages were also obtained from the Kittelson Costco database. The *ITE Trip Generation Manual, 10th Edition* (Reference 1) was used to estimate existing land uses trips. Existing pass-by trips were estimated using the *ITE Trip Generation Handbook, 3rd Edition* (Reference 2).

The Project will include expanding the existing sixteen (16) vehicle fueling station to thirty (30) vehicle fueling stations. The before and after data average percentages were used to grow the existing trips. The weekday PM peak hour increased by 26.5 percent, while the Saturday midday peak hour increased by 33.5 percent. Internal, pass-by, and diverted trip percentages remained the same.

The trip generation rates for the existing land uses to be removed are shown in Table 11. As shown in Table 12, the existing land use net new trips were subtracted from the resulting Project land use net new trips to calculate a net new trip difference for the site.

Table 11 – ITE Trip Generation Rates

Land Use	ITE Code	Unit[1]	Trip Generation Rates[2]					
			PM Peak Hour			Saturday Peak Hour		
			Total	In	Out	Total	In	Out
Retail	820	TSF	10.89	5.23	5.66	10.86	5.64	5.21
Coffee Shop	937	TSF	37.43	19.09	18.34	87.70	43.85	43.85

Source: Kittelson & Associates, Inc. 2021

[1] TSF = thousand square feet (of building floor area)

[2] Trip generation rates for peak hour of adjacent street per ITE *Trip Generation Manual, 10th Edition*

Table 12 – Comparative Trip Generation Summary

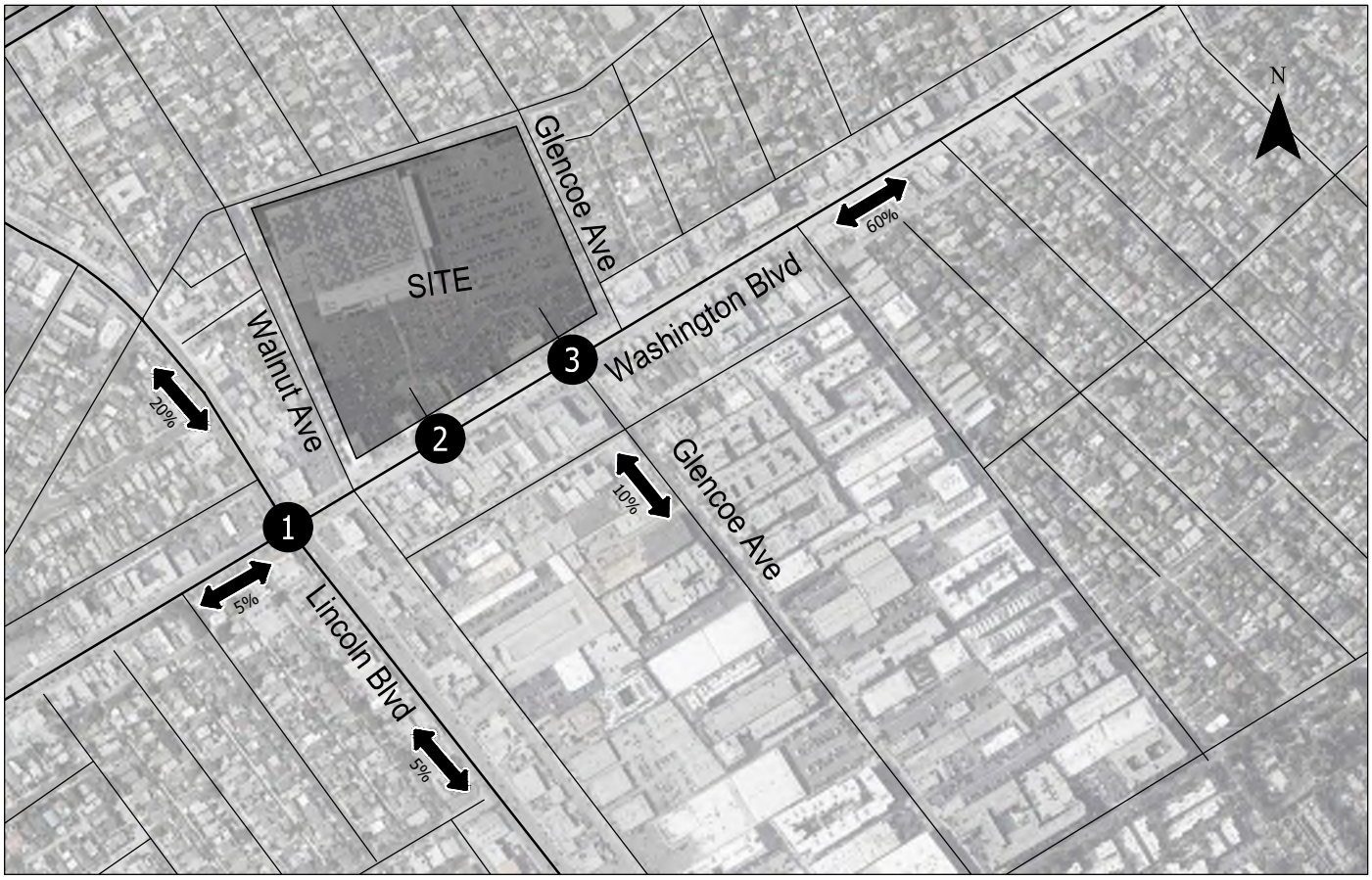
Land Use	Size	Weekday PM Peak Hour			Saturday PM Peak Hour			Weekday Daily Trips
		Total	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Existing Uses								
Costco Fueling Station	16 Fueling Positions	452	226	226	473	237	236	5605
Internal Trips (34% PM; 35% Saturday)		*(154)*	*(77)*	*(77)*	*(166)*	*(83)*	*(83)*	(1,906)
External Trips		**298**	**149**	**149**	**307**	**154**	**153**	**3,699**
Pass-By Trips (36% PM; 33% Saturday)		*(110)*	*(55)*	*(55)*	*(101)*	*(51)*	*(51)*	(1,369)
Diverted Trips (37% PM; 36% Saturday)		*(110)*	*(55)*	*(55)*	*(111)*	*(56)*	*(55)*	(1,369)
Net New Trips		**78**	**39**	**39**	**94**	**47**	**47**	**961**
Retail (820)	6,890 SF	75	36	39	75	39	36	975
Pass-By Trips (34% PM; 26% Saturday)		*(26)*	*(13)*	*(13)*	*(20)*	*(10)*	*(10)*	(332)
Net New Trips		**49**	**23**	**26**	**55**	**29**	**26**	**643**
Coffee Shop (937)	1,590 SF	69	34	35	139	69	70	1,304
Pass-By Trips (89% PM, Saturday)		*(61)*	*(30)*	*(31)*	*(124)*	*(62)*	*(62)*	(1,161)
Net New Trips		**8**	**4**	**4**	**15**	**7**	**8**	**143**
Total Existing Net New Trips		**135**	**66**	**69**	**164**	**83**	**81**	**1,747**
Proposed Uses								
Costco Fueling Station	30 Fueling Positions	709	355	354	750	375	375	8,257
Internal Trips (34% PM; 35% Saturday)		*(241)*	*(121)*	*(120)*	*(263)*	*(131)*	*(132)*	(2,807)
External Trips		**468**	**234**	**234**	**487**	**244**	**243**	**5,450**
Pass-By Trips (36% PM; 33% Saturday)		*(173)*	*(87)*	*(86)*	*(162)*	*(81)*	*(81)*	(2,017)
Diverted Trips (36% PM; 36% Saturday)		*(173)*	*(87)*	*(86)*	*(175)*	*(88)*	*(87)*	(2,017)
Total Proposed Net New Trips		**122**	**60**	**62**	**150**	**75**	**75**	**1,416**
Trip Difference (Proposed Uses – Existing Uses)								
Net New Trip Difference		***(13)***	***(6)***	***(7)***	***(14)***	***(8)***	***(6)***	***(331)***

Source: Kittelson & Associates, Inc. 2021

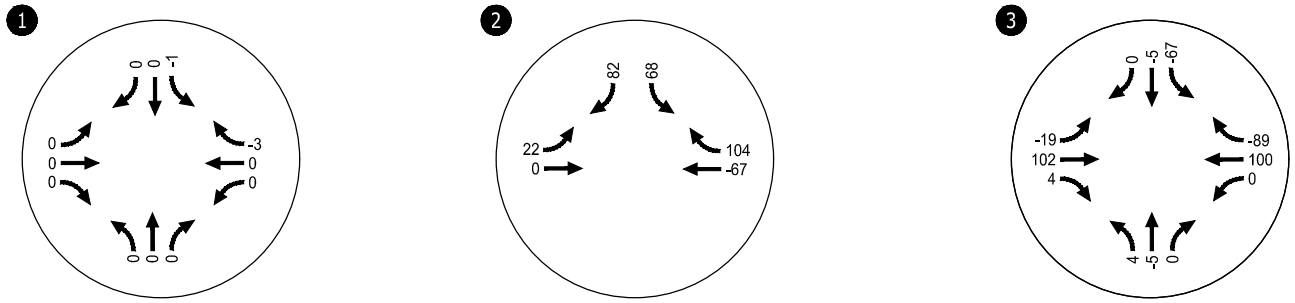
As shown in Table 12, the expansion and relocation of the Culver City Costco Gasoline fuel station (along with the removal of existing retail uses) will result in a reduction in net new trips to the site. The Project is estimated to approximately reduce 13 weekday PM peak hour net new trips (6 inbound, 7 outbound) and 14 Saturday midday peak hour net new trips (8 inbound/6 outbound). On a daily basis, the Project would result in 331 fewer trips during the weekdays. While Saturday daily estimates are not available, a comparison between the peak hour trips on weekdays and Saturdays suggest that the net daily trip reduction would also occur on Saturdays.

Trip Distribution/Assignment

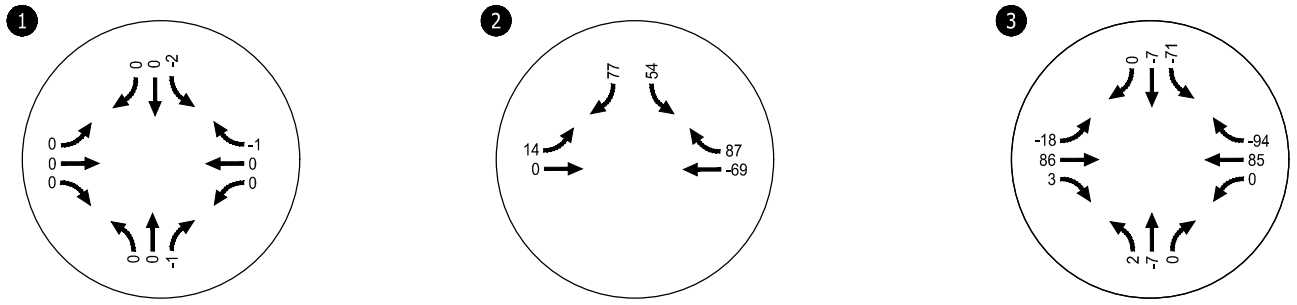
Pass-by and diverted trips to the site would be from Washington Boulevard. While these trips are not deducted to assess traffic entering and egressing the site (for evaluating site accesses), pass-by and diverted trips do not result in system capacity and environmental impacts to off-site intersections as compared to new trips because these trips are already present on the adjacent arterial street. Figure 5 shows the trip distribution and Project only volumes for the study intersections. The volumes for intersections 2 and 3 include pass-by and diverted trips, and the volumes at intersection 1 represent net trips only.



Weekday PM Peak Hour



Saturday Midday Peak Hour



Trip Distribution & Project Only Volumes
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure
5

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EXISTING PLUS PROJECT INTERSECTION ANALYSIS

Table 13 summarizes existing plus Project scenario intersection operations results. As shown in Table 13 and Figure 6, the existing signalized intersections operate at Level of Service ranging from "A" to "E" or better during the weekday PM peak hour and Saturday midday peak hours. There is no degradation in LOS at the study intersections. The average delay per vehicle at the intersection of West Access & Washington Boulevard increases slightly (from 7.1 to 9.4 on weekdays PM and from 9.2 to 11.9 seconds/vehicle in the Saturday peak) in the existing plus Project scenario, but remains at LOS A. There is no change in operations at the Lincoln Boulevard & Washington Boulevard intersection and only a minor change in delay at the Glencoe Avenue & Washington Boulevard intersection. Appendix D contains the year 2020 existing plus Project conditions Synchro worksheets.

Existing Plus Project Signalized Queuing Analysis

Signalized queues at the intersection of Lincoln Boulevard & Washington Boulevard and at the two access intersections under the existing plus Project scenario are summarized in Table 14. The analysis shows signalized 95th percentile queues exceed available storage at the following locations:

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday
  - **Southbound left-turn lane (internal driveway); weekday PM**[2] and Saturday
  - **Southbound right-turn lane (internal driveway); Saturday**[1]
- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday
  - Northbound left-turn lane; weekday PM and Saturday

Compared to existing conditions, the Project results in one new turn lane exceeding available storage (identified in **bold** above) at the southbound west access driveway right-turn lane. The southbound west access driveway left-turn lane is also forecast to exceed available storage in the weekday PM period in addition to the Saturday period identified in existing conditions. The additional queues would be contained within the internal Project driveways, not on public streets. Therefore, this would not be considered a substantially adverse condition that affects traffic on public streets. In addition, the existing plus Project scenario found that two of the queuing impacts identified at the Glencoe Avenue & Washington Boulevard intersection (the westbound right-turn lane and the southbound left-turn lane) would be eliminated in the existing plus Project scenario.

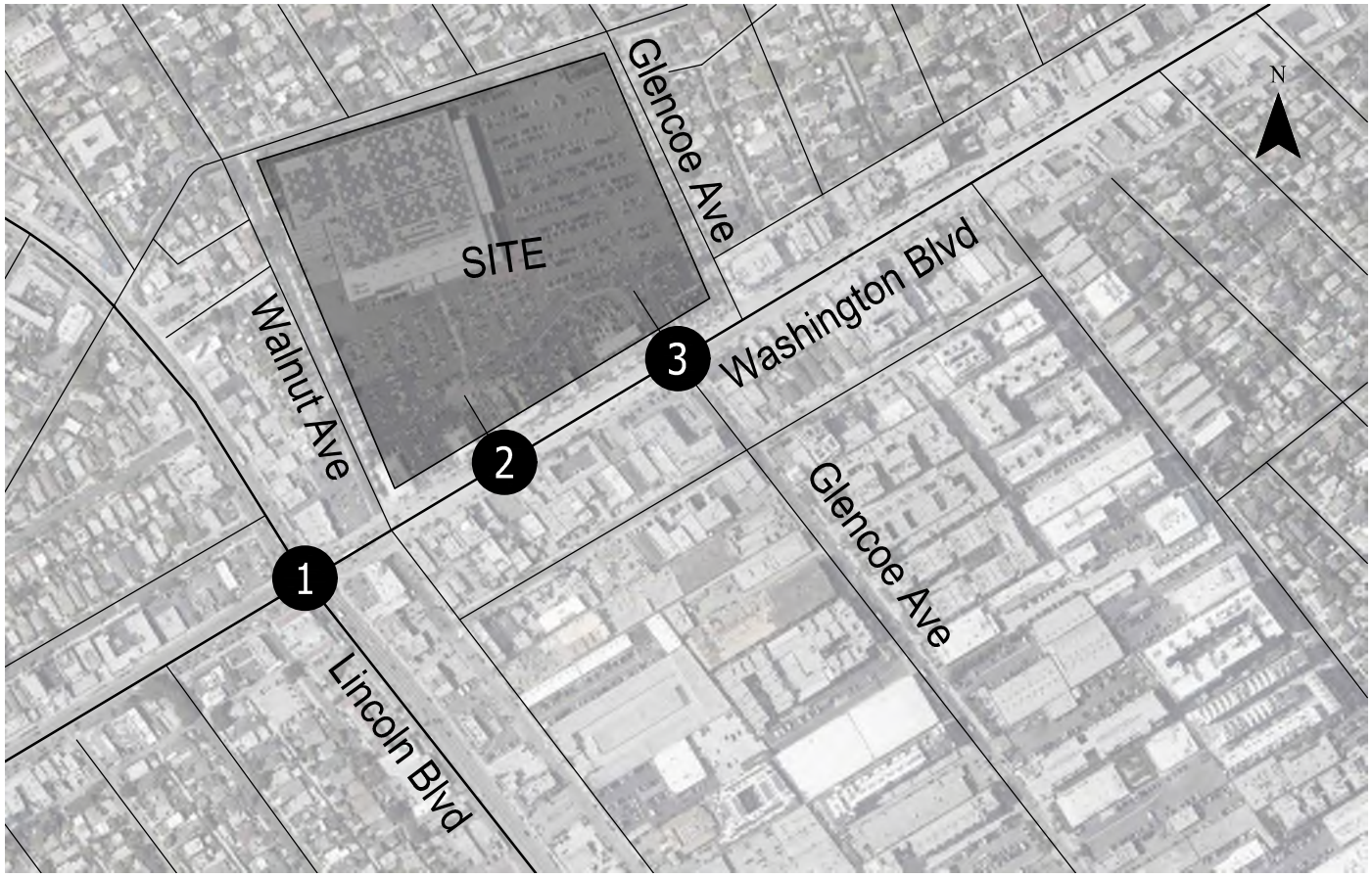
The Project would increase the queue length and exceed the turn lane storage at the following locations on public streets:

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday – the available storage is 170 feet, and the Project would increase the 95th percentile queue from 181 to 255 feet. This exceeds the available storage by approximately four vehicle lengths, which will typically pull into the taper to get out of the way as much as possible of eastbound through vehicles on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. Modifications to the signal timing by allocating more time to the eastbound left-turn split would reduce this queue to 209 feet. The eastbound left-turn lane is already exceeding storage in the existing conditions for the 95th percentile queue, with signal timing improvements the project will add less than two vehicles in length. During the Saturday midday peak hour, the available storage is adequate for the average peak hour demand.

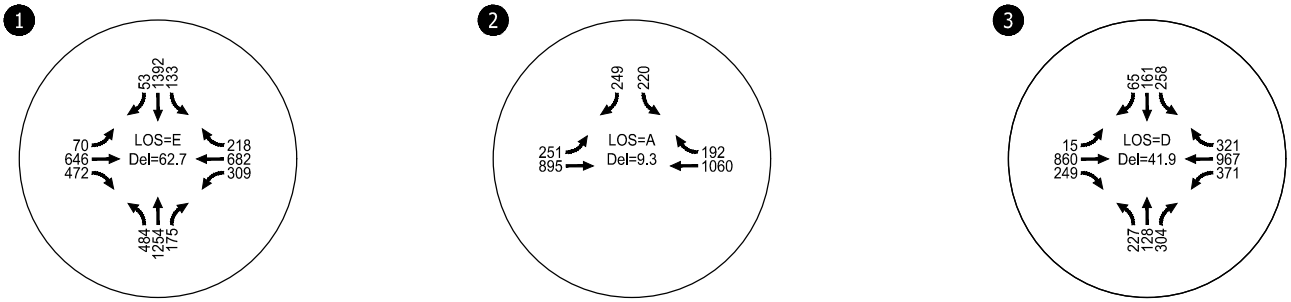
[2] Average queues also exceed available storage.

- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday - the available storage is 300 feet, and the Project would increase the 95th percentile queue from 523 to 527 feet on weekdays and from 407 to 418 on Saturdays. The Project would nominally increase the queue length by less than one vehicle at this location (less than 11 feet in both periods), which will typically pull into the taper to get out of the way of westbound through vehicles on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. Modifications to the signal timing would offset the queue increase.

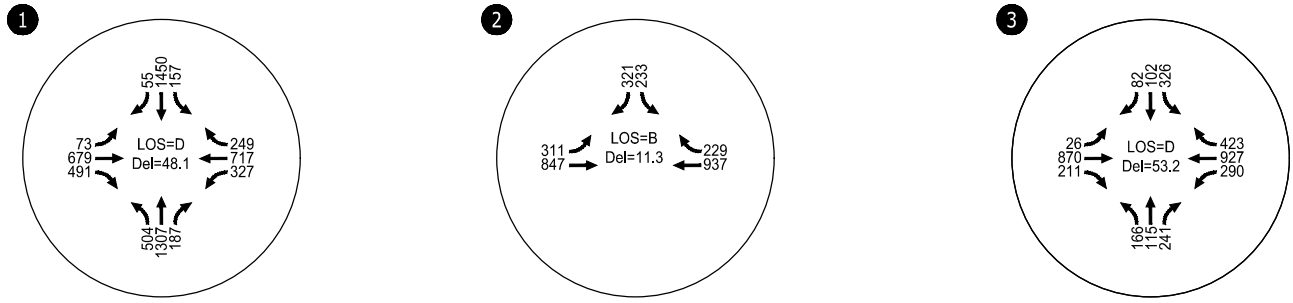
  - Northbound left-turn lane; weekday PM and Saturday- the available storage is 145 feet, and the Project would increase the 95th percentile queue from 203 to 205 feet on weekdays and decrease from 174 to 171 on Saturdays. The Project would nominally modify the queue length by less than one vehicle at this location, and only 2 feet which can be considered negligible, which will typically back into the northbound lane of Glencoe Avenue. The queue would be contained within the northbound approach of Glencoe Avenue and would not extend to the next driveway at Beach Avenue. This would not substantially affect circulation in the area, and no modifications are recommended to address this condition.



Weekday PM Peak Hour



Saturday Midday Peak Hour



Existing Plus Project Traffic Volumes & Operations
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure
6

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Table 13 – Existing Plus Project Intersection Operations

ID	Intersection	Weekday PM		Saturday Peak	
		Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	62.7	**E**	48.1	D
2	West Access & Washington Boulevard	9.3	A	11.3	B
3	Glencoe Avenue & Washington Boulevard	41.9	D	53.2	D

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

Table 14 – Existing Plus Project Queuing (Weekday PM & Saturday Midday)

ID	Intersection	Movement	Available Storage (ft)	Average | 95th Percentile Queue		Substantial Project Increase	
				Weekday PM	Saturday Midday	Weekday PM	Saturday Midday
1	Lincoln Boulevard & Washington Boulevard	EBL	250	28 | 53	18 | 33	-	-
		EBR	350	209 | 322	227 | 349	-	-
		WBL	350	162 | 262	91 | 122	-	-
		WBR	470	45 | 85	47 | 92	-	-
		NBL	400	206 | 370	160 | 290	-	-
		SBL	200	62 | 98	46 | 73	-	-
2	West Access & Washington Boulevard	EBL	170	43 | 119	99 | **255**	-	Yes
		SBL	175	143 | **206**	**185** | **261**	Yes	Yes
		SBR	175	158 | **202**	**162** | **236**	Yes	Yes
3	Glencoe Avenue & Washington Boulevard	EBL	375	5 | 13	11 | 23	-	-
		EBR	435	21 | 83	46 | 78	-	-
		WBL	300	213 | **527**	237 | **418**	Yes	Yes
		WBR	150	68 | **176**	110 | **225**	-	-
		NBL	145	137 | **205**	105 | **171**	Yes	-
		NBR	400	0 | 90	54 | 91	-	-
		SBL	165	162 | **232**	143 | **227**	-	-
		SBR	165	0 | 30	0 | 33	-	-

Source: Kittelson & Associates, Inc. 2021

BACKGROUND CONDITIONS

PROJECTED TRAFFIC VOLUMES

Ambient Growth

To obtain background traffic volumes, a growth rate of 1 percent per year over the existing conditions was included per traffic growth projections in the LA County 2010 Congestion Management Program. In addition, traffic volumes from related projects were also included. Background conditions correspond to 2 years of traffic growth over existing conditions. At the time of the initiation of this study and consultation with public agencies, existing conditions corresponded to 2020, and the project opening year was anticipated to occur in 2022. While existing conditions are 2021 and the project is now anticipated to be operational in 2023, background traffic still correspond to 2 years of background traffic growth. Given the annual traffic growth of 1 percent per year, this discrepancy does not affect the findings and conclusions of this study.

Related Projects

The Cities of Culver City and Los Angeles identified related projects that could be operational in background conditions. Table 15 and Table 16 list projects in which project trips were added individually to the study area due to their size and proximity. Figure 7 shows their location, and Figure 8 shows their projected volumes. Other projects are included in the traffic forecast as part of the ambient growth traffic. Table 17 shows the applicable trip generation rates for the related projects, and Table 18 summarizes the trip generation calculations for related projects. Appendix E contains a list of Culver City and Los Angeles projects.

Table 15 – Culver City Related Projects

Related Project #	Project Name	Location	Description
1	Baldwin Site	12803 Washington Blvd	Mixed-Use Project 37 Multi-Family dwelling units 7,206 square foot Shopping Center
2	99 Cents Site	12727 Washington Blvd	Mixed-Use Project 117 Multi-Family dwelling units 17,880 square feet Shopping Center Replacing Existing 13,00 square foot Commercial Building
3	Motel Mixed-Use	12654 Washington Blvd	Mixed-use Project 6,836 square foot Ground Floor Commercial One 5,863 square foot Residential Dwelling
4	Essence Cannabis Retail	12450 Washington Blvd	4,950 square foot Cannabis Retail
5	Market Hall	12403 (12237-12423) Washington Blvd	21,605 square foot Market Hall and Food Building 5,230 square foot Shopping Center
6	Grandview Apartments	4025 Grand View Blvd	36 Multi-Family dwelling units Replacing 20 mobile home units

Source: City of Culver City

Table 16 – City of Los Angeles Related Projects

Related Project #	Project Name	Location	Description
7	High Turnover Restaurant	2508 Naples Ave, Venice, CA	3,895 square foot High Turnover (sit-down) Restaurant
8	Mixed-Use, Hotel, Retail & Restaurant	1027 Abbot Kinney Blvd, Venice, CA	92-Guest Room Hotel 3,000 square foot Shopping Center 2,072 square foot Restaurant
9	Mixed-Use Project	1414 Main St, Venice, CA	Mixed-Use building: 26 Condo Units 1,184 square foot Shopping Center 4,567 square foot Restaurant
10	Condos and Commercial Building	4091 Redwood Ave, Los Angeles, CA	67 Multi-Family dwelling units 7,525 square foot Commercial Office
11	Mixed-Use Apartment and Mini-Warehouse	4040 Del Rey Ave, Marina Del Rey, CA	168 Multi-Family dwelling units 33,000 square foot General Office
12	New 3-Story Manufacturing and Retail	595 Venice Blvd, Venice, CA	25,150 square foot Manufacturing 5,028 square foot Shopping Center
13	Inclave	4065 Glencoe Ave, Marina Del Rey, CA	35,206 square foot Creative Office 1,500 square foot Shopping Center 49 Multi-Family dwelling units
14	Mixed-Use: Residential & Commercial	2454 Lincoln Blvd, Venice, CA	77 Multi-Family dwelling units 4,040 square foot Restaurant 1,905 square foot Shopping Center
15	Apartments	1015 Venice Blvd, Venice, CA	56 Multi-Family dwelling units
16	Thatcher Yard Residential	3311 Thatcher Ave, Marina Del Rey, CA	50 affordable dwelling units (senior) 23 Multi-Family dwelling units 25 permanent supportive housing dwelling units
17	Office and Retail	4212 Glencoe Ave, Marina Del Rey, CA	121,822 square foot Commercial Office 1,500 square foot Shopping Center
18	New 4-Story 77 Apartments	1600 Venice Blvd, Venice, CA	Demolish 7 Apartments and 1 Duplex 77 Apartments with Underground Parking
19	Apartments and Restaurant	1808 Lincoln Blvd, Venice, CA	50 Multi-Family dwelling units 4,458 square foot Restaurant

Source: City of Los Angeles

Table 17 – Trip Generation Rates for Related Projects

Land Use	ITE Code	Unit[1]	Trip Generation[2]					
			PM Peak Hour			Saturday Peak Hour		
			Total	In	Out	Total	In	Out
Manufacturing	140	TSF	0.79	0.34	0.45	0.94	0.47	0.47
Multifamily Housing (Mid-Rise)	221	DU	0.41	0.25	0.16	0.44	0.22	0.22
Mid-Rise Residential with 1st-Floor Commercial	231	DU	0.44	0.30	0.14	0.86	0.43	0.43
Mobile Home Park	240	DU	0.49	0.29	0.20	0.40	0.20	0.20
Hotel	310	Rooms	0.61	0.35	0.26	0.72	0.40	0.32
General Office Building	710	TSF	1.42	0.26	1.16	0.53	0.29	0.24
Shopping Center	820	TSF	4.21	2.11	2.10	4.50	2.34	2.16
Marijuana Dispensary	882	TSF	29.93	14.97	14.96	36.43	18.22	18.21
High-Turnover (Sit-Down) Restaurant	932	TSF	17.41	9.05	8.36	11.19	5.71	5.48

Source: Kittelson & Associates, Inc. 2021

[1] TSF = thousand square feet, DU = dwelling units

[2] Trip generation rates for peak hour of adjacent street, per the ITE Trip Generation Manual 10th Edition

Table 18 – Trip Generation for Related Projects

ID	Project Name	Weekday PM Peak Hour[1]			Saturday Midday Peak Hour[2]		
		Total	In	Out	Total	In	Out
1	Baldwin Site	101	53	48	111	62	49
2	99 Cents Site	157	88	69	188	117	71
3	Motel Mixed-Use	82	41	41	74	38	36
4	Essence Cannabis Retail	148	74	74	180	90	90
5	Market Hall[1]	137	83	54	174	96	78
6	Grandview Apartments	9	5	4	14	7	7
7	High Turnover Restaurant	33	20	13	44	22	22
8	Mixed-Use, Hotel, Retail & Restaurant	42	25	17	103	56	47
9	Mixed-Use Project	40	29	11	78	39	39
10	Condos and Commercial Building	51	29	22	39	19	20
11	Mixed-Use Apartment and Mini-Warehouse	121	149	-28	288	139	149
12	New 3-Story Manufacturing and Retail	85	15	70	47	24	23
13	Inclave	53	1	52	68	35	33
14	Mixed-Use: Residential & Commercial	54	40	14	88	44	44
15	Apartments	37	24	13	25	12	13
16	Thatcher Yard Residential	19	10	9	23	13	10
17	Office and Retail	124	63	61	38	14	24
18	New 4-Story 77 Apartments	155	24	131	72	39	33
19	Apartments and Restaurant	27	16	11	34	18	16
	Total	**634**	**344**	**290**	**742**	**410**	**332**

Source: Kittelson & Associates, Inc. 2021

[1] Weekday PM peak hour trips for ID 1-6 were taken from the Market Hall traffic study and for ID 7-19 were received from the City of Los Angeles and include net trips.

[2] Weekday PM peak hour and Saturday midday peak hour trips were generated using rates for peak hour of generator, per the ITE Trip Generation Manual 10th Edition.

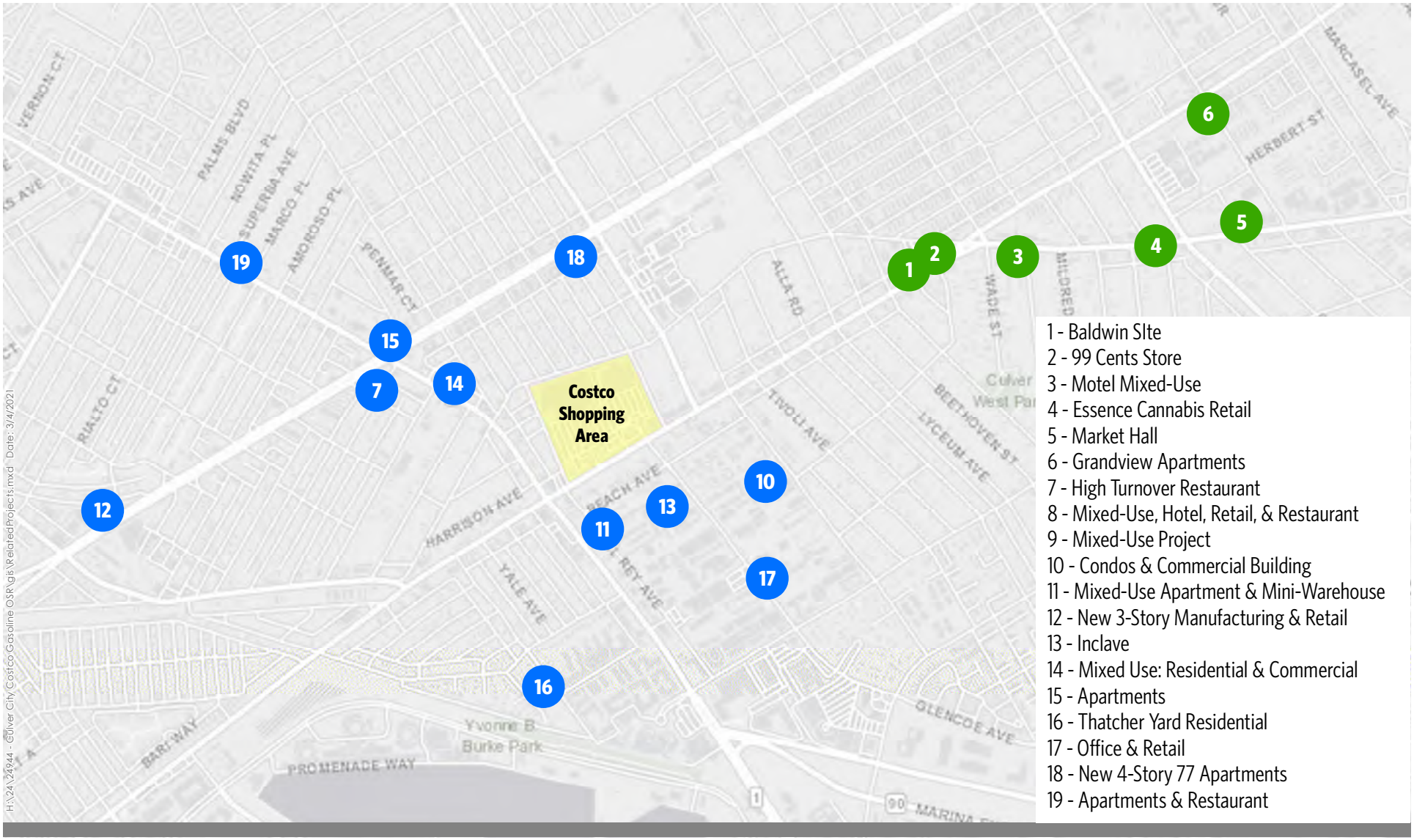
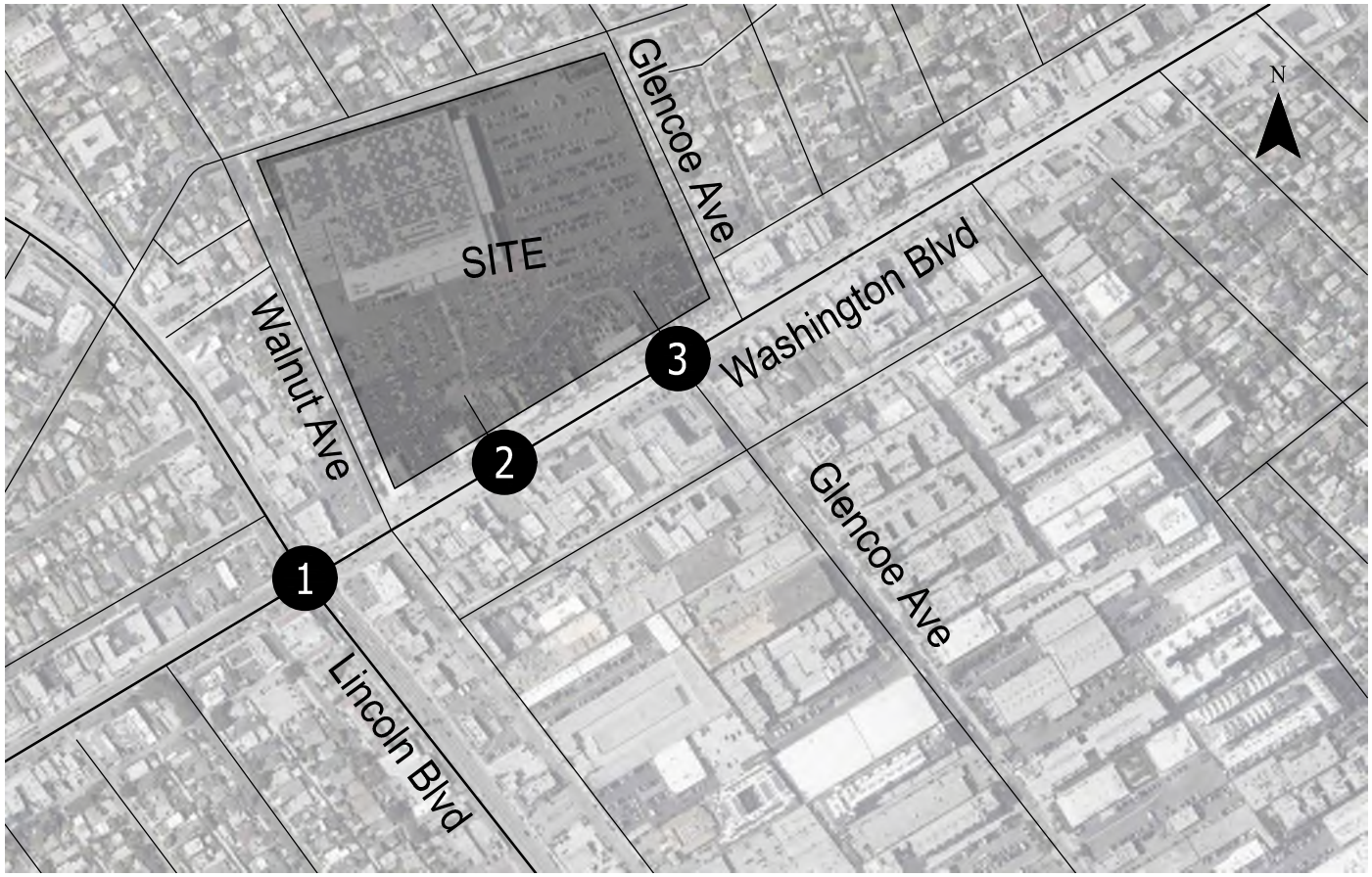


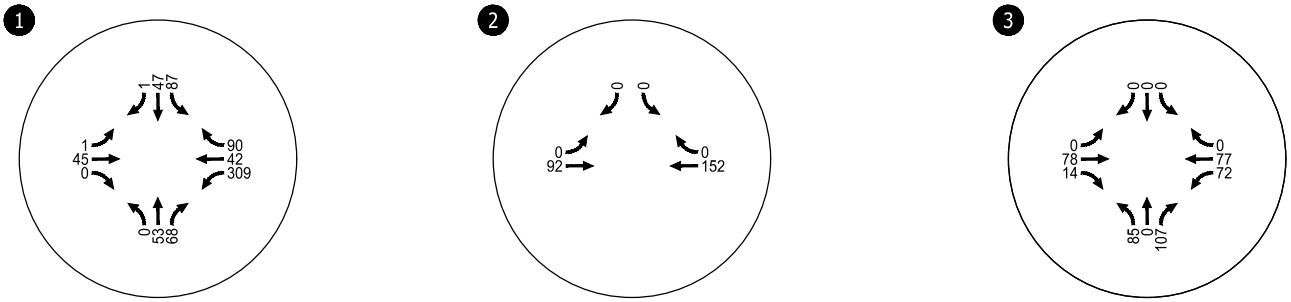
Figure 7

Related Project Locations
Culver City, CA

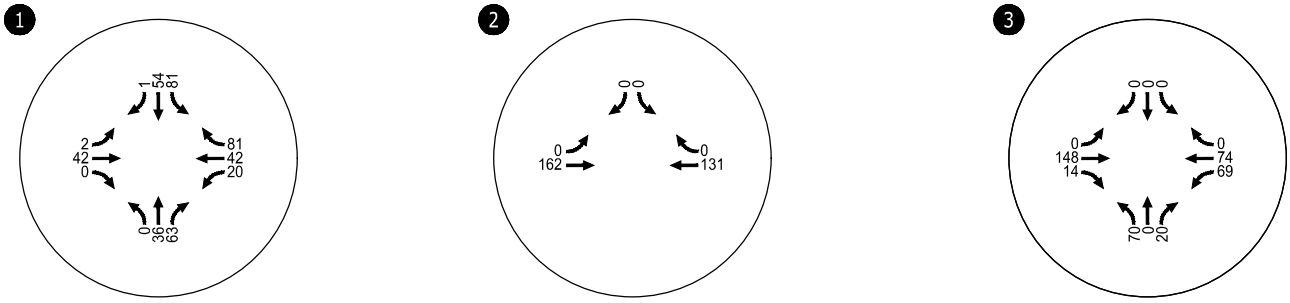
KITTELSON & ASSOCIATES



Weekday PM Peak Hour



Saturday Midday Peak Hour



Related Projects Traffic Volumes
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure 8

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BACKGROUND CONDITIONS INTERSECTION ANALYSIS

Intersection operations and queuing were analyzed for each study intersection for the Project opening year, including ambient growth and related projects but *without* the Project. As previously discussed, the operational intersection analysis was conducted using the HCM methodology and reflecting the weekday evening commute and Saturday peak hour conditions. Table 19 summarizes background traffic operations. As shown in Table 19 and Figure 9, the signalized intersections operate at Level of Service ranging from "A" to "E" or better during the weekday PM peak hour and Saturday midday peak hours. Appendix F contains the background conditions Synchro worksheets.

Background Conditions Signalized Queuing Analysis

Signalized queues at the intersection of Lincoln Boulevard & Washington Boulevard and at the two access intersections are summarized in Table 20. The analysis shows signalized 95th percentile queues exceed available storage at the following locations:

- Lincoln Boulevard at Washington Boulevard:
  - Eastbound right-turn lane; Saturday
- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday
  - Southbound left-turn lane (internal driveway); Saturday
  - Southbound right-turn lane (internal driveway); Saturday
- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM[3] and Saturday[2]
  - Westbound right-turn lane; weekday PM and Saturday
  - Northbound left-turn lane; weekday PM[2] and Saturday
  - Southbound left-turn lane (internal driveway); weekday PM[2] and Saturday[2]

Table 19 – Background Intersection Operations

ID	Intersection	Weekday PM		Saturday Peak	
		Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	67.5	**E**	51.5	D
2	West Access & Washington Boulevard	6.8	A	8.9	A
3	Glencoe Avenue & Washington Boulevard	48.6	D	68.6	E

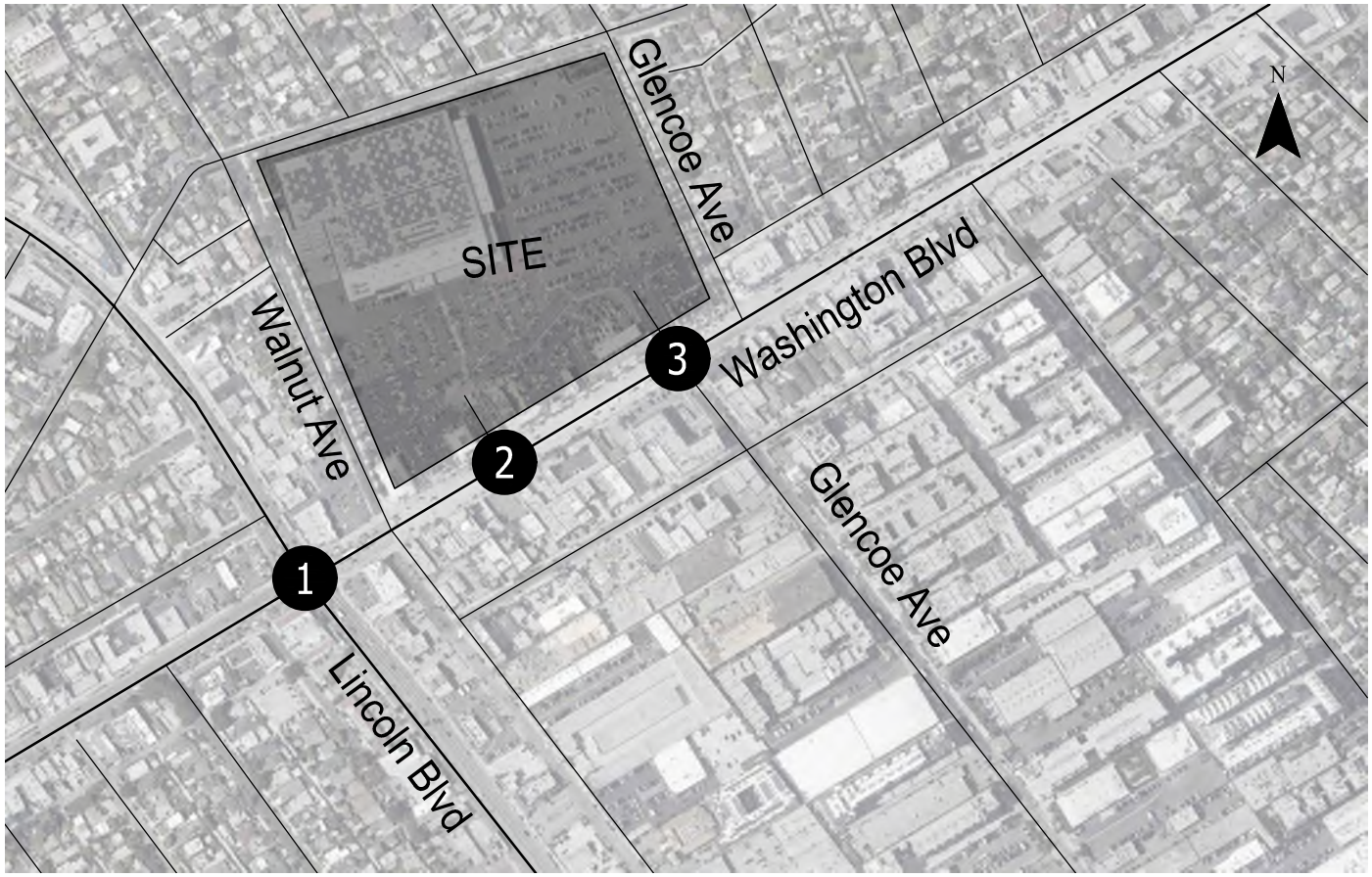
Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

[3] Average queues also exceed available storage.

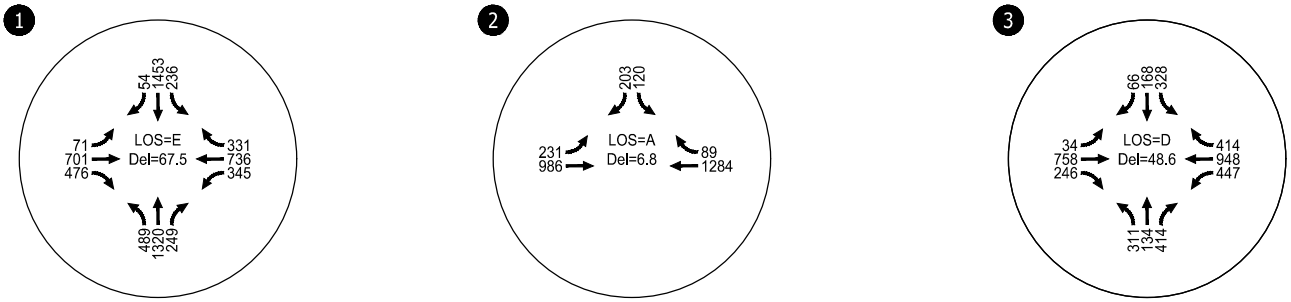
Table 20 – Background Queuing (Weekday PM & Saturday Midday)

ID	Intersection	Movement	Available Storage (ft)	Average | 95th Percentile Queue	
				Weekday PM	Saturday Midday
1	Lincoln Boulevard & Washington Boulevard	EBL	250	29 | 54	19 | 34
		EBR	350	212 | 327	231 | **355**
		WBL	350	194 | 293	96 | 148
		WBR	470	86 | 143	86 | 147
		NBL	400	237 | 375	165 | 294
		SBL	200	98 | 146	74 | 107
2	West Access & Washington Boulevard	EBL	170	32 | 107	119 | **224**
		SBL	175	91 | 147	138 | **214**
		SBR	175	119 | 165	124 | **188**
3	Glencoe Avenue & Washington Boulevard	EBL	375	15 | 26	17 | 35
		EBR	435	20 | 79	42 | 120
		WBL	300	**354** | **664**	**357** | **552**
		WBR	150	102 | **228**	147 | **290**
		NBL	145	**169** | **248**	137 | **206**
		NBR	400	7 | 123	62 | 102
		SBL	165	**189** | **280**	**176** | **288**
		SBR	165	0 | 32	0 | 35

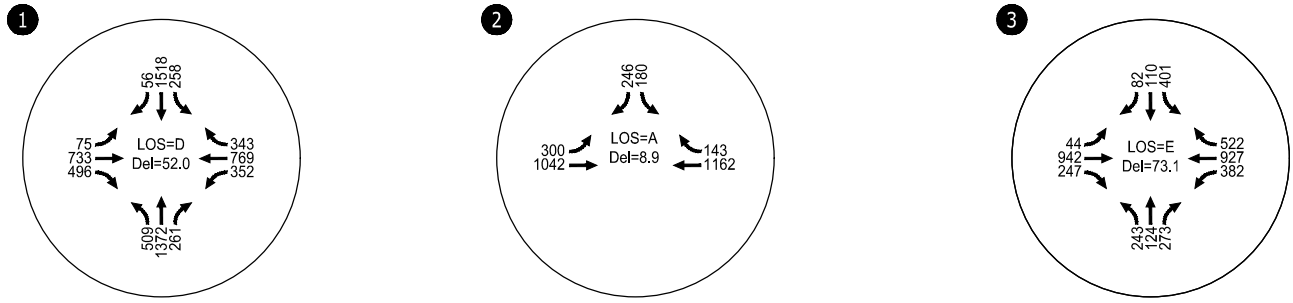
Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to queues exceeding available storage.



Weekday PM Peak Hour



Saturday Midday Peak Hour



Background Traffic Volumes & Operations
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure
9

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BACKGROUND PLUS PROJECT CONDITIONS

BACKGROUND PLUS PROJECT INTERSECTION ANALYSIS

The background plus Project scenario evaluates future year operations including ambient growth, relevant projects, and the Project in place. Table 21 summarizes background plus traffic operations. As shown in Table 21 and Figure 10, the background year plus Project signalized intersections operate at Level of Service ranging from "A" to "E" or better during the weekday PM peak hour and Saturday midday peak hours. There would be no change in LOS grades at each peak hour analysis period at the study intersections compared to those in the no Project condition. The average delay per vehicle at the intersection of West Access & Washington Boulevard would increase slightly (from 6.8 to 8.9 on weekdays PM and from 8.9 to 11.0 seconds/vehicle in the Saturday peak), but would remain at LOS A. The average delay per vehicle at the intersection of Glencoe Avenue & Washington Boulevard would increase (from 48.6 to 50.8 on weekdays PM and from 68.6 to 75.8 seconds/vehicle in the Saturday peak), but would remain at LOS D/E (weekday PM peak/Saturday midday peak). Appendix F contains the background plus Project conditions Synchro worksheets.

Background Plus Project Signalized Queuing Analysis

Signalized queues at the intersection of Lincoln Boulevard & Washington Boulevard and at the two access intersections are summarized in Table 22. The analysis shows signalized 95th percentile queues exceed available storage at the following locations:

- Lincoln Boulevard & Washington Boulevard:
  - Eastbound right-turn lane
- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday
  - Southbound left-turn lane (internal driveway); weekday PM[4] and Saturday
  - Southbound right-turn lane (internal driveway); weekday PM and Saturday[1]
- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday
  - Westbound right-turn lane; weekday PM and Saturday
  - Northbound left-turn lane; weekday PM and Saturday
  - Southbound left-turn lane; weekday PM and Saturday

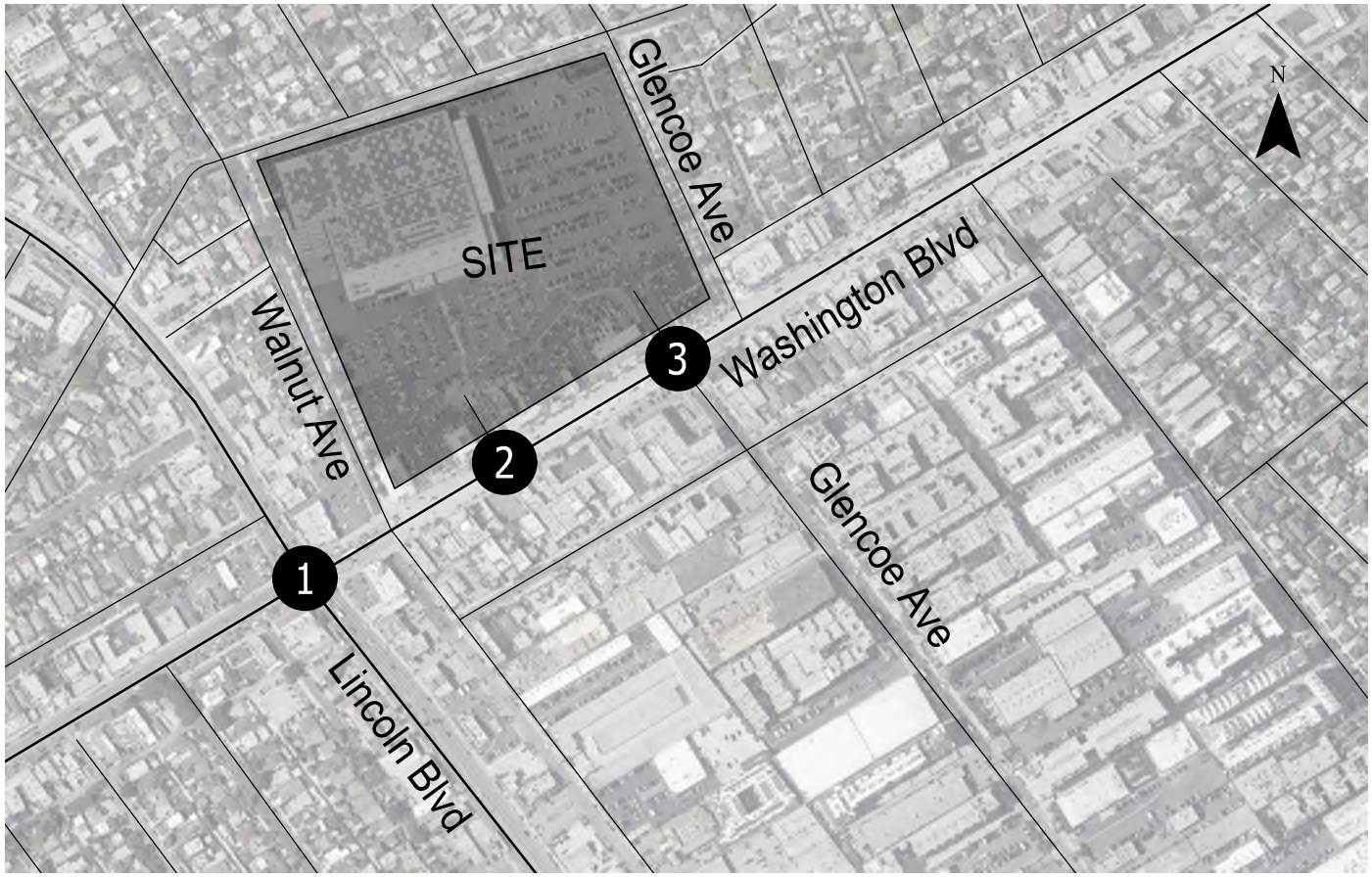
Compared to existing conditions, the Project would not result in additional turn lanes exceeding the available storage when compared to the background no Project conditions.

Table 21 – Background Plus Project Intersection Operations

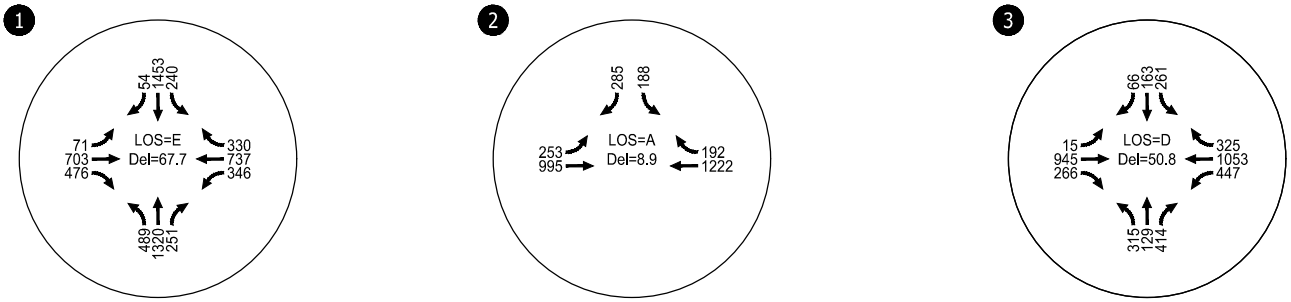
ID	Intersection	Weekday PM		Saturday Peak	
		Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	67.7	**E**	51.4	D
2	West Access & Washington Boulevard	8.9	A	11.0	B
3	Glencoe Avenue & Washington Boulevard	50.8	D	75.8	**E**

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

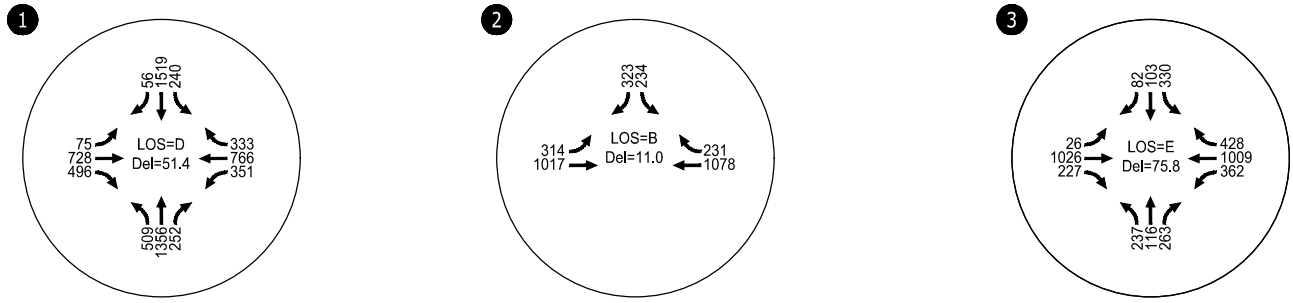
[4] Average queues also exceed available storage.



Weekday PM Peak Hour



Saturday Midday Peak Hour



Background Plus Project Traffic Volumes & Operations
Weekday PM Peak Hour & Saturday Midday Peak Hour
Culver City, California

Figure 10

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Table 22 – Background Plus Project Queuing (Weekday PM & Saturday Midday)

ID	Intersection	Movement	Available Storage (ft)	Average | 95th Percentile Queue		Substantial Project Increase	
				Weekday PM	Saturday Midday	Weekday PM	Saturday Midday
1	Lincoln Boulevard & Washington Boulevard	EBL	250	29 | 54	19 | 34	-	-
		EBR	350	212 | 327	231 | **355**	-	-
		WBL	350	195 | 294	96| 148	-	-
		WBR	470	86 | 143	85 | 146	-	-
		NBL	400	237 | 375	165 | 294	-	-
		SBL	200	101 | 153	73 | 107	-	-
2	West Access & Washington Boulevard	EBL	170	59 | 160	137| **345**	-	Yes
		SBL	175	142 | **207**	**185** | **257**	Yes	Yes
		SBR	175	167 | **206**	170 | **255**	Yes	Yes
3	Glencoe Avenue & Washington Boulevard	EBL	375	4 | 14	10 | 21	-	-
		EBR	435	32| 67	58 | 75	-	-
		WBL	300	328 | **668**	**357** | **552**	Yes	-
		WBR	150	83 |**191**	128 |**247**	-	-
		NBL	145	**169** | **246**	135 | **204**	-	-
		NBR	400	0 | 107	62 | 102	-	-
		SBL	165	164 | **242**	145 |**243**	-	-
		SBR	165	0 | 32	0 | 35	-	-

Source: Kittelson & Associates, Inc. 2021

Notes: **bold** correspond to queues exceeding available storage.

Signalized queues at the intersection of Lincoln Boulevard & Washington Boulevard and at the two access intersections under the background plus Project scenario are summarized in Table 22. The analysis shows signalized 95th percentile queues exceed available storage at the following locations:

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday
  - **Southbound left-turn lane (internal driveway); weekday PM**[5] and Saturday
  - **Southbound right-turn lane (internal driveway); Saturday**[1]
- Glencoe Avenue at Washington Boulevard:
  - **Westbound left-turn lane; weekday PM** and Saturday
  - **Northbound left-turn lane; weekday PM** and Saturday

Compared to background without Project conditions, the project results in an increase in queue at four turn lanes exceeding available storage (identified in **bold** above).

[5] Average queues also exceed available storage.

The Project would increase the queue length and exceed the turn lane storage at the following locations on public streets:

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday – the available storage is 170 feet, and the Project would increase the 95th percentile queue from 224 to 345 feet. This exceeds the available storage by approximately seven vehicle lengths, which will typically pull into the taper to get out of the way of eastbound through vehicles on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. Modifications to the signal timing by allocating more time to the eastbound left-turn split would reduce this queue to 253 feet. The eastbound left-turn lane is already exceeding storage in the background conditions for the 95th percentile queue, with signal timing improvements the project will add less than two vehicles in length. During the Saturday midday peak hour, the available storage is adequate for the average peak hour demand.

- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday - the available storage is 300 feet, and the Project would increase the 95th percentile queue from 664 to 668 feet on weekdays and remain at 552 feet on Saturdays. The Project would nominally increase the queue length by less than one vehicle at this location (less than 11 feet in both periods), which will typically pull into the taper to get out of the way of westbound through vehicles on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. Modifications to the signal timing would offset the queue increase.

The background plus Project scenario found that two of the queuing impacts identified at the Glencoe Avenue & Washington Boulevard intersection (the westbound right-turn lane and the southbound left-turn lane) would be eliminated. The additional segments would be contained within the internal Project driveways, not on public streets. Therefore, the increase in the queues at southbound approach at West Access & Washington Boulevard would not be considered a substantially adverse condition that affects traffic on public streets.

TEMPORARY CONSTRUCTION TRAFFIC

The Washington Boulevard Stormwater and Urban Runoff Project ("Stormwater Project") will be implemented by the City of Culver City to capture stormwater and urban runoff before it enters the storm drain system. The redesign proposes five landscaped medians to be constructed within the existing painted medians on Washington Boulevard and will not remove any lanes once complete. The only raised median proposed on Washington Boulevard adjacent to the Costco site would be constructed between the eastern access driveway and Glencoe Avenue. Other medians would be constructed east of Walgrove Avenue.

Construction of the Stormwater Project was scheduled to start in January 2022 and be completed in November 2022. However, the start of the project has been delayed. It is possible that the construction activities for both projects may overlap. The following provides a detailed description of the anticipated construction activities, timing, location and construction-related traffic.

Costco Fuel Station Construction

The existing Costco Gasoline fuel station will be re-located to the two (2) developed parcels in the southwest corner of the shopping center currently occupied by commercial buildings. The existing fuel station will be razed and removed from the site and the existing commercial buildings will be demolished. The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fuel facility site will be improved with additional parking for the Costco Warehouse. Construction of the proposed new fuel station and demolition of the existing fuel station is estimated to take approximately 6 months. Construction of the fuel station project would consist of 5 phases. Figure 11 depicts the anticipated start, end days and duration for each phase. Figure 11 shows the duration of each construction phase ranging from 29 to 88 days. The following provides a summary of each phase, duration in days, and total number of truckloads (truck hauling round trips) during the duration each phase:

- Phase 1, Demolition of commercial buildings – 29 days, 179 truckloads
- Phase 2, Relocation of major utilities, rough grade and parking lot modification – 42 days, 179 truckloads
- Phase 3 A and B, New Fuel Facility Construction and Parking Lot Modifications – 88 days, 302 truckloads
- Phase 4, Decommission and demolition of the existing fuel facility – 61 days, 174 truckloads
- Phase 5, Installation of new parking lot at existing gas station – 61 days, 40 truckloads

As a project design feature, there would be no overlapping construction with the Washington Boulevard Stormwater, as follows[6]:

- Avoid concurrent construction within 500 feet of the City's Stormwater Project and receptor location R1
- Avoid concurrent construction within 400 feet of the City's Stormwater Project and receptor location R3
- Avoid concurrent construction within 100 feet of the City's Stormwater Project and receptor location R4

Washington Boulevard Stormwater and Urban Runoff Project Construction

Work to be done along Washington Boulevard is anticipated to occur for a duration of 8 months. Figure 12 depicts the phases and timing for the Stormwater Project construction. Appendix J presents a description and schedule for each phase. The work area associated to the sewer connection will be plated during the

[6] Receptors R1, R3, R4 are residential properties located on Walnut Avenue, Zanja Street, and Glencoe Avenue. These are described in detail in the Costco Fuel Station Relocation Project Environmental Noise Impact Study, prepared by AES in October 2022.

day for vehicular traffic. The work zone on Washington Boulevard would comprise of a 38-foot-wide area. Traffic on Washington Boulevard would have limited travel and turning lanes at intersections.

A traffic control plan for the Stormwater Project was prepared and would include the closure of one lane of through eastbound traffic and the center median lane. The plan would also temporarily remove on-street parking along Washington Boulevard between the western Costco Wholesale driveway and Redwood Avenue. Furthermore, several pedestrian crosswalks will be closed during Stormwater Project construction, but only across Washington Boulevard. Sidewalks along Washington Boulevard are to remain open and untouched by the project construction.

Figure 11- Costco Fuel Station Construction Phases

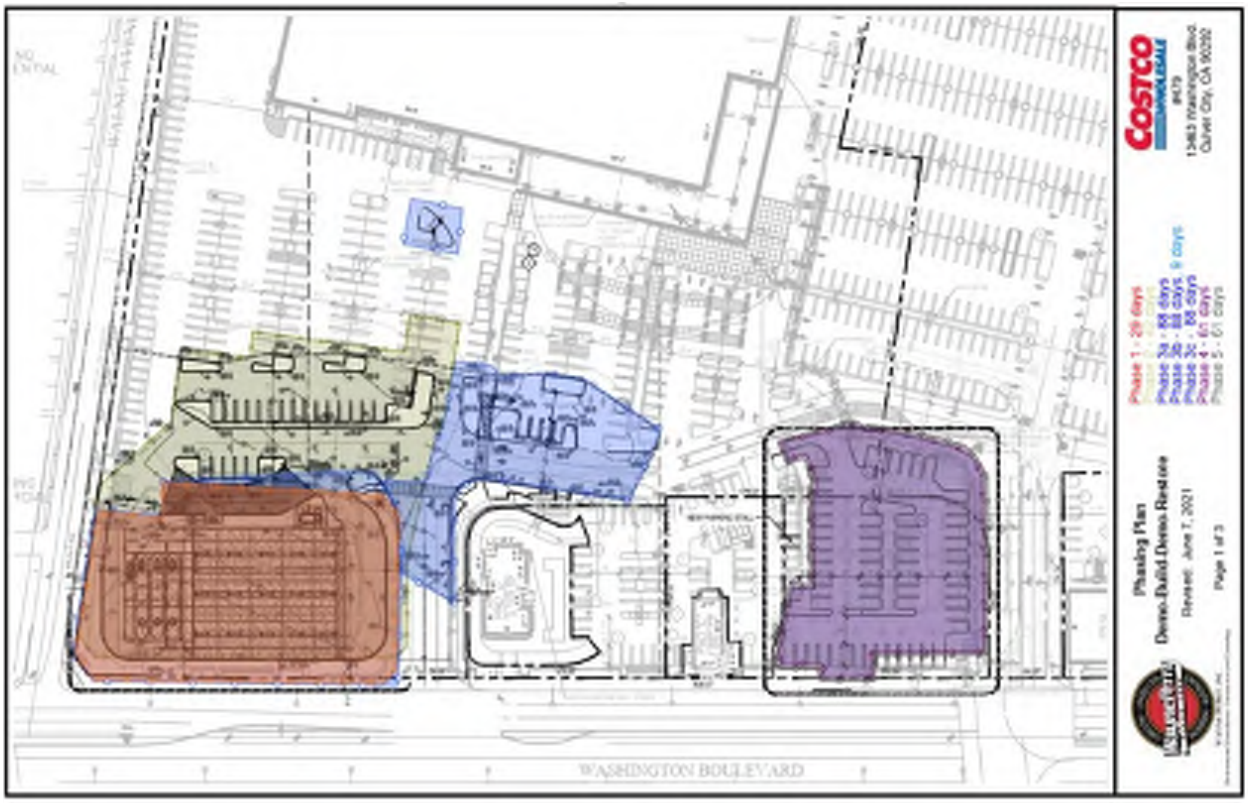


Figure 12 - Washington Boulevard Construction Phases

During construction of the Stormwater Project, traffic in the vicinity of the Costco warehouse area could be affected by temporary lane closures, turn restrictions, potential alterations to bus stops, restrictions to local access driveways, and temporary loss of curbside parking. Traffic mitigation identified in the Washington Boulevard Diversion Traffic Management Plan, prepared by Albert Grover and Associates in December 2018, would include:

- Work zone traffic control and changeable message signs
- Facilitate flow on Washington Boulevard and alternative routes
- Intelligent project staging and work activities
- Updating signal timing to facilitate traffic flow through construction zones
- Restricting deliveries and demolition hauling outside of the peak hours

Anticipated delays and congestion due to construction activities and lane reductions are likely to influence motorists to choose alternate routes that provide a time advantage over waiting in congestion along Washington Boulevard. It is anticipated that some motorists will divert to Venice Boulevard and Maxella Avenue depending on their ultimate destination.

To minimize congestion related to construction traffic, Costco will prepare a construction management plan in consultation with the City of Culver City, which will establish truck haul routes, access driveways, time restrictions, maximum number of trucks per hour or per day, staging, parking and loading areas and

traffic controls such as signage, pavement markings, cones, barricades, flaggers and other elements for implementation of the proposed fuel facility. The construction management plan will be submitted to the City and be approved prior to obtaining construction permits.

Section 7— Findings & Recommendations

FINDINGS & RECOMMENDATIONS

The expansion and relocation of the Culver City Costco Gasoline fuel station (along with the removal of existing retail uses) will result in a reduction in net new trips to the site. The Project is estimated to approximately reduce 13 weekday PM peak hour net new trips (6 inbound, 7 outbound) and 14 Saturday midday peak hour net new trips (8 inbound/6 outbound). On a daily basis, the Project would result in 331 fewer trips during the weekdays. While Saturday daily estimates are not available, a comparison between the peak hour trips on weekdays and Saturdays suggest that the net daily trip reduction would also occur on Saturdays.

CEQA-RELATED

POTENTIAL CONFLICTS WITH PROGRAMS, PLANS, ORDINANCES, AND POLICIES

Neighborhood Traffic Management Program

The Project would not add new access driveways to the circulation network. All vehicular ingress and egress would continue to occur via Washington Boulevard. No access driveway will be constructed on Walnut Avenue. Walnut Avenue and Zanja Street already have traffic calming measures that restrict cut-thought traffic on those streets. Because the Project would result in a net decrease in traffic, and because site access would continue to occur primarily via the existing access driveways at Washington Boulevard, the Project would not add cut-through traffic to the nearby residential neighborhoods.

In addition, the Project would not add vehicle trips to the study area and therefore not exacerbate cut-through traffic through the neighborhood by causing additional congestion to the study area.

Potential Impacts to Non-Auto Modes

Pedestrian and Bicycle Circulation

The existing Costco site provides decorative paving at all on-site pedestrian walkways and courtyards. The gasoline station would not generate a substantial number of pedestrian traffic to/from the warehouse and other parts of the shopping area. The new parking lot area at the location where the existing gas station is located will continue to be connected with decorative paving at all on-site pedestrian walkways and courtyards.

As previously described in Section 5, the Project would not modify existing bicycle and pedestrian facilities that would impact off-site bicycle and sidewalks. The project includes the repairment of three (3) sidewalk panels along Washington Boulevard fronting the project site. The project will also close the existing gas station exit driveway, so vehicles would no longer cross the pedestrian path, improving pedestrian experience. In addition, the proposed gasoline station would not create a substantial increase in pedestrian and bicycle activity. As such, the Project would not impact off-site pedestrian and bicycle facilities and should not be required to provide any off-site bicycle and pedestrian improvements.

Bicycle Parking

Short-term bicycle parking is provided at the main Costco warehouse. The fuel facility is not required to provide parking stalls as it is an ancillary use to the main Costco warehouse and no goods, other than fuel, are sold at the facility. In addition, the Project will remove approximately 29 parking stalls, and the California Green Building Code only requires new bicycle parking for any new parking provided. Based on the above information, the provision of additional short-term bicycle stalls is not needed for the fuel facility.

Transit

The Project would not impact the existing bus stops along Washington Boulevard. In addition, the Project is not anticipated to generate a significant number of additional trips to the site. As such, bus stop upgrades should not be required.

VEHICLE MILES TRAVELED (VMT) IMPACTS

On June 8, 2020, the City of Culver City updated the Transportation Study Criteria and Guidelines, which includes methodologies and criteria to evaluate land use and transportation projects from a VMT standpoint. Regional serving retail projects should be evaluated to determine their effect on vehicle trip length and VMT.

The Project would result in a net decrease of 331 daily trips. The Project would be replacing trips from retail uses with trips to a gas station, which on average consist of shorter trip lengths compared to those of retail trips. In summary, as the Project would generate fewer daily trips and the trip lengths associated with the Project would be less, the Project would result in a net decrease in VMT and therefore not result in a significant VMT impact.

GEOMETRIC DESIGN HAZARDS

Intersection Queues

The Project would increase the queue length and exceed the turn lane storage at the following locations on public streets. Table 23 and Table 24 summarize the 95th percentile queues at the critical movements, as described below.

- West Access at Washington Boulevard:
  - Eastbound left-turn lane; Saturday – The available storage is 170 feet. The 95th percentile queue at this intersection of 181 feet is currently exceeding the available storage at this location, in a condition where the queue extends to the adjacent eastbound through lane on Washington Boulevard. A review of aerial photography indicates that the left turn pocket cannot be extended. The Project would increase the 95th percentile queue under existing and background conditions. Signal timing adjustments would reduce queue increases with the project as shown on Table 23, but queues would remain greater compared to no project conditions.
- Glencoe Avenue at Washington Boulevard:
  - Westbound left-turn lane; weekday PM and Saturday - The available storage is 300 feet. The 95th percentile queue (523 feet weekday PM/407 feet Saturday) feet at this intersection is currently exceeding the available storage at this location. A review of aerial photography indicates that the left turn pocket cannot be extended. The Project would increase the 95th percentile queue under existing and background conditions. Modifications to the signal timing would offset the queue increase as shown on Table 24.
  - Northbound left-turn lane; weekday PM and Saturday- The available storage is 145 feet. The 95th percentile queue (203 feet weekday PM/174 feet Saturday) at this intersection is currently exceeding the available storage at this location. The Project would nominally modify the queue length by less than one vehicle at this location. The queue would be contained within the northbound approach of Glencoe Avenue and would not extend to the next driveway at Beach Avenue. This would not substantially affect circulation in the area, and no modifications are recommended to address this condition.

Table 23- West Access & Washington Blvd Critical Movements 95th Percentile Queues Summary

Turn Lane	Condition	Existing 95 Percentile Queues			Background 95 Percentile Queues		
		No Project	With Project	With Project and Signal Timing Updates	No Project	With Project	With Project and Signal Timing Updates
Eastbound Left	Weekday PM	63	119	119	107	160	160
	Saturday	**181**	**255**	**210**	**224**	**345**	**253**

Notes: **bold** correspond to queues exceeding available storage of 170 feet.

Table 24 - Glencoe Av & Washington Blvd Critical Movements 95th Percentile Queues Summary

Turn Lane	Condition	Existing 95 Percentile Queues			Background 95 Percentile Queues		
		No Project	With Project	With Project and Signal Timing Updates	No Project	With Project	With Project and Signal Timing Updates
Westbound Left	Weekday PM	**523**	**527**	**515**	**664**	**668**	**656**
	Saturday	**407**	**418**	**405**	**552**	**552**	**502**
Northbound Left	Weekday PM	**203**	**205**	**205**	**248**	**246**	**248**
	Saturday	**174**	**171**	**171**	**206**	**204**	**206**

Notes: **bold** correspond to queues exceeding available storage as follows:

- Westbound left available storage = 300 feet
- Northbound left available storage = 145 feet

Project-related traffic would result in an increase in the queues at the eastbound left turn lane of West access at Washington Boulevard, at a location where the queue already extends past the available storage. The project will be conditioned to either the installation of a battery backup and a Video Detection camera for the existing traffic signal, or payment of a $30,000 in-lieu fee.

The intersection queuing analysis concluded that the Project would not result in new locations where the available storage would be exceeded at study intersections on public street approaches. In addition, the Project will not cause a substantial increase in on-street hazards due to geometric design or incompatible uses and therefore not result in a significant impact related to CEQA.

NON-CEQA SUPPLEMENTAL TRANSPORTATION ANALYSIS

INTERSECTION LOS AND DELAY

Table 25 summarizes the LOS and delay at the three study intersections during the weekday PM peak hours. With Project traffic under existing and background conditions, there is no degradation in LOS or minor changes in delay at the study intersections. Therefore, the Project would not degrade intersection operations in terms of LOS or delay during the weekday PM peak hour.

Table 25 – Intersection LOS Summary Table, Weekday PM Conditions

ID	Intersection	Existing		Existing Plus Project		Background		Background Plus Project	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	62.7	**E**	62.7	**E**	67.5	**E**	67.7	**E**
2	West Access & Washington Boulevard	7.1	A	9.3	A	6.8	A	8.9	A
3	Glencoe Avenue & Washington Boulevard	41.8	D	41.9	D	48.6	D	50.8	D

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

Table 26 summarizes the LOS and delay at the three study intersections during the Saturday peak hours. With Project traffic under existing and background conditions, the intersection of West Access & Washington Boulevard would change from LOS A to LOS B, which is considered acceptable in terms of operations. There is no degradation in LOS or minor changes in delay at the intersections of Lincoln Boulevard & Washington Boulevard, and Glencoe Avenue & Washington Boulevard. Therefore, the Project would not degrade intersection operations in terms of LOS and delay on Saturdays.

Table 26 – Intersection LOS Summary Table, Saturday Peak Hour Conditions

ID	Intersection	Existing		Existing Plus Project		Background		Background Plus Project	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Lincoln Boulevard & Washington Boulevard	48.1	D	48.1	D	51.5	D	51.4	D
2	West Access & Washington Boulevard	9.3	A	11.3	B	8.9	A	11.0	B
3	Glencoe Avenue & Washington Boulevard	49.7	D	53.2	D	68.6	**E**	75.8	**E**

Source: Kittelson & Associates, Inc. 2021
Notes: **bold** correspond to LOS E and F operations.

PROJECT CONSTRUCTION

The Stormwater Project will be implemented by the City of Culver City in the near future. Construction of the proposed Costco Gasoline fuel facility and demolition of the existing gasoline dispensing facility is expected to last for 6 months. It is possible that an overlap of the construction projects may occur. As a project design feature of the Project, there would be no overlapping construction with the Washington Boulevard Stormwater as previously described.

During the Stormwater Project construction, the work zone traffic control plan outlines the closure of one lane of through westbound traffic and most of the center median lane, as well as temporary removal of on-street parking along Washington Boulevard between the western Costco Wholesale driveway and Redwood Avenue. Furthermore, several pedestrian crosswalks will be closed during the project

construction, but only across Washington Boulevard. Sidewalks along Washington Boulevard are to remain open and untouched by the project construction.

During the Stormwater Project construction, traffic in the vicinity of the Costco warehouse area could be affected by temporary lane closures, turn restrictions, potential alterations to bus stops, restrictions to local access driveways, and temporary loss of curbside parking. Traffic mitigation identified in the Washington Boulevard Diversion Traffic Management Plan, prepared by Albert Grover and Associates in December 2018, would include:

- Work zone traffic control and changeable message signs
- Facilitate flow on Washington Boulevard and alternative routes
- Intelligent project staging and work activities

To minimize congestion related to construction traffic, Costco will prepare a construction management plan in consultation with the City of Culver City, which will establish truck haul routes, access driveways, staging, parking and loading areas and traffic controls such as signage, pavement markings, cones, barricades, flaggers and other elements. The construction management plan will be submitted to the City and be approved prior to obtaining construction permits.

References

1. Institute of Transportation Engineers. *Trip Generation Manual, 10th Edition*. 2017.
2. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition*. 2017.

Appendix A:
Memorandum of Understanding

Memorandum of Understanding for Transportation Study

This Memorandum of Understanding (MOU) acknowledges and agrees to all the City of Culver City requirements and fees for the review of a transportation study for the following project.

Date Submitted: 02/05/2021 **MOU Version #** 2021 v3

Project Name: Culver City Costco Fuel Station Relocation

Project Address: 13463 Washington Blvd in Marina Del Rey, California 90292

Project Description:

The site is currently developed with a Costco warehouse and a sixteen (16) vehicle fueling position Costco Gasoline fuel station. In addition, there are several retail buildings on the property including fast food and small retail. The project will move the gas station to the southwest corner of the site and expand to thirty (30) vehicle fueling positions to better serve peak period demand. The new location is currently occupied by two buildings that house a Verizon mobile phone store, Subway, a GNC shop and a Starbucks Coffee. These buildings will be demolished and therefore eliminate on-site trips associated with those land uses. The existing gas station will as be demolished and converted into Costco warehouse customer parking. The on-site relocation and expansion will improve site circulation and service provided to Costco members.

Land Use	Gross Floor Area (sq. ft.) *Defined per latest ITE publication*	Residential Units (#)
Costco Fueling Station	30 Fueling Positions	0

Project Horizon Year: 2022

Ambient Growth Rate (% per year): 1% (see Attachment for details)

Directional Distribution (%): N: 20% S: 15% E: 60% W: 5%

Trip Generation Rates: Show AM, PM and daily trip generation rates for each land use and attach total daily trips generation calculations. Indicate ITE Latest Edition/Other: Kittelson Costco Trip Counts Database

Land Use	ITE Code #	PM Trips		SAT Trips		Daily Totals	
		In	Out	In	Out	In	Out
Costco Fueling Station (30 Fueling Positions)	NA	355	354	375	375	4129	4128

See attachment for trip generation calculation details.

Study Intersections: Show all study intersections, intersections subject to capacity analysis credit for advanced traffic signal control synchronization, whether intersections are signalized or non-signalized, and use the same numbering system for all lists of intersections and figures in the study.

No.	Intersection	Signalized/Non-Signalized	Jurisdiction
1	Washington Blvd & Glencoe Ave/Costco East Access	Signalized	Culver City
2	Washington Blvd & Costco West Access	Signalized	Culver City
3	Washington Blvd & Lincoln Blvd	Signalized	City of Los Angeles

Trip Credits: Indicate trip credits to be requested (subject to City approval)

	Trip Credits (PM/SAT)	Yes/No
Existing Uses	596/687	Yes
Pass-By Trips	198/246	Yes
Internal Trip Capture	395/428	Yes
Diverted Trips	284/286	Yes
Transit-Oriented Development (TOD)		No
Transportation Demand Management (TDM)		No

See attachment for trip credit details.

Related Projects: Before the start of any proposed project analysis, consultants shall:

1. Obtain a list of related projects from the Culver City Current Planning Division and other affected jurisdictions.
2. Prepare a draft list of "related projects specific to the proposed project."
3. Obtain written approval from the City of the "related projects specific to the proposed project."

Maps: The following maps shall be attached to the MOU:

1. A map showing the study intersections and street segments to be analyzed, including City limit lines where applicable.
2. A map showing the project's trip distribution percentages for each land use (inbound and outbound) on the area's road network.
3. A map showing the project's trip assignments at the study intersections and project driveways, as well as road segments when applicable.
4. A site plan of the project showing property lines, alleys, project's driveways and nearby driveways and intersections on both sides of the street including dimensions.

Proposed Mitigation and Transportation Improvements: Any proposed transportation improvement(s) or mitigation measure(s) shall be listed and accompanied by plans of the existing and proposed improvements, including city limit lines and existing and proposed property lines. The City may initially accept conceptual plans to be included in the Transportation Study. Detailed design of such improvements will be part of the project's plans submittals.

Post-Occupancy Traffic Counts: By signing below, the Property Owner/ Developer/Applicant hereby agrees to pay for and submit to the City a post-occupancy traffic count analysis of the development to the satisfaction of the City. The analysis shall determine the amount of actual traffic (motor vehicle, bicycle, and pedestrian) generated by the development compared to the ITE trip generation rates. The analysis shall include a traffic count of all onsite driveways taken upon reaching eighty-five percent (85%) occupancy of the total building gross floor area or within one (1) year of the issuance of the first Temporary Certificate of Occupancy (TCO), as determined by the City. The data shall be used to confirm the findings in the approved study and ~~not~~ may result in ~~any~~ additional traffic mitigation measures ~~and/or conditions of approval~~ on the subject project.

and study intersections

The post-occupancy analysis will double check accuracy of the LOS findings and will not add any other study intersections.

Fees: Payment of a fee to the City's PWD for the City's processing of the MOU shall be required before the City approves the MOU. Payment for review of the Transportation Study shall be paid before the City's PWD completes its review of the Transportation Study. Said fees shall be per the most recent Fee Schedule as approved by the City Council.

Applicant Information:

	Property Owner/Applicant	Developer/Applicant	Traffic Consultant
Name	Ms. Kim Katz		Mr. Fernando Sotelo, TE, PTP
Title			Associate Engineer
Company	Costco Wholesale		Kittelson and Associates
Street Address	999 Lake Drive		750 The City Drive, Suite 410
City, State, Zip	Issaquah, WA, 98027		Orange, CA, 92868
Office			714-468-1997
Cell			
Fax			
Email	Kkatz@costco.com		fsotelo@kittelson.com

Public Agency Information: If any of the intersection(s) to be studied as part of this study are located within the City of Los Angeles, the unincorporated areas of Los Angeles County and/or impact any other public agency (i.e., Caltrans), then this MOU shall also be approved by the reviewing staff representative from each agency:

	City of Los Angeles	County of Los Angeles	Other Public Agency
Name	Robert Sanchez		
Title			
Company	LADOT, West LA / Coastal Development Review		
Street Address			
City, State, Zip			
Office			
Cell			
Fax			
Email	robert.sanchez-jr@lacity.org		

Signatures/Expiration: This MOU shall become valid as of the date of the City's signature and expire one year thereafter. If the administrative draft of the study has not been filed with the City by the expiration date, the MOU shall expire and a new MOU filing, fee, review, and approval process shall be required.

Approved By:

Date:

Property Owner/Applicant

Developer/Applicant

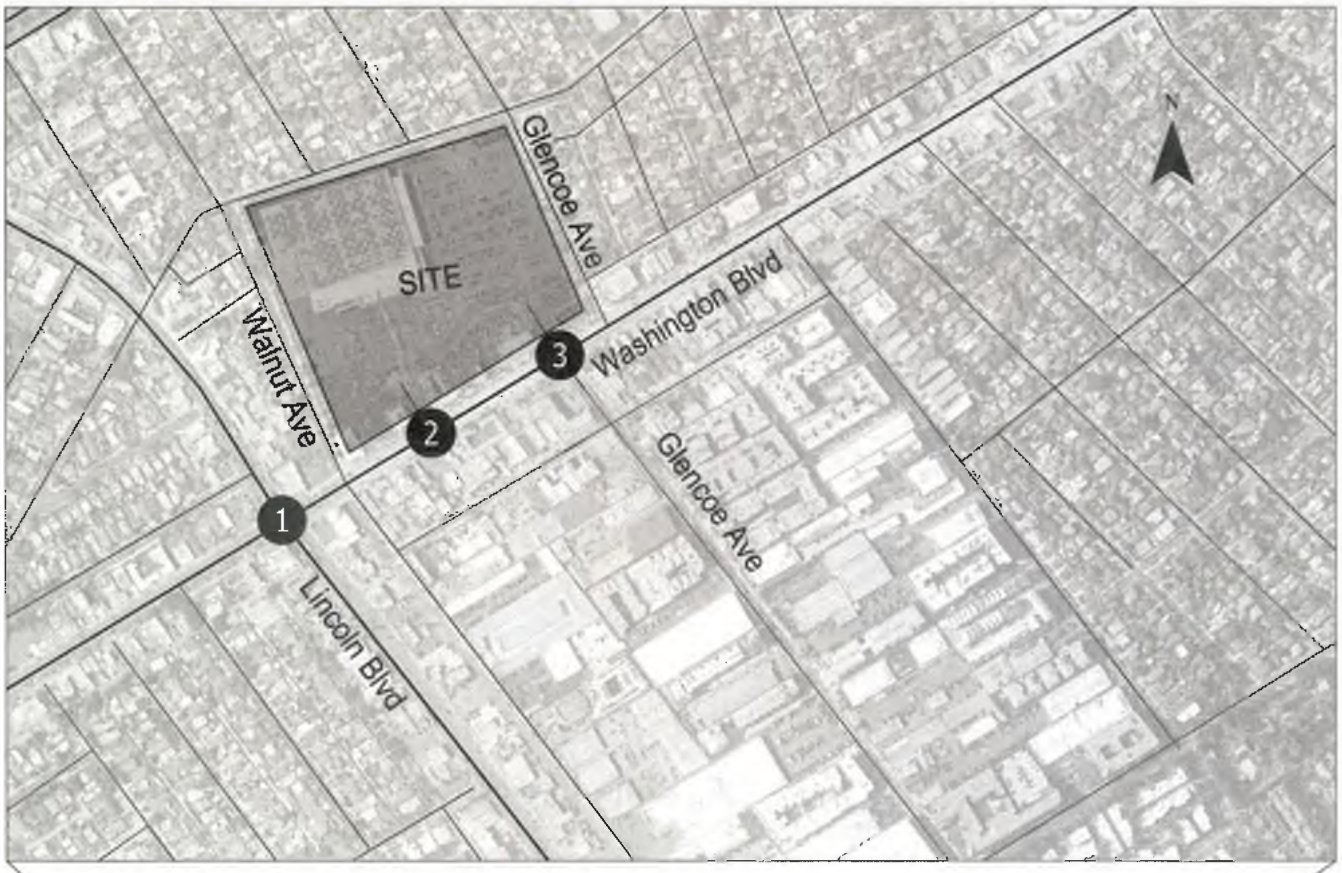
02/05/2021

Traffic Consultant

Heba El-Gendy

02/11/2021

City of Culver City



- Study Intersections

Site Vicinity Map
Culver City, Califronia

Figure
1

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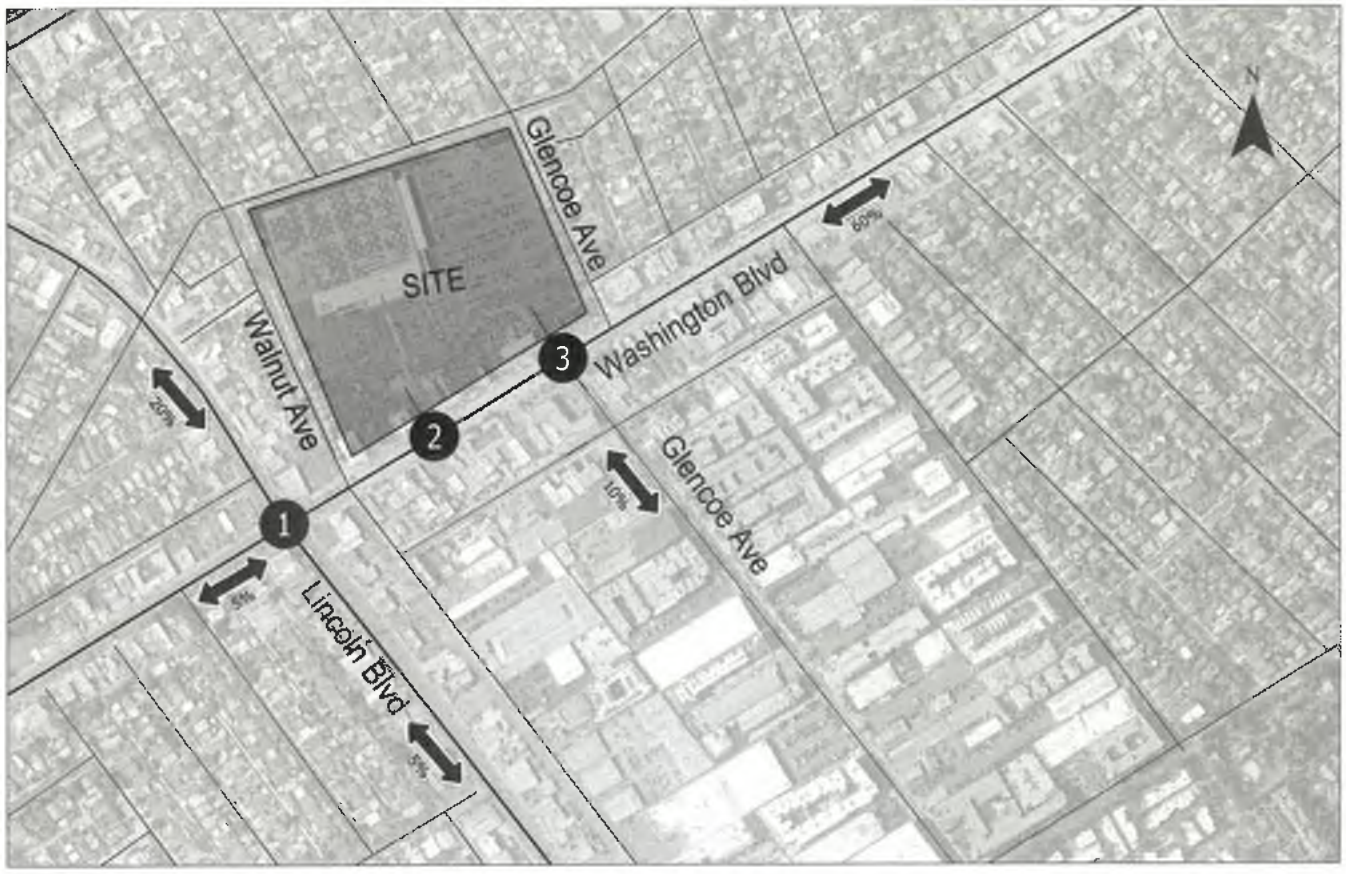
KITTELSON & ASSOCIATES



Trip Distribution Percentages
Weekday PM And Saturday Midday Peak Hours
Culver City, California

Figure
2

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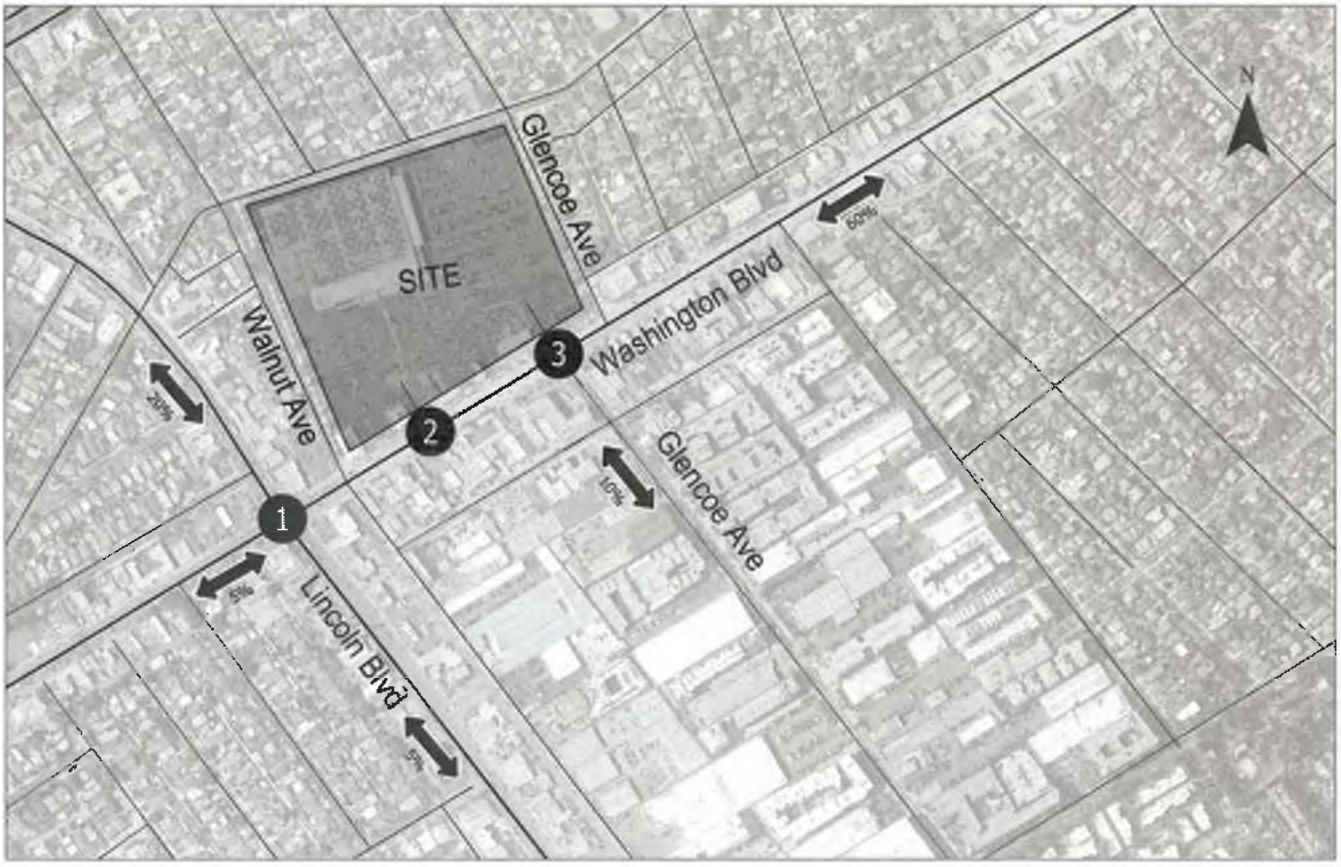

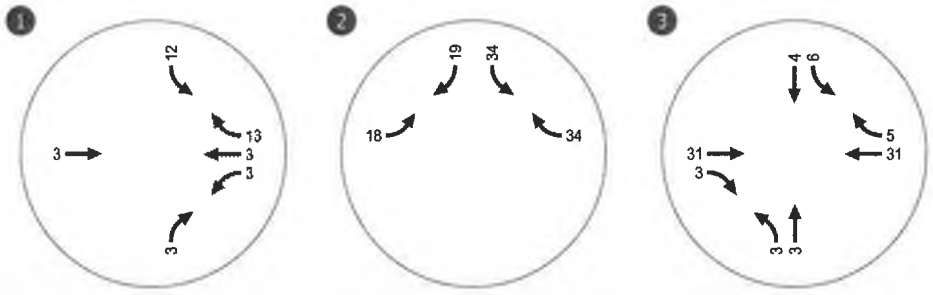

EXISTING USES TRIP CREDITS NOT INCLUDED

Proposed Project Trip Assignment
Weekday PM Peak Hour
Culver City, California

Figure
3

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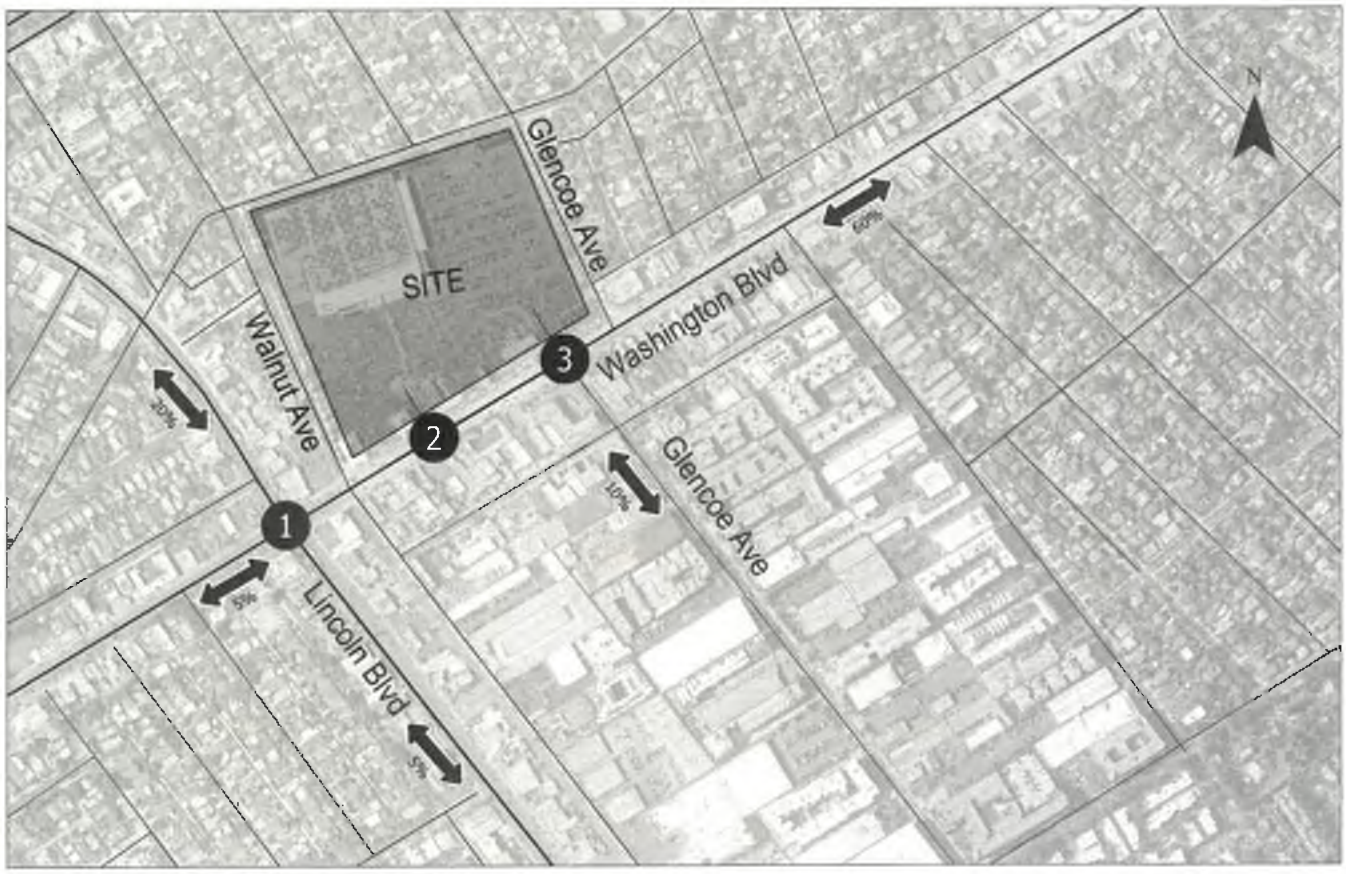
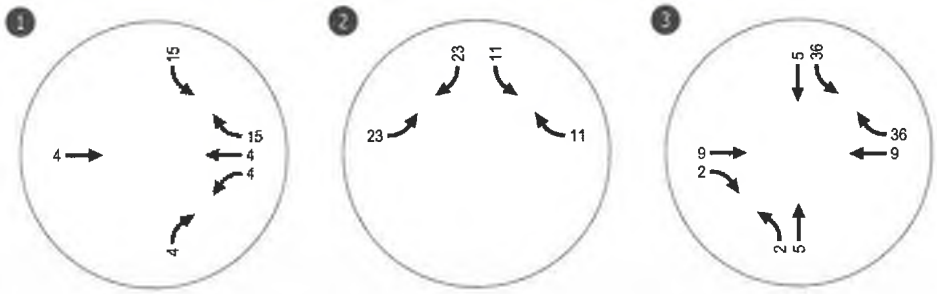
KITTELSON & ASSOCIATES





EXISTING USES TRIP CREDITS NOT INCLUDED

Proposed Project Trip Assignment
Saturday Midday Peak Hour
Culver City, California

Figure
4

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RECEIVED FROM MG2 : (10/5/2020)

Proposed Site Plan
Culver City, California

Figure
5

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KITTELSON & ASSOCIATES

750 THE CITY DRIVE, SUITE 410
ORANGE CA 92868
P 714.468.1997

MOU ATTACHMENTS

Date: February 1, 2020 Project #: 24944

To: Heba El-Guindy – Culver City

CC:

From: Fernando Sotelo, TE, PTP
Project: Culver City Costco Fuel Station Relocation
Subject: Supporting data for Costco Culver City MOU

Kittelson & Associates, Inc. (Kittelson) is preparing a transportation impact study (TIS) for the fuel station relocation project at the Costco Warehouse site at Washington Boulevard in Culver City. This attachment has been prepared to support the Memorandum of Understanding (MOU) for the Transportation Study of the proposed fuel station relocation project at the Costco Warehouse site at Washington Boulevard in Culver City. This attachment consists of the following elements:

A. Project Description
B. Supporting data and methodology to support the following rates specific to Costco sites:
    - Project trip generation
    - Internal capture rates
    - Pass-by trip rates
    - Diverted trip rates
C. Related (Cumulative) Projects
D. Baseline Traffic Conditions

A. Project Description

The existing Culver City Costco is located at 13463 Washington Blvd in Marina Del Rey, California. The site is currently developed with a Costco warehouse and a sixteen (16) vehicle fueling position Costco Gasoline fuel station located in the south-east corner. In addition, there are several pad developments on the property including fast food and small retail. The on-site relocation will move the gas station to the southwest corner of the site, providing space between the gas station queues and the main entrance at the Washington Blvd & Glencoe Ave traffic signal. The relocation will also allow the gas station to expand to thirty (30) vehicle fueling positions to provide more fueling positions to better serve peak period demand. The new location is currently occupied by two buildings that house a Verizon mobile phone store, Subway, a GNC shop and a Starbucks Coffee. These buildings will be demolished and therefore eliminate on-site trips associated with those land uses. The existing gas station will as be demolished and converted into Costco warehouse customer parking. The on-site relocation and expansion will improve site circulation and service provided to Costco members.

B. Supporting Data and Methodology

Costco Trip Generation Database

For the past 17 years, Kittelson has maintained a database of traffic data and travel characteristics for Costco Wholesale, including data about their fuel stations. The database contains transportation information such as trip rates, trip type percentages (total, pass-by, internal), and parking demand for Costco locations in the United States, as well as Canada and Mexico. The database is updated and refined each time new Costco traffic counts or information become available to Kittelson.

The Costco transportation database contains a large quantity of data related to Costco fuel stations. Trip generation rates and trip type information for over 50 Costco Gasoline facilities located throughout the U.S. are included. Costco has invested significant time and effort into developing this use-specific trip generation database for both its warehouses and its fuel stations. Because of membership requirements and the nature of Costco sales, Costco members have unique travel characteristics and patterns which are different from customers of other supermarkets. These unique characteristics and patterns exist in the trip generation for Costco warehouses, Costco Gasoline facilities, and the interaction of trips between the two.

The Costco-specific trip generation data presented herein follows nationally-accepted practices for trip generation data collection as recommended by the Institute of Transportation Engineers (ITE) and presents a robust dataset upon which to confidently and accurately predict the trip generation of the expansion of the Culver City Costco Gasoline fuel station.

Culver City Fuel Station Expansion Trip Generation Estimate

In developing a trip generation estimate for the project, it is important to recognize that the fuel station exists on site today and the project is an on-site relocation and expansion of that station. The membership of Costco does not change with the expansion or on-site relocation of a fuel facility, and the general demand for gas at the Culver City Costco will not change. Therefore, it is unlikely that the trip generation of the fuel station will increase directly in proportion to the increased number of fueling positions. Instead, the additional fueling positions will serve to more efficiently and effectively process the current peak demand at the fuel station, thus reducing wait times, vehicles queuing, and vehicle idling. This has been confirmed through before and after data collection at other Costco Gasoline expansion locations.

Kittelson has reviewed before and after data from other comparable Costco gasoline facility expansion sites to determine a representative relationship between new trip generation and the addition of fueling positions to an existing fuel station.

Before and After Fuel Expansion Data Summary

Kittelson used trip generation counts at six Costco Gasoline facility locations that have expanded in size to study the relationship between trip generation and the fuel station expansion. These locations include sites where fuel stations have expanded from 16 fueling positions to 22 or 24 fueling positions. Currently we do not have a sufficient database with 30 fueling positions, therefore the trip rates are based on the sample for 24 fueling positions. The comparable expansion sites identified were:

- Rancho Del Rey, California
- NE San Jose, California
- Concord, California
- Rohnert Park, California
- Cypress, California
- Portland, Oregon

To work with a representative sample size, Costco provided fuel transactions collected on an hourly basis for a period before and after the expansion at each of these locations. Only data collected during the same months of the year before and after the expansion were included in this summary (for example, fuel transactions for the months of March and April before the expansion were compared to fuel transactions for the months of March and April after the expansion). The total number of weekday PM peak hour and Saturday midday peak hour trip ends counted for the seven listed sites are provided in Table 1 and Table 2, respectively. Note the total number of trip ends does not reflect any reductions due to internal capture, pass-by, or diverted trips.

As shown in Table 1 and Table 2, each of the sites recorded some increase in the number of peak hour fuel transactions. However, the increase found in most situations is significantly less than what would be calculated from a direct linear relationship to the number of additional fueling positions. Using a linear relationship, expanding the gas bar from 16 to 22 fueling positions would equate to an increase in activity or trip generation of 38% and expanding from 16 to 24 positions would equate to an increase of 50%. However, the before and after data show an average increase of 26.5% and 33.5% in fuel transactions during the weekday PM peak hour and Saturday midday peak hour, respectively.

These data demonstrate that increasing the number of fueling positions at the Culver City fuel station will not result in a direct linear increase in trip generation. The before and after data capture the change in demand that results from reducing peak hour queues and wait times at the fuel stations due to latent demand and more efficient peak operations. In all cases, peak queues and wait times are significantly reduced. Those members who previously chose not to purchase fuel because of the wait times will likely do so after expansion when the operations are improved.

Table 1. Weekday PM Peak Hour Trip Growth

Location	Average Weekday PM Peak Hour Trips Generated		
	Before Expansion	After Expansion	% Difference
Rancho Del Rey, CA	414	676	63.3%
NE San Jose, CA	474	458	-3.4%
Concord, CA	470	550	17.0%
Rohnert Park, CA	426	498	16.9%
Cypress, CA	472	654	38.6%
Portland, OR	N/A	404	--
Average			**26.5%**

Source: Kittelson & Associates, Inc. 2020
[1] All locations expanded from 16 to 24 fueling positions

Table 2. Saturday Midday Peak Hour Trip Growth

Location	Saturday Midday Peak Hour Trips Generated		
	Before Expansion	After Expansion	% Difference
Rancho Del Rey, CA	N/A	678	--
NE San Jose, CA	494	686	38.9%
Concord, CA	520	700	34.6%
Rohnert Park, CA	518	606	17.0%
Cypress, CA	514	740	44.0%
Portland, OR	462	616	33.0%
Average			**33.5%**

Source: Kittelson & Associates, Inc. 2020
[1] All locations expanded from 16 to 24 fueling positions

Weekday daily trip rates for the existing site were calculated based on trip generation counts for fueling facilities with 16 positions. For the proposed project, the daily trip rates are based on trip generation counts for sites ranging from 22 to 24 fueling positions. The trip rates were then multiplied by the number of fueling positions to calculate the number of daily trips with the existing and proposed gas station.

Trip Type

The data collected at existing Costco Gasoline fuel stations indicate the trip generation characteristics described below for internal trip capture between the fuel station and the warehouse, as well as pass-by trips and diverted capture from the surrounding street system (included in Attachment A). The unique nature of Costco operations and its membership requirements result in different trip characteristics than those observed at typical fuel stations summarized in the standard reference *Trip Generation Manual*, published by the Institute of Transportation Engineers (ITE). The percentages of pass-by or diverted trips at Costco fuel stations is considerably lower than those quoted in the ITE *Trip Generation Manual* for typical fuel stations. Correspondingly, membership requirements also have a significant effect on trip internalization (or sharing of trips) between the warehouse and the fuel station. Fewer people exclusively visit a Costco fuel station (in comparison to a typical standalone fuel station) because they have another primary purpose for visiting the site (that being a trip to the warehouse).

Internal Trips

A key finding from the studies conducted at Costco warehouses with fuel stations is the fact that approximately 34 percent of the PM peak hour trips to and from Costco fuel stations and 35 percent of the Saturday midday trips are internal capture trips. Internal capture trips account for those members who patronize both the warehouse and the fuel station during a single visit to the Costco site. As such, although they account for a trip to both the warehouse and the fuel station, they only account for one overall vehicle trip to the site and on the surrounding transportation system. Based on studies including surveys at Costco fuel stations and membership card transaction data, on average 34 percent and 35 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, are members whose main purpose to the site is to visit the Costco warehouse. At some sites, this number ranges as high as 75 percent.

Internal capture data was analyzed from daily transactions at the Costco Warehouse and at the Gasoline at the Culver City site for the entire year of 2019. The data was filtered to same member transactions during times when the warehouse and the gas station were open. A review of the 2019 data at the Culver City location (see sample in Attachment A) indicates that the average weekday internal capture rate is 35.8 percent, for Saturdays 36.4 percent, and 38.4 percent for Sundays. In other words, in an average weekday 35.8 percent of transactions at the warehouse also resulted in gasoline transactions. However, to remain conservative, the average rates of 34 and 35 percent for all warehouses described above applied to this analysis.

Pass-by and Diverted Trips

Another key trip characteristic that must be considered is that of pass-by trip capture. Pass-by trips represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose (such as a trip from work to home) and stop into the site in-route during their normal travel. As such, pass-by trips do not result in a net increase in traffic on the surrounding transportation system and their only effect occurs at the immediate intersections and site access driveways where they become turning movements. Based on studies of customer surveys at Costco Gasoline fuel stations, on average 37 percent and 33 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively can be classified as pass-by trip capture from the surrounding street system. This is lower than the average pass-by rate quoted in the ITE *Trip Generation Manual* for typical service stations (45 percent) and is attributable to the unique travel characteristics that result from Costco's membership requirements.

Diverted trips are similar to pass-by trips they represent members (and trips) that are currently traveling on the surrounding street network for some other primary purpose and stop into the site in-route during their travel. However, as the name indicates, diverted trips divert from the normal roadways they would be traveling on to go to the Costco site. Based on studies of customer surveys at Costco Gasoline fuel stations (see sample survey in Attachment A), on average 37 percent and 36 percent of the members buying gas during the weekday PM and Saturday midday peak hours, respectively, can be classified as diverted trip capture from the surrounding street system.

Diverted and pass-by trips are taken into account in the evaluation of the internal circulation and project driveways and intersections, as these trips ingress and egress the site.

Trip Generation Summary

In order to best evaluate the on-site trip impact of expanding and relocating the Culver City Costco, the existing land uses were calculated to understand the trips brought to the site currently. Due to the stay-at-home order related to COVID-19, realistic counts at the driveways and fuel station were unable to be obtained. Therefore, Kittelson's Costco trip counts database was used to calculate the average weekday p.m. peak hour and Saturday midday peak hour for a sixteen (16) vehicle fueling station. Internal, pass-by, and diverted trip percentages were also obtained from the Kittelson Costco database. The *ITE Trip Generation Manual, 10th Edition* (Reference 2) was used to estimate existing land uses trips. Existing pass-by trips were estimated using the *ITE Trip Generation Handbook, 3rd Edition* (Reference 3).

The project will include expanding the existing sixteen (16) vehicle fueling station to thirty (30) vehicle fueling stations. The before and after data average percentages were used to grow the existing trips. The weekday PM peak hour was grown by 26.5%, while the Saturday midday peak hour was grown by 33.5%. Internal, pass-by, and diverted trip percentages remained the same.

The trip generation rates for the existing land uses to be removed are shown in Table 3. The existing land use net new trips were subtracted from the resulting project land use net new trips to come up with a net new trip difference for the site as shown in Table 4.

Table 3. ITE Trip Generation Rates

Land Use	ITE Code	Unit[1]	Trip Generation[2]					
			PM Peak Hour			Saturday Peak Hour		
			Total	In	Out	Total	In	Out
Retail	820	TSF	10.89	5.23	5.66	10.86	5.64	5.21
Coffee Shop	937	TSF	37.43	19.09	18.34	87.70	43.85	43.85

[1]TSF = thousand square feet
[2]Trip generation rates for peak hour of adjacent street, per the ITE Trip Generation Manual 10th Edition

Table 4. Comparative Trip Generation Summary

Land Use	Size	Weekday PM Peak Hour			Saturday Peak Hour			Weekday Daily Trips
		Total	In	Out	Total	In	Out	Total
Existing Uses								
Costco Fueling Station	16 Fueling Positions	452	226	226	473	237	236	5605
Internal Trips (34% PM, 35% Saturday)		*(154)*	*(77)*	*(77)*	*(166)*	*(83)*	*(83)*	*(1,906)*
External Trips		**298**	**149**	**149**	**307**	**154**	**153**	**3,699**
Pass-by Trips (37% PM, 33% Saturday)		*(110)*	*(55)*	*(55)*	*(101)*	*(51)*	*(51)*	*(1,369)*
Diverted Trips (37% PM, 36% Saturday)		*(110)*	*(55)*	*(55)*	*(111)*	*(56)*	*(55)*	*(1,369)*
Net New Trips		**78**	**39**	**39**	**94**	**47**	**47**	**961**
Retail (820)	6,890 SF	75	36	39	75	39	36	975
Pass-by Trips (34% PM, 26% Saturday)		*(26)*	*(13)*	*(13)*	*(20)*	*(10)*	*(10)*	*(332)*
Net New Trips		**49**	**23**	**26**	**55**	**29**	**26**	**643**
Coffee Shop (937)	1,590 SF	69	34	35	139	69	70	1,304
Pass-by Trips (89% PM, Saturday)		*(61)*	*(30)*	*(31)*	*(124)*	*(62)*	*(62)*	*(1,161)*
Net New Trips		**8**	**4**	**4**	**15**	**7**	**8**	**143**
Total Existing Net New Trips		***135***	***66***	***69***	***164***	***83***	***81***	***1,747***
Proposed Uses								
Costco Fueling Station (26.5% PM, 33.5% Saturday)	30 Fueling Positions	709	355	354	750	375	375	8,257
Internal Trips (34% PM, 35% Saturday)		*(241)*	*(121)*	*(120)*	*(263)*	*(132)*	*(131)*	*(2,807)*
External Trips		**468**	**234**	**234**	**487**	**243**	**244**	**5,450**
Pass-by Trips (37% PM, 33% Saturday)		*(173)*	*(87)*	*(86)*	*(162)*	*(81)*	*(81)*	*(2,017)*
Diverted Trips (37% PM, 36% Saturday)		*(173)*	*(87)*	*(86)*	*(175)*	*(87)*	*(88)*	*(2,017)*
Net New Trips		**122**	**60**	**62**	**150**	**75**	**75**	**1,416**
Trip Difference (Proposed Uses - Existing Uses)								
Net New Trip Difference		***(13)***	***(6)***	***(7)***	***(14)***	***(8)***	***(6)***	***(331)***

As shown in Table 4, the expansion and relocation of the Culver City Costco Gasoline fuel station (along with the removal of existing retail uses) is expected to reduce the net new trips to the site due to the removal of existing buildings. The project is estimated to approximately reduce 13 weekday p.m. peak hour net new trips (6 inbound, 7 outbound) and 14 Saturday midday peak hour net new trips (8 inbound/6 outbound). On a daily basis, the project would result in 331 less trips during the weekdays. While Saturday daily estimates are not available, a comparison between the peak hour trips on weekdays and Saturdays suggest that the net daily trip reduction would also occur on Saturdays.

C. RELATED PROJECTS

C1 – Culver City Public Market Hall

The Culver City Public Market Hall is a 1.6-acre project located at Washington Boulevard at Centinela Avenue is currently on hold but is slated to begin construction again in Spring 2021. The public market hall is located approximately 1.2 miles east of the Costco fuel station.

C2 - West Washington Area Improvement Program (AIP)

The West Washington AIP is a project that consists of installing street scape medians along West Washington Boulevard between Beethoven Street and Glencoe Avenue. The AIP is currently on hold but is slated to begin construction again in Spring 2021. The study intersections for the project are all located between the West Washington AIP project boundaries.

C3 - Washington Boulevard Stormwater and Urban Runoff Project

The study will also review the potential for cumulative impacts during project construction and operations for the Washington Boulevard Stormwater and Urban Runoff Project. This project is anticipated to be constructed between September 2021 and October 2022. The study will evaluate potential impacts of construction of the Washington Boulevard Stormwater and Urban Runoff Project regarding site access and internal circulation to the Costco site, as well as the potential for construction activities to overlap. The construction analysis will address two major topics: potential impacts due to project construction to the circulation system, and potential cumulative impacts due to construction activities for implementation of the Washington Boulevard Stormwater and Urban Runoff Project. The study will describe the staging area, identify any potential driveway closures and rerouting during project construction, and identify the amount of haul truck traffic and truck haul routes during temporary project construction. The study will evaluate if project construction would cause potential impacts to traffic on public streets. Potential interference with pedestrian and bicycle facilities during project construction will also be identified. The study will determine is impacts may occur and if the preparation of a traffic management and control plan may be warranted.

The study will include a list of cumulative land use projects received from the City of Culver City and the City of Los Angeles, included in Attachment B.

D. BASELINE TRAFFIC CONDITIONS

Data Collection

Due to the stay-at-home order and atypical traffic conditions associated with the COVID 19 pandemic, turning movement counts are not able to be collected at study intersections at this time or in the near future. We were unable to locate any 2020 turning movement counts prior to the COVID 19 pandemic. Therefore, we will use historic counts (included in Attachment C) combined with adjustments to develop 2020 existing volumes, as follows:

- Costco Accesses on Washington Blvd: Weekday p.m. peak hour and Saturday midday turning movement counts were collected in 2018 for both the Glencoe Ave/East Costco Access &

Washington Blvd and the West Costco Access & Washington Blvd study intersections for the Washington Boulevard Diversion Project. According to the LA County 2010 Congestion Management Program, growth in the area near the 2020 is estimated to be 0.5% per year. To be conservative and consistent with other traffic impact studies prepared for projects in Culver City, an annual growth rate of 1% per year will be utilized. Therefore, for the intersections of Glencoe Ave/East Costco Access & Washington Blvd and the West Costco Access & Washington Blvd we will use a growth rate of 1% per year on the 2018 weekday p.m. peak hour and Saturday midday peak hour turning movement counts to obtain 2020 volumes.

- Washington Blvd & Lincoln Blvd: Historical weekday p.m. peak hour counts were obtained from the City of Los Angeles traffic count database. Traffic counts for this intersection were retrieved for the years 2009, 2011, and 2019. The average growth rate is negative between the previous years and 2019. We will use the most recent 2019 traffic counts and apply a growth rate of 1% per year that was estimated in the LA County 2010 Congestion Management Program to obtain 2020 weekday p.m. peak hour counts.

  Because no Saturday midday turning movement are available, we will use a growth rate of 4.2% on the 2020 weekday p.m. peak hour counts to obtain 2020 Saturday midday peak hour counts. This rate was determined by comparing the westbound and eastbound through movements at the intersections along Washington Blvd during the weekday p.m. peak hour and Saturday midday peak hour. The average difference between the weekday p.m. and Saturday midday is 4.2% (1.7% WB/6.7% EB).

The latest signal timings for signalized intersections were obtained from Culver City and the City of Los Angeles Department of Transportation.

E. POST-OCCUPANCY STUDY

A separate study will be conducted to confirm the traffic generated and intersection operations after the Costco fuel station and Washington Boulevard stormwater and urban runoff projects are completed. Both projects are expected to be completed in the fall of 2022.

The post-occupancy study will include traffic counts and intersection LOS in the weekday PM and Saturday midday peak hours at the Washington Boulevard/Lincoln Boulevard, Washington Boulevard/West Costco Access, and Glencoe Avenue/East Costco Access intersections, The post-occupancy study will also collect traffic counts during the weekday PM and Saturday midday peak hours at the fuel station ingress. The study will also include a survey of Costco fuel station patrons to confirm internal capture, diverted, and pass-by trip rates during the weekday PM and Saturday midday peak hours. Kittelson will reach out to the Costco site operators to confirm that the surveys can be taken with patrons fueling their cars. If not possible, alternative methods will be utilized such as a review of transaction records to confirm the trip generation associated with the proposed 30-fueling positions gasoline station.

Finally the trip generation from the post-occupancy study will confirm the VMT estimates in the traffic study. The results of the post-occupancy study will be summarized in a technical memorandum with all traffic counts and survey data (or other methods) included as attachments.

REFERENCES

1. Culver City. *Transportation Study Criteria and Guidelines.* June 2020.
2. Institute of Transportation Engineers. *Trip Generation Manual, 10th Edition.* 2017.
3. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition.* 2017.
4. Transportation Research Board. *Highway Capacity Manual 6th Edition.* 2016.

ATTACHMENTS

Attachment A Trip Generation Characteristics

COSTCO GASOLINE TRIP TYPE INFORMATION

Internalization, Pass-by and Diverted Data

LOCATION	Internalization Data					Passby Data				Diverted Data			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Weekday Overall	Saturday Peak	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak
Redwood City			22.0%		47.0%			22.0%	29.0%			59.0%	52.0%
Waterbury, CT			46.0%		29.0%			76.0%	70.0%				
Missoula, MT			29.4%		25.7%								
Milford, CT			13.0%		44.0%			59.0%	54.0%				
Helena, MT			21.3%										
Oxnard, CA			27.7%					28.8%				47.3%	
Fountain Valley, CA			32.2%		29.4%			61.5%	26.1%			23.5%	33.9%
Corona, CA			27.1%		34.8%			34.1%	33.3%			34.5%	33.3%
City of Industry, CA			28.9%		24.0%			53.1%	10.2%			13.5%	34.7%
Chino Hills, CA			25.4%		25.2%			36.1%	11.2%			42.9%	36.0%
SE San Diego, CA			42.3%					30.8%				26.9%	
Rancho Del Ray, CA			41.3%					32.3%				26.4%	
Morena, CA			42.3%					15.4%				42.3%	
Carlsbad, CA			30.8%					32.7%				36.6%	
Laguna Niguel, CA (Marketplace)			41.0%		47.4%	33.6%		27.2%	35.7%	39.3%		30.1%	27.9%
Scottsdale, AZ			66.0%			34.0%		34.0%		43.0%		46.0%	
Tucson, AZ			39.0%		47.0%	30.0%		18.0%	25.0%	48.0%		50.0%	36.0%
Average (all data)			33.9%		35.4%	32.5%		37.4%	32.7%	43.4%		36.8%	36.3%

2019 Average=	36.2%
Weekday Average=	35.8%
Saturday Average=	36.4%
Sunday Average=	38.4%

REGION	WAREHOUSE	DATE	Day of Week	Gas Trans During WH Hours	Gas & WH Same day members	Internal Capture
LA	Culver City	1/4/2019	Friday	2,300	891	38.7%
LA	Culver City	1/11/2019	Friday	2,304	906	39.3%
LA	Culver City	1/18/2019	Friday	2,353	926	39.4%
LA	Culver City	1/25/2019	Friday	2,257	774	34.3%
LA	Culver City	2/1/2019	Friday	2,402	851	35.4%
LA	Culver City	2/8/2019	Friday	2,347	909	38.7%
LA	Culver City	2/15/2019	Friday	2,317	870	37.5%
LA	Culver City	2/22/2019	Friday	2,404	874	36.4%
LA	Culver City	3/1/2019	Friday	2,364	927	39.2%
LA	Culver City	3/8/2019	Friday	2,397	863	36.0%
LA	Culver City	3/15/2019	Friday	2,400	911	38.0%
LA	Culver City	3/22/2019	Friday	2,382	848	35.6%
LA	Culver City	3/29/2019	Friday	2,416	793	32.8%
LA	Culver City	4/5/2019	Friday	2,432	876	36.0%
LA	Culver City	4/12/2019	Friday	2,349	749	31.9%
LA	Culver City	4/19/2019	Friday	2,428	875	36.0%
LA	Culver City	4/26/2019	Friday	2,411	838	34.8%
LA	Culver City	5/3/2019	Friday	2,378	793	33.3%
LA	Culver City	5/10/2019	Friday	2,402	883	36.8%
LA	Culver City	5/17/2019	Friday	2,504	884	35.3%
LA	Culver City	5/24/2019	Friday	2,446	847	34.6%
LA	Culver City	5/31/2019	Friday	2,367	787	33.2%
LA	Culver City	6/7/2019	Friday	2,444	880	36.0%
LA	Culver City	6/14/2019	Friday	2,488	922	37.1%
LA	Culver City	6/21/2019	Friday	2,432	839	34.5%
LA	Culver City	6/28/2019	Friday	2,487	934	37.6%
LA	Culver City	7/5/2019	Friday	2,404	871	36.2%
LA	Culver City	7/12/2019	Friday	2,328	824	35.4%

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

Location: Bellingham, Washington
Date: 11/28/2018
7:00AM-9:00AM

Time	Participated in Survey	Trip Origination Q1	Immediate Return Q2	Trip Destination Q3	Normal Route Q4	Neighboring Intersection Q5
7:00	Yes	Home	Yes	-	-	-
7:00	No	-	-	-	-	-
7:00	No	-	-	-	-	-
7:00	Yes	Home	No	Work	No	F
7:00	Yes	Home	No	Work	No	A
7:00	Yes	Home	No	Work	No	A
7:00	Yes	Home	No	Work	No	C
7:00	Yes	Home	Yes	-	-	-
7:00	No	-	-	-	-	-
7:00	Yes	Home	No	Work	Yes	-
7:00	Yes	Home	No	Work	Yes	-
7:00	No	-	-	-	-	-
7:00	Yes	Home	No	Work	No	Slater Rd
7:00	Yes	Home	No	Work	Yes	-
7:00	Yes	Home	No	Sunrise	No	Sunset
7:00	Yes	Home	Yes	-	-	-
7:00	Yes	Home	No	Work	Yes	-
7:00	No	-	-	-	-	-
7:00	Yes	Home	No	Work	Yes	-
7:00	Yes	Other	No	Work	Yes	-
7:00	Yes	Home	No	Work	No	A
7:00	Yes	Home	No	Work	No	A
7:00	No	-	-	-	-	-
7:00	No	-	-	-	-	-
7:00	Yes	Home	No	Work	No	F
7:00	Yes	Home	No	Work	No	F
7:00	Yes	Home	No	Work	No	Other
7:00	Yes	Home	No	Work	No	F
7:00	Yes	Home	No	Work	No	A
7:00	No	-	-	-	-	-
7:00	Yes	Home	Yes	-	-	-
7:00	Yes	Work	Yes	-	-	-
7:00	Yes	Home	No	Airport	Yes	-
7:30	Yes	Home	No	Errands	No	Other
7:30	Yes	Church	No	Home	Yes	-
7:30	Yes	Home	No	Work	No	Other
7:30	Yes	Home	No	Work	No	Other
7:30	Yes	Meeting	No	Home	Yes	-
7:30	Yes	Other	No	Vancouver	No	A
7:30	Yes	Home	No	Errands	No	F
7:30	No	-	-	-	-	-
7:30	Yes	Home	No	Vegas	Yes	-
7:30	No	-	-	-	-	-
7:30	Yes	Home	No	Work	Yes	-
7:30	Yes	Home	Yes	-	-	-
7:30	No	-	-	-	-	-
7:30	Yes	Home	No	Work	No	Baker Hwy
7:30	Yes	Home	No	Work	No	A
7:30	Yes	Home	No	Work	Yes	-
7:30	Yes	Home	No	Work	No	A
7:30	Yes	Home	No	Work	Yes	-

Poll Data Set

Total Number of Vehicles	172	
Participating Groups	133	77%
Non-participating Groups	39	23%

Trip Origination Q1		
Home	108	81%
Costco Warehouse	0	0%
Work	14	11%
Other	11	8%

Immediate Return Q2		
Yes	31	23%
No	102	77%

Trip Destination Q3		
Home	8	8%
Costco Warehouse	0	0%
Work	60	59%
Other	34	33%

Normal Route Q4		
Yes	38	37%
No	64	63%

Neighboring Intersection Q5		
A. I-5	31	46%
B. Northwest Dr	7	11%
C. Bakerview Rd	2	3%
D. Maplewood Ave	0	0%
E. Airport Dr	0	0%
F. Hwy 539-Meridian St	11	17%
Other	13	20%

Q1 Where did your trip begin immediately prior to stopping at this gas station?
A. Home
B. Work (other than Costco)
C. Costco Warehouse
D. Other (Please Note)

Q2 From here, will you go directly back to where you began your trip?
A. Yes (skip remaining questions)
B. No (go to Q3)

Q3 Where will your next stop be?
A. Home
B. Work (other than Costco)
C. Costco Warehouse
D. Other (Please Note)

Q4 On your trip, would you have driven by this site on Bakerview Rd even if you had not stopped here now?
A. Yes (skip remaining questions)
B. No (go to Q5)

Q5 If this gas station was not here, what is the closest intersection you would have traveled through?
A. I-5
B. Northwest Dr
C. Bakerview Rd
D. Maplewood Ave
E. Airport Dr
F. Hwy 539-Meridian St

Attachment B Cumulative Projects

Culver City Cumulative Projects									
No.	Project Name	Address	Description	City	Est. Date C	Completed D	Project Phase	Date of	Planner
1	3-unit Washington Place Condos	12464 Washington Place	Three (3) new condominium dwelling units and demolition of single family dwelling, resulting in two (2) net new dwellings	CC	2019	3/26/2019	Completed - Occupied	4/26/2017	Gabriela Silva (310) 253-5736
4	Grandview Apartments	4025 Grand View Blvd	New 3-story, for lease housing development, consisting of 36 units, with subterranean parking. Previous/Existing use includes 20 mobile home units.	CC	2019	8/5/2019	Completed - Occupied	01/27/2016 (PC) 03/28/2016 (CC)	Jose Mendivil (310) 253-5757
13	Baldwin Site	12803 Washington Blvd	New 4 story mixed use project, cosisting of 37 dwelling units and 7,206 sq. ft. of ground floor retail, on currently vacant site	CC	2020	9/2/2020	Completed	07/27/2016 (PC) 09/12/2016 (CC)	Jose Mendivil (310) 253-5757
17	4-unit Townhome Development	4118 Wade Street	Sudivision of one parcel into four (4) townhome-style dwelling units, resulting in a net increase of one (1) new unit	CC	2020	TBD	Construction	06/12/2017 (PC) 09/11/2017 (CC)	Jose Mendivil (310) 253-5757
24	Motel Mixed-Use	12654 Washington Blvd	New mixed-use building, including 6,836 sq. ft. ground floor commercial and one (1) 5,863 sq. ft. residential dwelling on top	CC	2021	TBD	Construction	5/29/2020	Jose Mendivil (310) 253-5757
35	Market Hall - Washington Centinela	12403 (12237-12423) Washington Boulevard	New multi-story 21,605 sq. ft. market hall and food retail building with attached parking structure (184 spaces) and a new single story 5,230 sq. ft. retail building with surface parking (20 spaces), on two currently vacant sites	CC	2021	TBD	Construction	10/25/2017 (PC) 01/22/2018 (CC) 02/12/2018 (CC)	Gabriela Silva (310) 253-5736
42	Outdoor dining and tandem parking for VFF Coffee	12680 Washington Blvd	New coffee shop and expansion of existing preschool use on a site currently developed with church. Project results in net increase of 952 sq. ft. (485 sq. ft. coffee shop outdoor dining, 315 sq. ft. coffee shop indoor use, 152 sq. ft. increase in preschool uses).	CC	2021	TBD	Pre-Building Permit	10/16/2020	Deborah Hong (310) 253-5714
46	Essence (Cannabis Retail)	12450 Washington Blvd	Conversion of existing 4,950 sq. ft. retail space to storefront cannabis retail space	CC	2021	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
77	99¢ site	12727 Washington Blvd	New 6-story mixed-use development on a split- jurisdiction site, including 117 units (CC: 82 units; LA: 35 units), 17,880 sq. ft. of ground floor retail (CC), 258 parking spaces (CC: 72 retail stalls and 130 residential stalls; LA: 46 residential stalls) at grade and in a 2-level subterranean garage. Demolition of existing 13,000 sq. ft. commercial building.	CC/ LA	2023	TBD	Pre-Application	TBD	Michael Allen (310) 253-5710
80	ECF Site	8700, 8710, 8740, and 8750 Washington Boulevard	Preliminary Concept - Mixed Use TOD with approximately 199 residential units and 40,00 sq. ft. of commercial space (17,250 sq. ft. of live/work space, 5,000 sq. ft. of restaurant, and 17,750 sq. ft. of retail), on a 3.06 to possibly 3.53 acre site, currently developed with multiple uses	CC	2022	TBD	Pre-Application	TBD	Susan Herbertson (310) 253-5755
81	Federal Express Site	3710 and 3750 S. Robertson Boulevard	Preliminary Concept - Mixed Use TOD with approximately 141 residential units and 60,200 sq. ft. of creative office and 30,042 sq. ft. commercial (retail/restaurant/live-work space), on a 2.2 acre site.	CC	2023	TBD	Pre-PPR	TBD	Susan Herbertson (310) 253-5755

CLATS
Case Logging and Tracking System

Welcome **pedro!** | Log Out | Profile | Admin

RELATED PROJECTS

Centroid Info: PROJ ID: 50962
Address: 13463 WASHINGTON BLVD
CULVER CITY, CA 90292
Lat/Long: 33.9926, -118.447

Buffer Radius: 1.50 mile
Search

Include NULL "Trip info":
Include NULL "FirstStudySubmittalDate" (latest)
Include "Inactive" projects:
Include "Do not show in Related Project":
Net_AM_Trips - Select -
Net_PM_Trips - Select -
Net_Daily_Trips - Select -

Column

Record Count: 26 | Record Per Page: All Records

Results generated since: (1/31/2021 4:09:23 AM)

Proj ID	Office	Area	CD	Year	Project Title	Project Desc	Address	First Study Submittal Date	Inactive	Do not show in Related Project	Distance (mile)	Trip Info
12530	Westchester	CTC	11	2005	Restaurant, High Turnover	Proposed House Pies Sit-Down Restaurant land use (3,895 sq. ft.)	1020 E VENICE BLVD	04/10/2013	☐	☐	0.3	
13667	Westchester	CTC	11	2011	New 77 Unit Apartment Project	New 77-Unit Apartment Project	4100 S DEL REY AV	05/06/2011	☐	☐	0.3	
13738	Westchester	CTC	11	2011	MDR-LCP Amendment	MDR-LCP Amendment	1 MARINA EXPRESSWAY	02/16/2011	☐	☐	0.9	
40436	Westchester	CTC	11	2012	New Apt & Office Bldg VTT-72107	New 4-Story,67-Unit Apt & 3,211 SF Office Bldg over 2-level pkg garage	4140 S GLENCOE AV	08/01/2012	☐	☐	0.4	
40714	Westchester	CTC	11	2012	Mixed-Use, Hotel, Retail & Restaurant Uses	New 92-Guest Room Hotel, 3,000 SF Retail & 2,072 SF Restaurant Use.	1027 S ABBOT KINNEY BLVD	12/17/2012	☐	☐	1.4	
41239	Westchester	CTC	11	2013	Mixed-Use: Residential & Office	Proposed Mixed-Use:136 Condominium Units & 20,000 SF Commercial Office	4210 S DEL REY AV	11/05/2014	☐	☐	0.4	
41687	Westchester	CTC	11	2013	Mixed-Use Project	Mixed-Use Bldg: 26 Condo Units, 1,184 SF Retail & 4,567 SF Restaurant	1414 S MAIN ST	12/13/2013	☐	☐	1.5	
42024	Westchester	CTC	11	2014	Condominium & Commercial Office Building	67-DU Condo & 7,525 SF Commercial Office Bldg providing 141 pkg spaces	4091 S REDWOOD AV	04/25/2014	☐	☐	0.3	

Trip Info

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Other	S.F. Gross Area	3895	33	33	396	18	15	20	13
			33	**33**	**396**		**18**	**15**	**20**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	77	39	54	512	8	31	35	19
			39	**54**	**512**		**8**	**31**	**35**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Other	Total Units	2044		66					
Other	Total Units	129		22					
Other	Other	505		178					
Retail	S.F. Gross Area	273741		1215					
Other	Seats	1323		331					
Office	S.F. Gross Area	26000		57					
Other	S.F. Gross Area	3000		14					
Other	Other	375		18					
Other	Other		1707	2		622	1085	1378	1125
			1707	**2503**	**0**		**622**	**1085**	**1378**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	67	34	47	446	7	27	31	16
Office	S.F. Gross Area	3211	5	9	35	4	1	2	7
			39	**56**	**481**		**11**	**28**	**33**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Rooms	85	25	42	654	16	9	25	17
			25	**42**	**654**		**16**	**9**	**25**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Total Units	136	71	85	627	24	47	48	37
			71	**85**	**627**		**24**	**47**	**48**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Total Units	26	9	40	421	3	6	29	11
			9	**40**	**421**		**3**	**6**	**29**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Condominium	Total Units	67	25	51	351	4	21	29	22
Apartments		77			99				

| | | |

46994	Westchester	CTC	11	2018	Thatcher Yard Residential	98-DU: Affordable Senior(50), Family(23) & Perm Supportive(25) Housing	3233 S THATCHER AV	05/23/2018	☐	☐	0.5
47496	Westchester	CTC	11	2018	Mixed-Use: Affordable Housing & Commercial	140-DU Affordable Apts, 1 ksf Cafe, 4065 sf Retail & 3155 sf Art space	204 E North Venice Blvd	11/13/2019	☐	☐	1.4
48252	Westchester	CTC	11	2019	Change of Use: Office to Medical Office	COU: 40ksf Office to Med Office w-in 130,312 sf Office/Med Office bldg	13160 W MINDANAO WY	08/15/2019	☐	☐	0.8
48488	Westchester	CTC	11	2019	Office & Retail	new 121,822 sf Commercial Office & 1,500 sf Retail Complex(4 bldgs.)	4204 S GLENCOE AV	10/23/2019	☐	☐	0.4
48582	Westchester	CTC	11	2019	New 4-Story 77 Apts	Demolish 7 Apts & 1 Duplex, Construct 77 Apts with underground parking	1600 E Venice Bl	09/16/2019	☐	☐	0.3
49101	Westchester	CTC	11	2019	Apartments & Restaurant	new MU: 6-Story, 50-Unit Residential Apt. & 4,458 sf Restaurant bldg.	1808 S LINCOLN BLVD	12/05/2019	☐	☐	0.6

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	98	21	19	212	8	13	10	9
			21	19	212		8	13	10

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	140	88	124	911	39	49	63	61
			88	124	911		39	49	63

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Office	S.F. Gross Area	13031	64	44	1003	46	18	26	18
			64	44	1003		46	18	26

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Office	S.F. Gross Area	12182	79	155	816	65	14	24	131
			79	155	816		65	14	24

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	77	25	27	341	7	18	16	11
			25	27	341		7	18	16

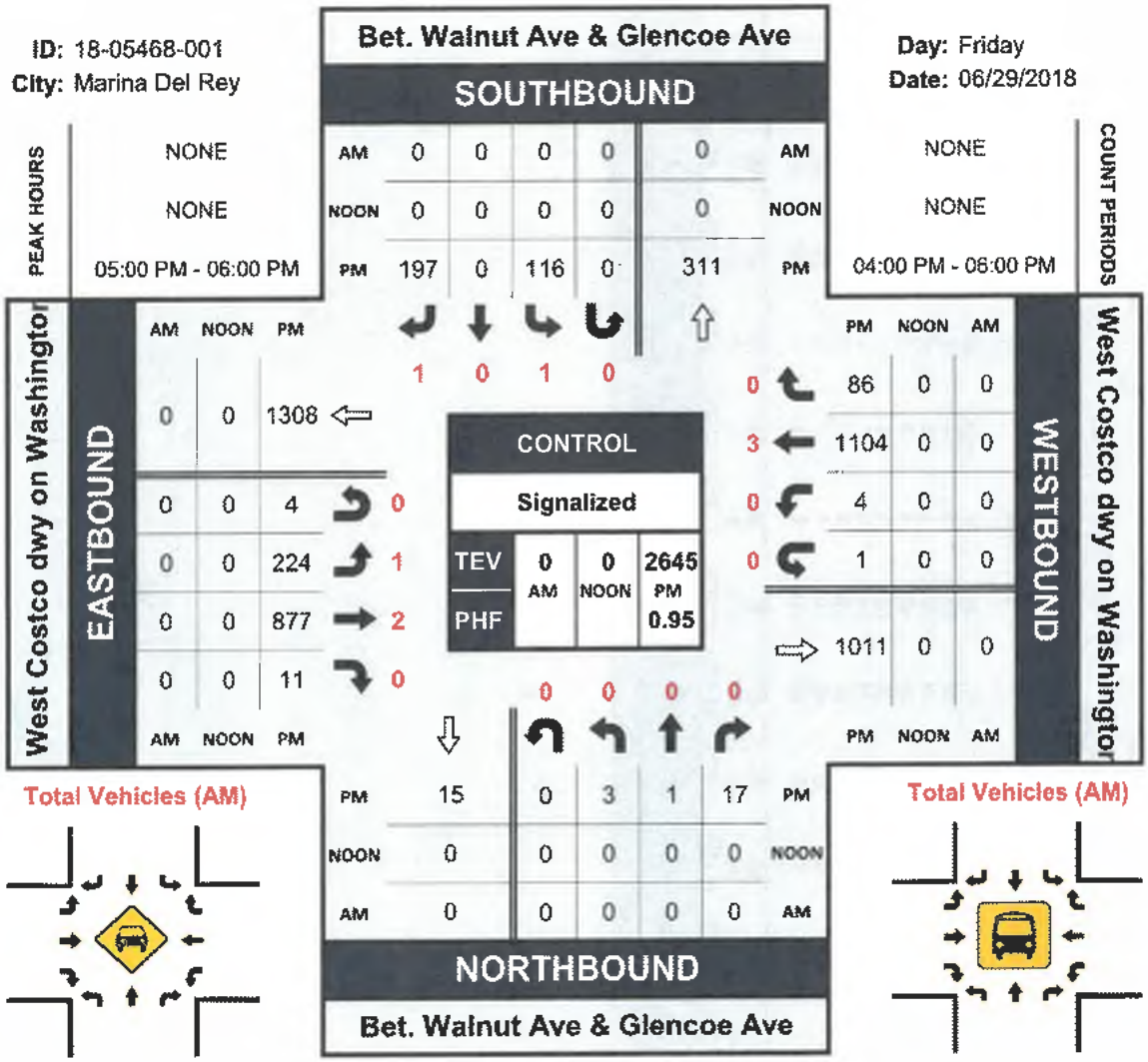
Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartment	Total Units	50	45	44	557	20	25	28	16
			45	44	557		20	25	28

Attachment C Historical Traffic Counts

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd

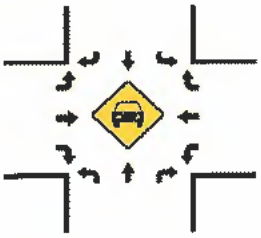
Peak Hour Turning Movement Count



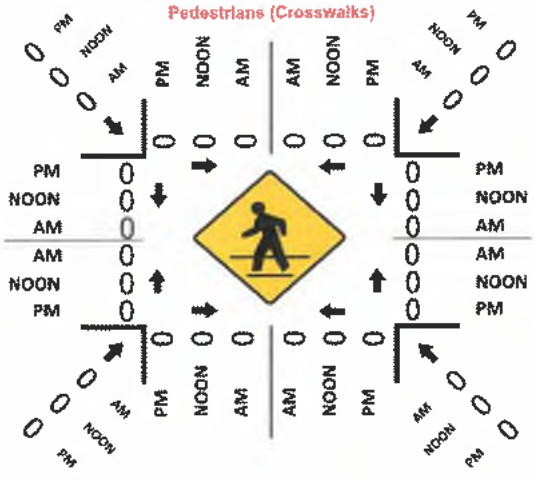
Total Vehicles (AM)

Total Vehicles (AM)

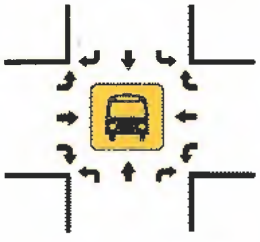
Total Vehicles (NOON)



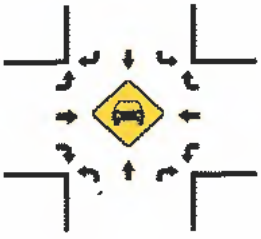
Pedestrians (Crosswalks)



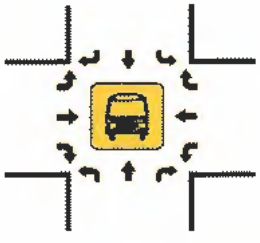
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave [illegible] Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-001
Date: 2018-06-29

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				West Costco dwy on Washington Blvd				West Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	0 WL	3 WT	0 WR	0 WU	TOTAL
4:00 PM	0	0	3	0	36	2	79	0	50	213	0	0	2	259	24	0	668
4:15 PM	1	1	3	0	40	0	53	0	49	209	1	0	0	256	20	0	633
4:30 PM	0	0	3	0	27	0	42	0	56	206	4	2	0	269	20	0	629
4:45 PM	0	0	2	0	30	0	43	0	43	221	1	1	1	271	26	0	639
5:00 PM	1	0	10	0	28	0	54	0	48	215	5	0	0	271	23	0	655
5:15 PM	1	1	6	0	27	0	53	0	68	235	5	2	2	270	23	0	693
5:30 PM	0	0	1	0	24	0	43	0	43	213	1	1	0	281	20	1	628
5:45 PM	1	0	0	0	37	0	47	0	65	214	0	1	2	282	20	0	669
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	2	28	0	249	2	414	0	422	1726	17	7	7	2159	176	1	5214
APPROACH %'s :	11.76%	5.88%	82.35%	0.00%	37.44%	0.30%	62.26%	0.00%	19.43%	79.47%	0.78%	0.32%	0.30%	92.15%	7.51%	0.04%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	3	1	17	0	116	0	197	0	224	877	11	4	4	1104	86	1	2645
PEAK HR FACTOR :	0.750	0.250	0.425	0.000	0.784	0.000	0.912	0.000	0.824	0.933	0.550	0.500	0.500	0.979	0.935	0.250	0.954
	0.477				0.932				0.900				0.983				

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-002
City: Marina Del Rey

Day: Friday
Date: 06/29/2018

PEAK HOURS

AM	NONE
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	NONE
NOON	NONE
PM	04:00 PM - 06:00 PM

SOUTHBOUND — Bet. Walnut Ave & Glencoe Ave

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	64	163	318	0	565	PM

EASTBOUND — East Costco dwy on Washington

AM	NOON	PM		
0	0	1133	⇦	
0	0	0	↶	0
0	0	33	↱	1
0	0	743	→	2
0	0	241	↴	1
AM	NOON	PM		

WESTBOUND — East Costco dwy on Washington

PM	NOON	AM		
402	0	0	↰	1
850	0	0	←	2
364	0	0	↰	1
0	0	0	↶	0
1359	0	0	⇨	
PM	NOON	AM		

1 0.5 1.5 0

0 1.5 0.5 1

CONTROL

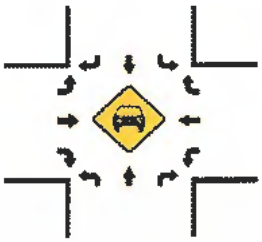
Signalized

TEV	0 AM	0 NOON	3825 PM
PHF			0.97

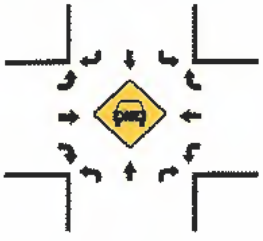
NORTHBOUND — Bet. Walnut Ave & Glencoe Ave

PM	768	0	219	130	298	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

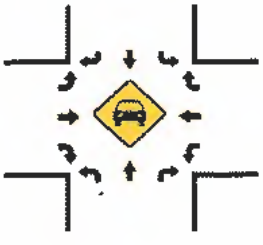
Total Vehicles (AM)



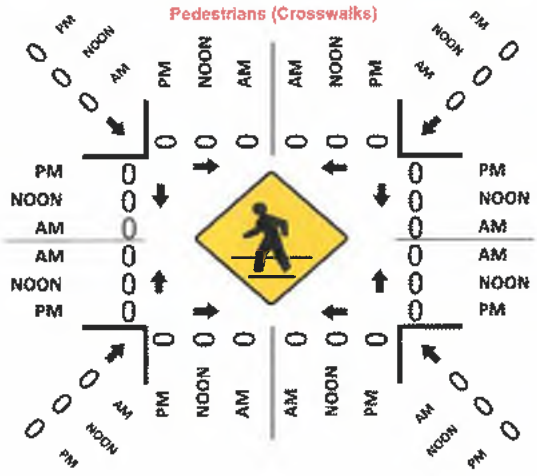
Total Vehicles (NOON)



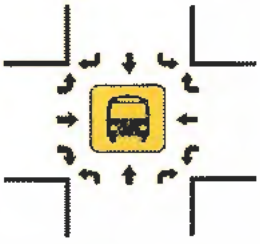
Total Vehicles (PM)



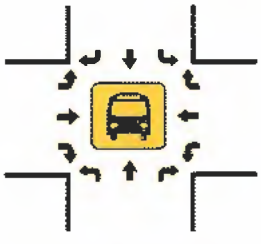
Pedestrians (Crosswalks)



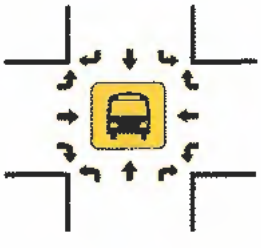
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-002
Date: 2018-06-29

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				East Costco dwy on Washington Blvd				East Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	64	35	76	0	90	36	23	0	8	172	64	0	86	171	117	0	942
4:15 PM	50	33	88	0	87	41	14	0	6	196	59	0	87	189	90	0	940
4:30 PM	53	25	77	0	75	37	14	0	6	177	56	0	87	187	107	0	901
4:45 PM	58	33	71	0	80	41	20	0	10	186	57	0	93	224	111	0	984
5:00 PM	56	40	91	0	97	39	14	0	7	189	45	0	83	192	99	0	952
5:15 PM	49	27	71	0	67	47	14	0	7	189	78	0	95	234	99	0	977
5:30 PM	56	30	65	0	74	36	16	0	9	179	61	0	93	200	93	0	912
5:45 PM	50	28	58	0	79	38	16	0	14	188	52	0	90	245	92	0	950
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	436	251	597	0	649	315	131	0	67	1476	472	0	714	1642	808	0	7558
APPROACH %'s :	33.96%	19.55%	46.50%	0.00%	59.27%	28.77%	11.96%	0.00%	3.33%	73.25%	23.42%	0.00%	22.57%	51.90%	25.54%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	219	130	298	0	318	163	64	0	33	743	241	0	364	850	402	0	3825
PEAK HR FACTOR :	0.944	0.813	0.819	0.000	0.820	0.867	0.800	0.000	0.825	0.983	0.772	0.000	0.958	0.908	0.905	0.000	0.972
	0.865				0.908				0.928				0.944				

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-001
City: Marina Del Rey

Day: Saturday
Date: 06/30/2018

Bet. Walnut Ave & Glencoe Ave

SOUTHBOUND

PEAK HOURS		COUNT PERIODS
NONE	AM	NONE
NONE	NOON	NONE
02:30 PM - 03:30 PM	PM	02:00 PM - 04:00 PM

AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	239	2	175	0	428 PM

1 0 1 0

EASTBOUND — West Costco dwy on Washington

AM	NOON	PM	
0	0	1228	⇦
0	0	2	↩ 0
0	0	289	↱ 1
0	0	830	→ 2
0	0	15	↳ 0
AM	NOON	PM	

WESTBOUND — West Costco dwy on Washington

PM	NOON	AM	
139	0	0	↰ 0
986	0	0	← 3
2	0	0	↰ 0
8	0	0	↩ 0
1029	0	0	⇨
PM	NOON	AM	

CONTROL

Signalized

TEV	0 AM	0 NOON	2705 PM
PHF			0.93

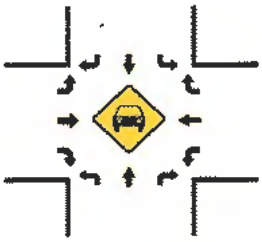
0 0 0 0

PM	20	1	1	0	16 PM
NOON	0	0	0	0	0 NOON
AM	0	0	0	0	0 AM

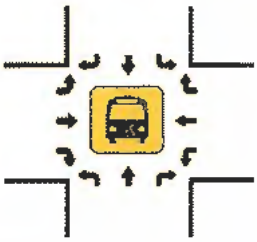
NORTHBOUND

Bet. Walnut Ave & Glencoe Ave

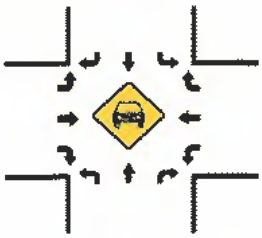
Total Vehicles (AM)



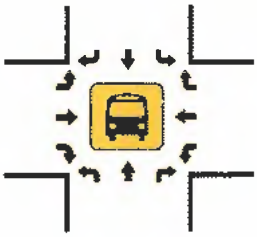
Total Vehicles (AM)



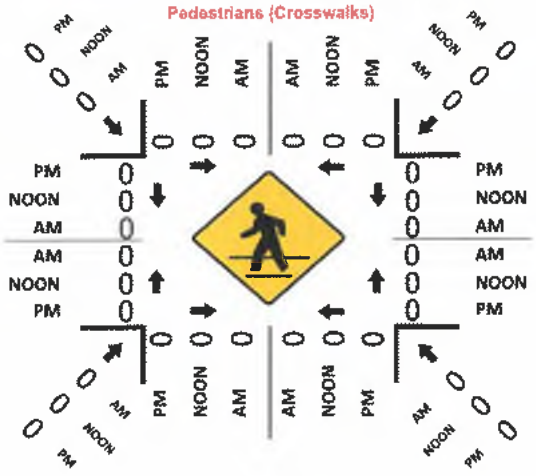
Total Vehicles (NOON)



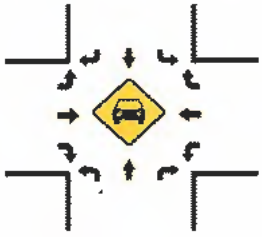
Total Vehicles (NOON)



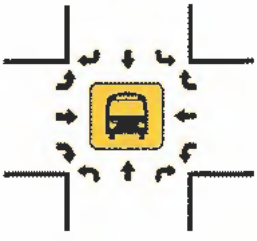
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave / West Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-001
Date: 2018-06-30

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				West Costco dwy on Washington Blvd				West Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	1 SL	0 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	0 WL	3 WT	0 WR	0 WU	TOTAL
2:00 PM	1	0	5	1	36	0	66	0	65	190	5	0	0	248	35	4	656
2:15 PM	0	0	6	0	27	0	65	0	71	171	2	0	0	261	43	0	646
2:30 PM	0	0	4	0	38	0	54	0	73	199	1	0	0	254	38	1	662
2:45 PM	0	0	1	0	39	1	58	0	74	192	7	0	0	232	35	2	641
3:00 PM	0	0	7	1	56	1	56	0	68	226	4	2	0	271	33	3	728
3:15 PM	1	0	4	0	42	0	71	0	74	213	3	0	2	229	33	2	674
3:30 PM	0	0	1	0	36	0	43	0	66	196	3	0	0	259	24	1	629
3:45 PM	0	0	5	0	45	0	55	0	54	187	2	1	2	263	19	0	633
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	33	2	319	2	468	0	545	1574	27	3	4	2017	260	13	5269
APPROACH %'s :	5.41%	0.00%	89.19%	5.41%	40.43%	0.25%	59.32%	0.00%	25.36%	73.24%	1.26%	0.14%	0.17%	87.93%	11.33%	0.57%	
PEAK HR :	02:30 PM - 03:30 PM																TOTAL
PEAK HR VOL :	1	0	16	1	175	2	239	0	289	830	15	2	2	986	139	8	2705
PEAK HR FACTOR :	0.250	0.000	0.571	0.250	0.781	0.500	0.842	0.000	0.976	0.918	0.536	0.250	0.250	0.910	0.914	0.667	0.929
	0.563				0.920				0.947				0.924				

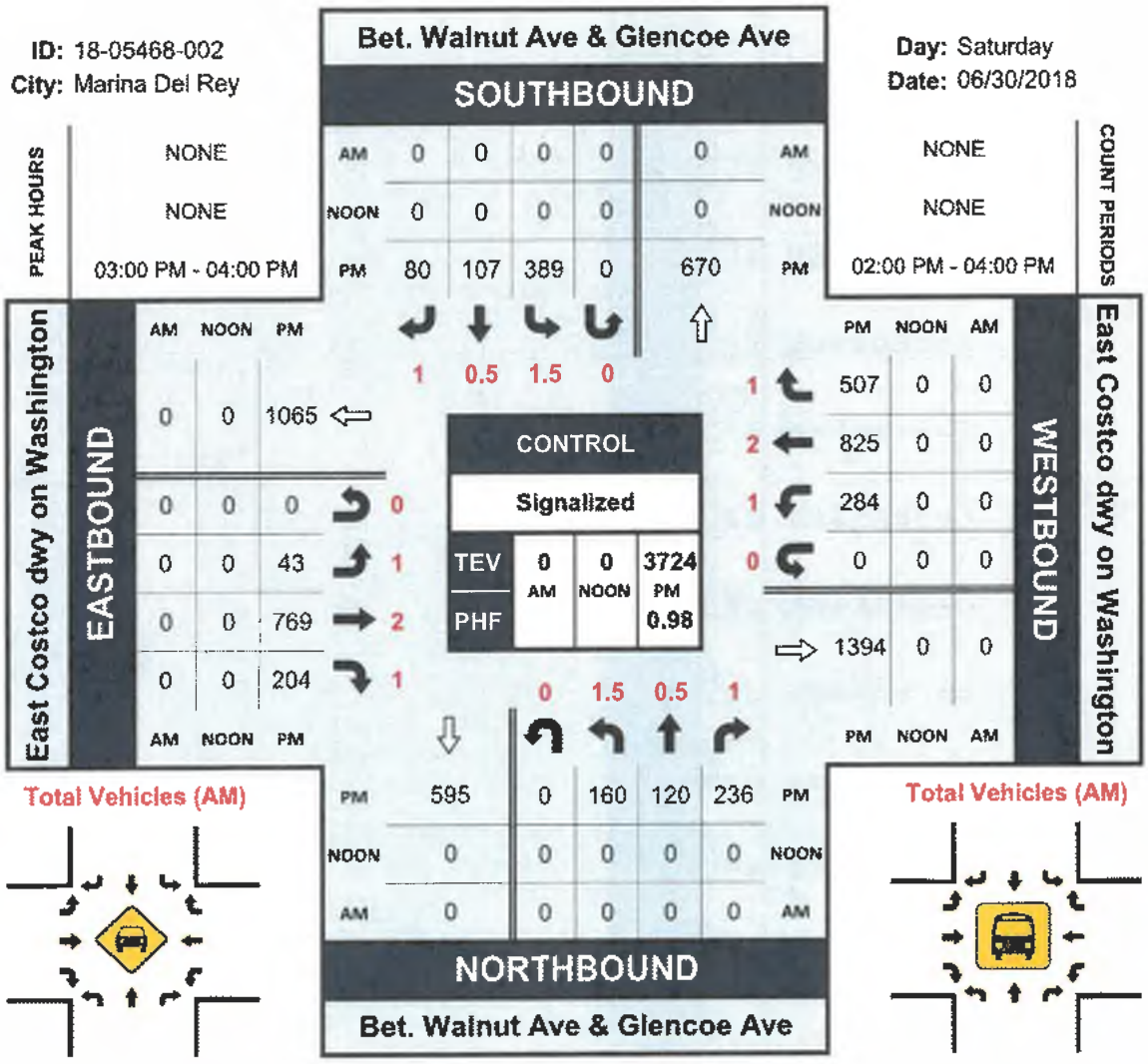
Prepared by National Data & Surveying Services

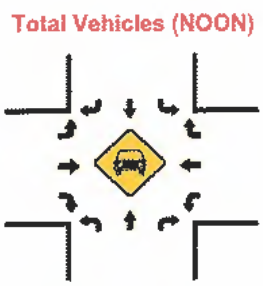
Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd

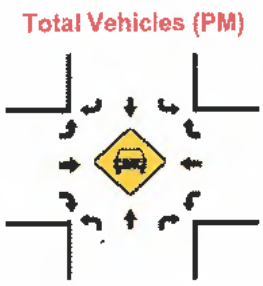
Peak Hour Turning Movement Count

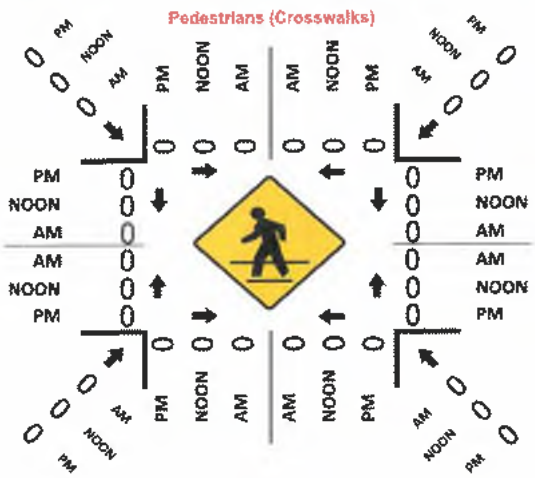
ID: 18-05468-002
City: Marina Del Rey

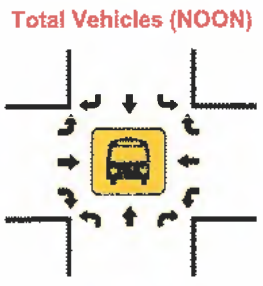
Day: Saturday
Date: 06/30/2018

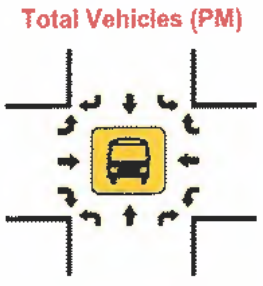












National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & Bet. Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-002
Date: 2018-06-30

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				East Costco dwy on Washington Blvd				East Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	50	44	56	0	102	39	20	0	11	172	48	0	67	191	119	0	919
2:15 PM	46	36	58	0	78	31	21	0	7	164	42	1	75	218	140	0	917
2:30 PM	55	28	63	0	95	28	27	0	11	194	46	0	70	180	110	0	907
2:45 PM	45	45	49	0	90	25	30	0	11	167	56	0	81	204	103	0	906
3:00 PM	35	30	61	0	87	27	25	0	9	198	54	0	68	205	142	0	941
3:15 PM	38	32	53	0	103	30	22	0	16	204	53	0	65	205	112	0	933
3:30 PM	47	33	59	0	102	21	14	0	12	192	37	0	71	194	118	0	900
3:45 PM	40	25	63	0	97	29	19	0	6	175	60	0	80	221	135	0	950
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	356	273	462	0	754	230	178	0	83	1466	396	1	577	1618	979	0	7373
APPROACH %'s :	32.63%	25.02%	42.35%	0.00%	64.89%	19.79%	15.32%	0.00%	4.27%	75.33%	20.35%	0.05%	18.18%	50.98%	30.84%	0.00%	
PEAK HR :	03:00 PM - 04:00 PM																TOTAL
PEAK HR VOL :	160	120	236	0	389	107	80	0	43	769	204	0	284	825	507	0	3724
PEAK HR FACTOR :	0.851	0.909	0.937	0.000	0.944	0.892	0.800	0.000	0.672	0.942	0.850	0.000	0.888	0.933	0.893	0.000	0.980
	0.928				0.929				0.930				0.927				

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Lincoln

East/West: Washington

Day: Tuesday, May 7, 2019 Weather: Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL- WHEELED	515	365	305	255
BIKES	55	77	120	102
BUSES	57	56	44	35

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	601	7:00:00 AM	403	8:15:00 AM	390	8:15:00 AM	274	8:45:00 AM
PM PK 15 MIN	538	5:30:00 PM	441	4:30:00 PM	310	5:15:00 PM	316	5:45:00 PM
AM PK HOUR	2221	7:00:00 AM	1541	7:45:00 AM	1440	8:00:00 AM	998	8:00:00 AM
PM PK HOUR	1913	4:45:00 PM	1701	4:15:00 PM	1192	4:45:00 PM	1230	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	696	1437	88	2221
8-9	760	1222	124	2106
9-10	716	1229	184	2129
3-4	411	1032	206	1649
4-5	447	1070	188	1705
5-6	479	1242	179	1900
TOTAL	3509	7232	969	11710

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	176	921	75	1172
8-9	217	1203	67	1487
9-10	232	1102	98	1432
3-4	172	1329	59	1560
4-5	162	1451	56	1669
5-6	151	1378	52	1581
TOTAL	1110	7384	407	8901

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
3393	26	7	22	4
3593	44	7	16	0
3561	43	11	45	7
3209	66	20	57	7
3374	66	20	43	7
3481	44	19	47	2
20611	289	84	230	27

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	56	701	415	1172
8-9	58	800	582	1440
9-10	88	653	513	1254
3-4	84	605	481	1170
4-5	70	565	455	1090
5-6	69	645	467	1181
TOTAL	425	3969	2913	7307

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	115	558	149	822
8-9	148	702	148	998
9-10	147	549	182	878
3-4	296	573	242	1111
4-5	301	604	244	1149
5-6	311	681	238	1230
TOTAL	1318	3667	1203	6188

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
1994	23	4	37	5
2438	27	4	31	9
2132	40	8	54	7
2281	50	8	64	25
2239	45	8	77	6
2411	46	2	78	3
13495	231	34	341	55

LINCOLN & WASHINGTON

2009	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
445-545	121	1416	197	241	709	263	245	1529	564	580	814	129	6808

2011	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	118	1302	206	308	701	333	280	1684	485	554	802	122	6895

2014	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	62	1372	201	237	733	214	213	1145	464	464	686	72	5863

2019	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	52	1378	151	238	681	311	179	1242	479	467	645	69	5892

2014-2019 GROWTH	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-3.5%	0.1%	-5.6%	0.1%	-1.5%	7.8%	-3.4%	1.6%	0.6%	0.1%	-1.2%	-0.8%	0.1%

2011-2019 GROWTH	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-9.7%	0.7%	-3.8%	-3.2%	-0.4%	-0.9%	-5.4%	-3.7%	-0.2%	-2.1%	-2.7%	-6.9%	-1.9%

2009-2019 GROWTH	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-8.1%	-0.3%	-2.6%	-0.1%	-0.4%	1.7%	-3.1%	-2.1%	-1.6%	-2.1%	-2.3%	-6.1%	-1.4%

2020 LA County CMP Growth Rate 2.6%

GLENCOE & WASHINGTON PM

2014

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	58	143	258	358	810	428	312	104	191	270	817	33	3782

2017

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	73	134	312	405	843	394	281	107	199	270	797	30	3845

2014-2017 GROWTH

SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
8.0%	-2.1%	6.5%	4.2%	1.3%	-2.7%	-3.4%	1.0%	1.4%	0.0%	-0.8%	-3.1%	0.6%

GLENCOE & WASHINGTON SAT

2014

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
445-545	*No 2014 data avaliable for Saturday												

2017

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	86	99	330	453	858	331	284	149	187	240	854	44	3915

2014-2017 GROWTH

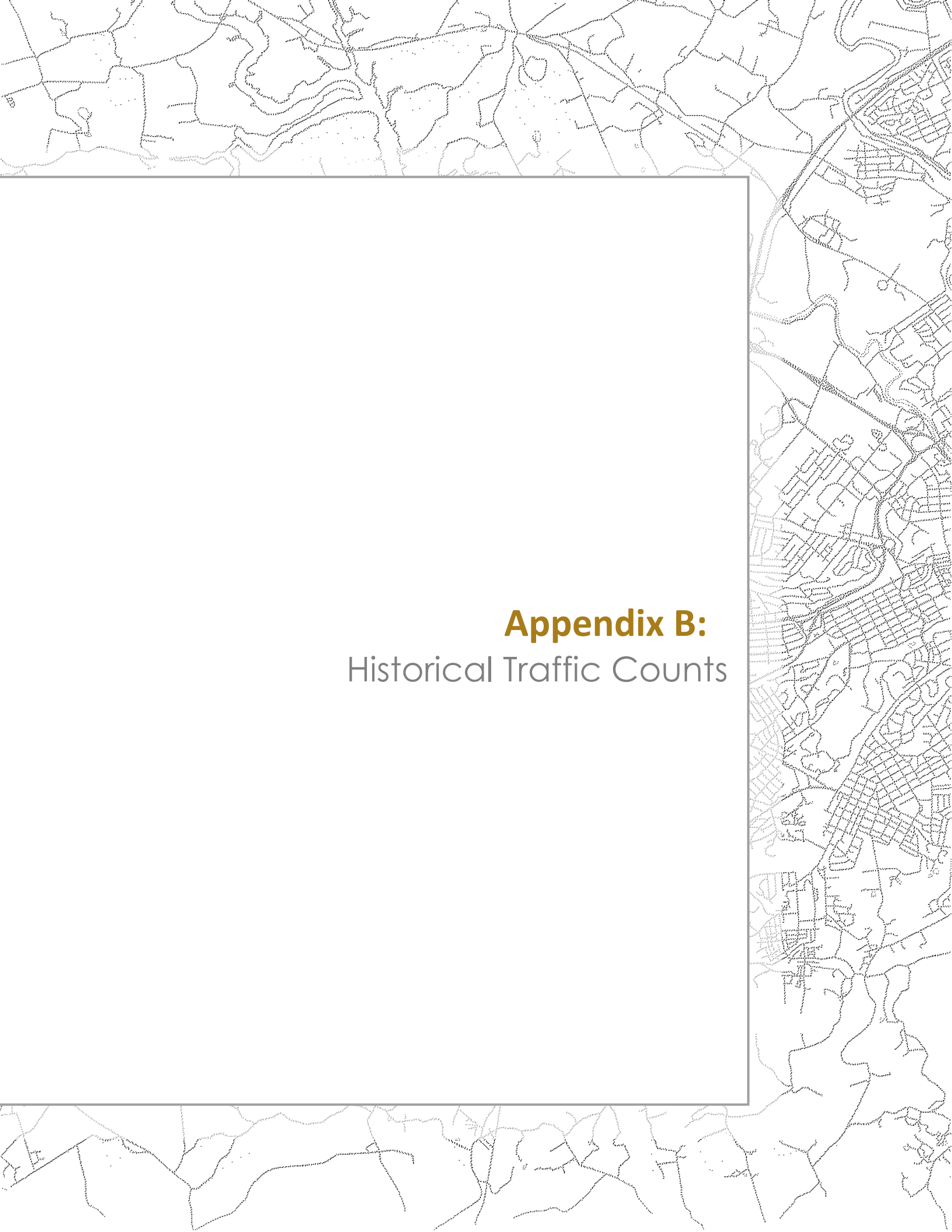
SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL

GLENCOE & WASHINGTON COMPARISON OF PM VS SAT

PM VS SAT COMPARISON

SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
15.1%	-35.4%	5.5%	10.6%	1.7%	-19.0%	1.1%	28.2%	-6.4%	-12.5%	6.7%	31.8%	1.8%

Comparison of through movements on Washington Blvd



Appendix B:
Historical Traffic Counts

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-001
City: Marina Del Rey

Day: Friday
Date: 06/29/2018

Bet. Walnut Ave & Glencoe Ave

SOUTHBOUND

PEAK HOURS		COUNT PERIODS
NONE		NONE
NONE		NONE
05:00 PM - 06:00 PM		04:00 PM - 06:00 PM

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	197	0	116	0	311	PM
	1	0	1	0		

EASTBOUND

AM	NOON	PM	
0	0	1308	
0	0	4	0
0	0	224	1
0	0	877	2
0	0	11	0
AM	NOON	PM	

WESTBOUND

	PM	NOON	AM
0	86	0	0
3	1104	0	0
0	4	0	0
0	1	0	0
	1011	0	0
	PM	NOON	AM

CONTROL

Signalized

	AM	NOON	PM
TEV	0	0	2645
PHF			0.95

				0	0	0
PM	15	0	3	1	17	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

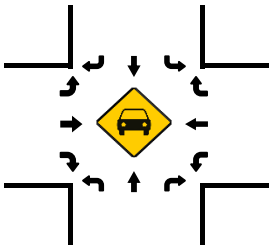
NORTHBOUND

Bet. Walnut Ave & Glencoe Ave

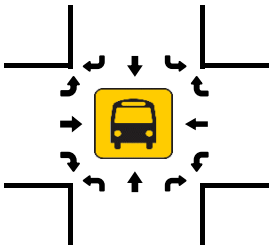
West Costco dwy on Washington

West Costco dwy on Washington

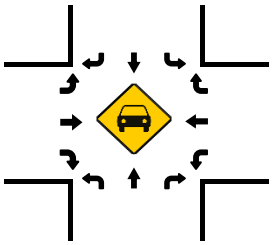
Total Vehicles (AM)



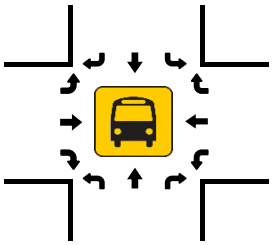
Total Vehicles (AM)



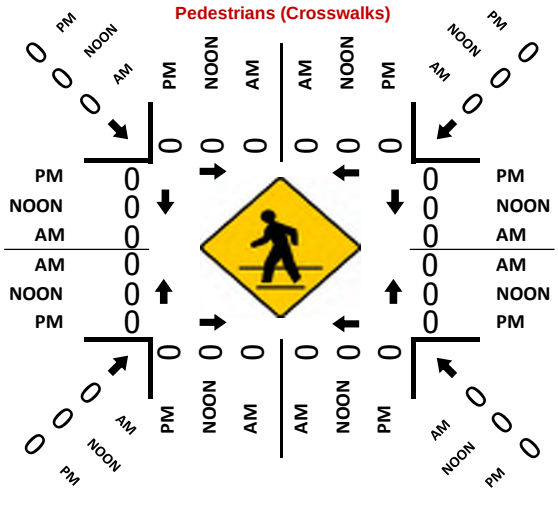
Total Vehicles (NOON)



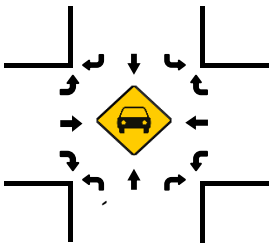
Total Vehicles (NOON)



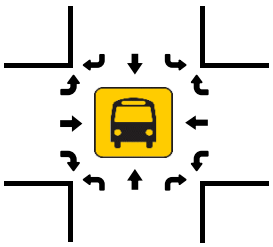
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-001
Date: 2018-06-29

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				West Costco dwy on Washington Blvd				West Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	3	0	36	2	79	0	50	213	0	0	2	259	24	0	668
4:15 PM	1	1	3	0	40	0	53	0	49	209	1	0	0	256	20	0	633
4:30 PM	0	0	3	0	27	0	42	0	56	206	4	2	0	269	20	0	629
4:45 PM	0	0	2	0	30	0	43	0	43	221	1	1	1	271	26	0	639
5:00 PM	1	0	10	0	28	0	54	0	48	215	5	0	0	271	23	0	655
5:15 PM	1	1	6	0	27	0	53	0	68	235	5	2	2	270	23	0	693
5:30 PM	0	0	1	0	24	0	43	0	43	213	1	1	0	281	20	1	628
5:45 PM	1	0	0	0	37	0	47	0	65	214	0	1	2	282	20	0	669
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	2	28	0	249	2	414	0	422	1726	17	7	7	2159	176	1	5214
APPROACH %'s :	11.76%	5.88%	82.35%	0.00%	37.44%	0.30%	62.26%	0.00%	19.43%	79.47%	0.78%	0.32%	0.30%	92.15%	7.51%	0.04%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	3	1	17	0	116	0	197	0	224	877	11	4	4	1104	86	1	2645
PEAK HR FACTOR :	0.750	0.250	0.425	0.000	0.784	0.000	0.912	0.000	0.824	0.933	0.550	0.500	0.500	0.979	0.935	0.250	0.954
	0.477				0.932				0.900				0.983				

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-002
City: Marina Del Rey

Day: Friday
Date: 06/29/2018

PEAK HOURS	COUNT PERIODS
NONE	NONE
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Bet. Walnut Ave & Glencoe Ave — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	64	163	318	0	565	PM

1 | 0.5 | 1.5 | 0

EASTBOUND — East Costco dwy on Washington

AM	NOON	PM	
0	0	1133	
0	0	0	0
0	0	33	1
0	0	743	2
0	0	241	1
AM	NOON	PM	

CONTROL

Signalized

	AM	NOON	PM
TEV	0	0	3825
PHF			0.97

WESTBOUND — East Costco dwy on Washington

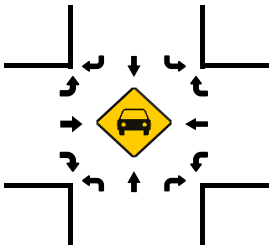
	PM	NOON	AM
1	402	0	0
2	850	0	0
1	364	0	0
0	0	0	0
	1359	0	0
	PM	NOON	AM

0 | 1.5 | 0.5 | 1

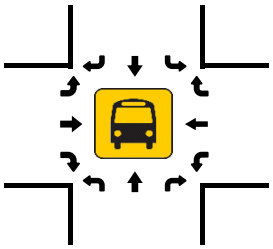
Bet. Walnut Ave & Glencoe Ave — NORTHBOUND

PM	768	0	219	130	298	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

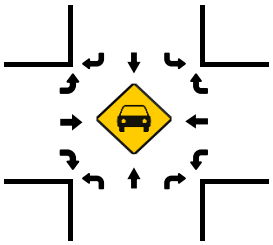
Total Vehicles (AM)



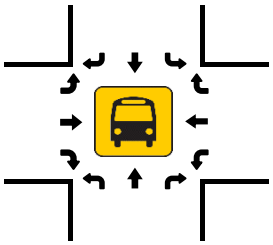
Total Vehicles (AM)



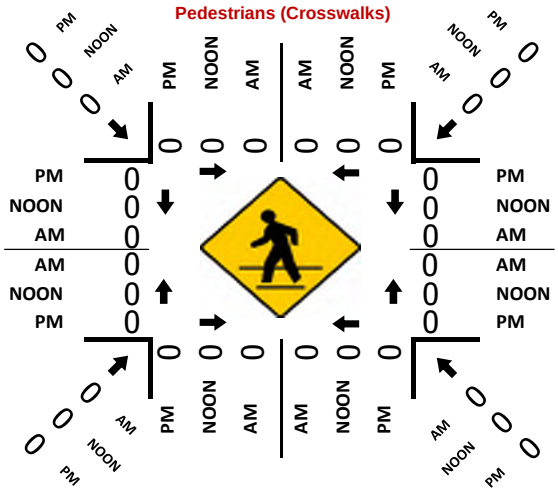
Total Vehicles (NOON)



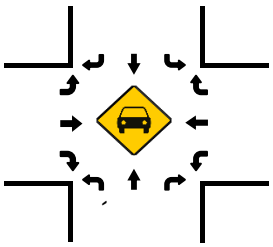
Total Vehicles (NOON)



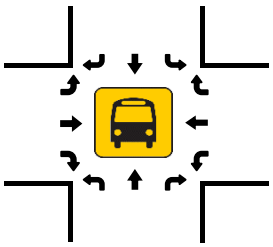
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-002
Date: 2018-06-29

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				East Costco dwy on Washington Blvd				East Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	64	35	76	0	90	36	23	0	8	172	64	0	86	171	117	0	942
4:15 PM	50	33	88	0	87	41	14	0	6	196	59	0	87	189	90	0	940
4:30 PM	53	25	77	0	75	37	14	0	6	177	56	0	87	187	107	0	901
4:45 PM	58	33	71	0	80	41	20	0	10	186	57	0	93	224	111	0	984
5:00 PM	56	40	91	0	97	39	14	0	7	189	45	0	83	192	99	0	952
5:15 PM	49	27	71	0	67	47	14	0	7	189	78	0	95	234	99	0	977
5:30 PM	56	30	65	0	74	36	16	0	9	179	61	0	93	200	93	0	912
5:45 PM	50	28	58	0	79	38	16	0	14	188	52	0	90	245	92	0	950
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	436	251	597	0	649	315	131	0	67	1476	472	0	714	1642	808	0	7558
APPROACH %'s :	33.96%	19.55%	46.50%	0.00%	59.27%	28.77%	11.96%	0.00%	3.33%	73.25%	23.42%	0.00%	22.57%	51.90%	25.54%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	219	130	298	0	318	163	64	0	33	743	241	0	364	850	402	0	3825
PEAK HR FACTOR :	0.944	0.813	0.819	0.000	0.820	0.867	0.800	0.000	0.825	0.983	0.772	0.000	0.958	0.908	0.905	0.000	0.972
	0.865				0.908				0.928				0.944				

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-001
City: Marina Del Rey

Day: Saturday
Date: 06/30/2018

Bet. Walnut Ave & Glencoe Ave

SOUTHBOUND

PEAK HOURS	AM	NONE				
	NOON	NONE				
	PM	02:30 PM - 03:30 PM				

COUNT PERIODS	AM	NONE				
	NOON	NONE				
	PM	02:00 PM - 04:00 PM				

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	239	2	175	0	428	PM

	1	0	1	0

EASTBOUND

AM	NOON	PM	
0	0	1228	
0	0	2	0
0	0	289	1
0	0	830	2
0	0	15	0
AM	NOON	PM	

WESTBOUND

	PM	NOON	AM
0	139	0	0
3	986	0	0
0	2	0	0
0	8	0	0
	1029	0	0
	PM	NOON	AM

CONTROL

Signalized

TEV	0 AM	0 NOON	2705 PM
PHF			0.93

0	0	0	0	
	1	1	0	16
	0	0	0	0
	0	0	0	0

NORTHBOUND

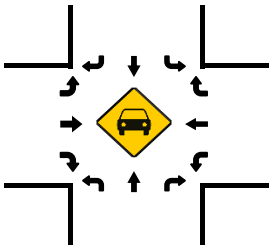
PM	20	1	1	0	16	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

Bet. Walnut Ave & Glencoe Ave

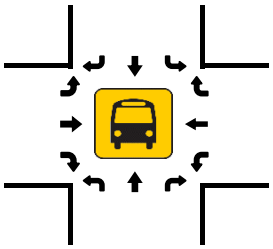
West Costco dwy on Washington Blvd

West Costco dwy on Washington Blvd

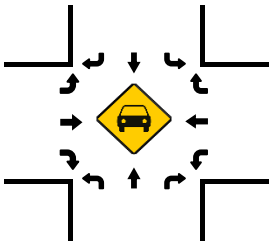
Total Vehicles (AM)



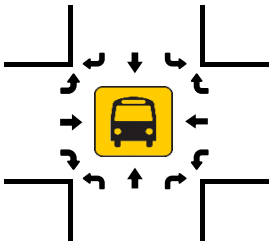
Total Vehicles (AM)



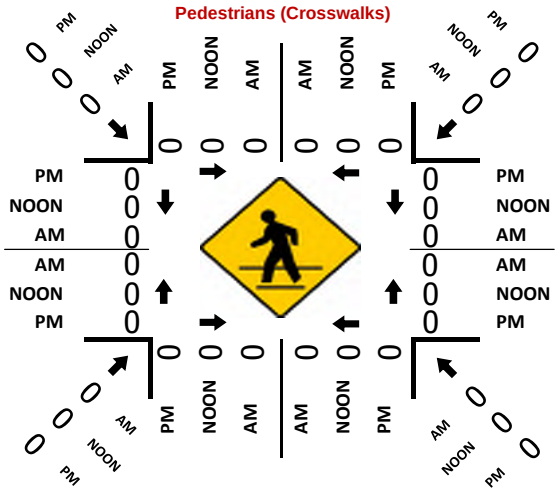
Total Vehicles (NOON)



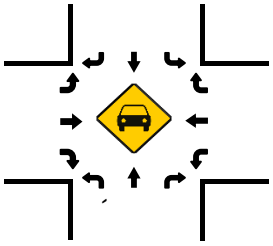
Total Vehicles (NOON)



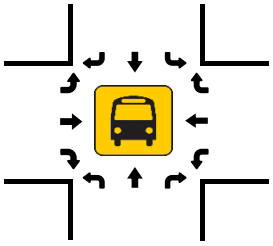
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & West Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-001
Date: 2018-06-30

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				West Costco dwy on Washington Blvd				West Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	1	0	5	1	36	0	66	0	65	190	5	0	0	248	35	4	656
2:15 PM	0	0	6	0	27	0	65	0	71	171	2	0	0	261	43	0	646
2:30 PM	0	0	4	0	38	0	54	0	73	199	1	0	0	254	38	1	662
2:45 PM	0	0	1	0	39	1	58	0	74	192	7	0	0	232	35	2	641
3:00 PM	0	0	7	1	56	1	56	0	68	226	4	2	0	271	33	3	728
3:15 PM	1	0	4	0	42	0	71	0	74	213	3	0	2	229	33	2	674
3:30 PM	0	0	1	0	36	0	43	0	66	196	3	0	0	259	24	1	629
3:45 PM	0	0	5	0	45	0	55	0	54	187	2	1	2	263	19	0	633
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	33	2	319	2	468	0	545	1574	27	3	4	2017	260	13	5269
APPROACH %'s :	5.41%	0.00%	89.19%	5.41%	40.43%	0.25%	59.32%	0.00%	25.36%	73.24%	1.26%	0.14%	0.17%	87.93%	11.33%	0.57%	
PEAK HR :	02:30 PM - 03:30 PM																TOTAL
PEAK HR VOL :	1	0	16	1	175	2	239	0	289	830	15	2	2	986	139	8	2705
PEAK HR FACTOR :	0.250	0.000	0.571	0.250	0.781	0.500	0.842	0.000	0.976	0.918	0.536	0.250	0.250	0.910	0.914	0.667	0.929
	0.563				0.920				0.947				0.924				

Prepared by National Data & Surveying Services

Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd

Peak Hour Turning Movement Count

ID: 18-05468-002
City: Marina Del Rey

Day: Saturday
Date: 06/30/2018

Bet. Walnut Ave & Glencoe Ave

SOUTHBOUND

PEAK HOURS						COUNT PERIODS
	NONE				NONE	
	NONE				NONE	
	03:00 PM - 04:00 PM				02:00 PM - 04:00 PM	

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	80	107	389	0	670	PM
	1	0.5	1.5	0		

CONTROL

Signalized

	AM	NOON	PM
TEV	0	0	3724
PHF			0.98

EASTBOUND (East Costco dwy on Washington)

AM	NOON	PM	
0	0	1065	
0	0	0	0
0	0	43	1
0	0	769	2
0	0	204	1
AM	NOON	PM	

WESTBOUND (East Costco dwy on Washington)

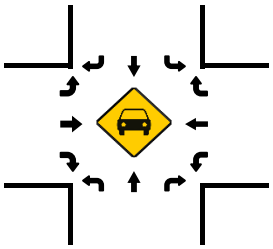
	PM	NOON	AM
1	507	0	0
2	825	0	0
1	284	0	0
0	0	0	0
	1394	0	0
	PM	NOON	AM

	0	1.5	0.5	1		
PM	595	0	160	120	236	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

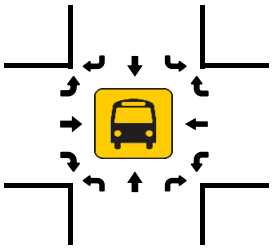
NORTHBOUND

Bet. Walnut Ave & Glencoe Ave

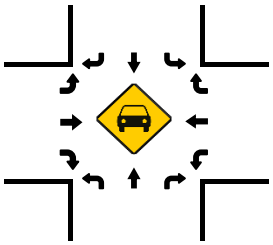
Total Vehicles (AM)



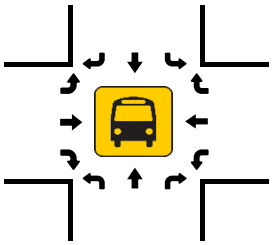
Total Vehicles (AM)



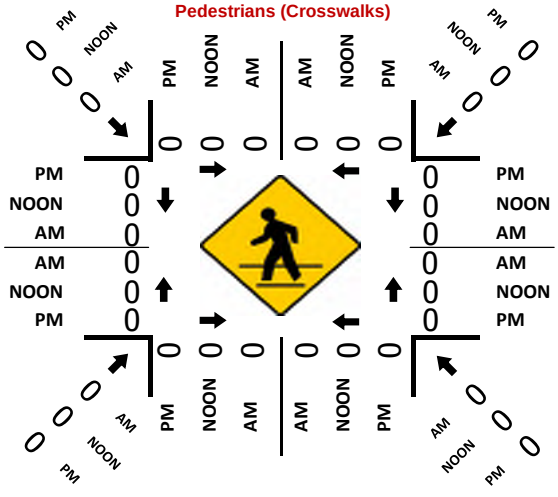
Total Vehicles (NOON)



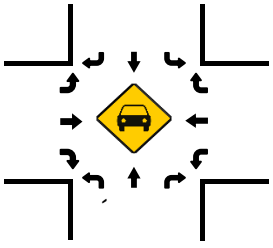
Total Vehicles (NOON)



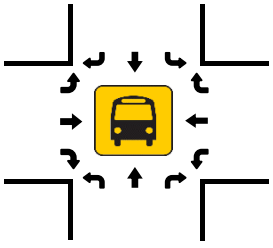
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Bet. Walnut Ave & Glencoe Ave & East Costco dwy on Washington Blvd
City: Marina Del Rey
Control: Signalized

Project ID: 18-05468-002
Date: 2018-06-30

Total

NS/EW Streets:	Bet. Walnut Ave & Glencoe Ave				Bet. Walnut Ave & Glencoe Ave				East Costco dwy on Washington Blvd				East Costco dwy on Washington Blvd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	50	44	56	0	102	39	20	0	11	172	48	0	67	191	119	0	919
2:15 PM	46	36	58	0	78	31	21	0	7	164	42	1	75	218	140	0	917
2:30 PM	55	28	63	0	95	28	27	0	11	194	46	0	70	180	110	0	907
2:45 PM	45	45	49	0	90	25	30	0	11	167	56	0	81	204	103	0	906
3:00 PM	35	30	61	0	87	27	25	0	9	198	54	0	68	205	142	0	941
3:15 PM	38	32	53	0	103	30	22	0	16	204	53	0	65	205	112	0	933
3:30 PM	47	33	59	0	102	21	14	0	12	192	37	0	71	194	118	0	900
3:45 PM	40	25	63	0	97	29	19	0	6	175	60	0	80	221	135	0	950
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	356	273	462	0	754	230	178	0	83	1466	396	1	577	1618	979	0	7373
APPROACH %'s :	32.63%	25.02%	42.35%	0.00%	64.89%	19.79%	15.32%	0.00%	4.27%	75.33%	20.35%	0.05%	18.18%	50.98%	30.84%	0.00%	
PEAK HR :	03:00 PM - 04:00 PM																TOTAL
PEAK HR VOL :	160	120	236	0	389	107	80	0	43	769	204	0	284	825	507	0	3724
PEAK HR FACTOR :	0.851	0.909	0.937	0.000	0.944	0.892	0.800	0.000	0.672	0.942	0.850	0.000	0.888	0.933	0.893	0.000	0.980
	0.928				0.929				0.930				0.927				

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

STREET:
North / Sounth: Lincoln

East/West: Washington

Day: Tuesday, May 7, 2019 Weather: Sunny

Hours:

School Day: Yes District I/S CODE

	N/B	S/B	E/B	W/B
DUAL-WHEELED	515	365	305	255
BIKES	65	77	120	102
BUSES	57	56	44	35

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	601	7:00:00 AM	403	8:15:00 AM	390	8:15:00 AM	274	8:45:00 AM
PM PK 15 MIN	538	5:30:00 PM	441	4:30:00 PM	310	5:15:00 PM	316	5:45:00 PM
AM PK HOUR	2221	7:00:00 AM	1541	7:45:00 AM	1440	8:00:00 AM	998	8:00:00 AM
PM PK HOUR	1913	4:45:00 PM	1701	4:15:00 PM	1192	4:45:00 PM	1230	5:00:00 PM

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	696	1437	88	2221
8-9	760	1222	124	2106
9-10	716	1229	184	2129
3-4	411	1032	206	1649
4-5	447	1070	188	1705
5-6	479	1242	179	1900
TOTAL	3509	7232	969	11710

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	176	921	75	1172
8-9	217	1203	67	1487
9-10	232	1102	98	1432
3-4	172	1329	59	1560
4-5	162	1451	56	1669
5-6	151	1378	52	1581
TOTAL	1110	7384	407	8901

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
3393	26	7	22	4
3593	44	7	16	0
3561	43	11	45	7
3209	66	20	57	7
3374	66	20	43	7
3481	44	19	47	2
20611	289	84	230	27

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	56	701	415	1172
8-9	58	800	582	1440
9-10	88	653	513	1254
3-4	84	605	481	1170
4-5	70	565	455	1090
5-6	69	645	467	1181
TOTAL	425	3969	2913	7307

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	115	558	149	822
8-9	148	702	148	998
9-10	147	549	182	878
3-4	296	573	242	1111
4-5	301	604	244	1149
5-6	311	681	238	1230
TOTAL	1318	3667	1203	6188

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
1994	23	4	37	5
2438	27	4	31	9
2132	40	8	54	7
2281	50	8	64	25
2239	45	8	77	6
2411	46	2	78	3
13495	231	34	341	55

LINCOLN & WASHINGTON

2009													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
445-545	121	1416	197	241	709	263	245	1529	564	580	814	129	6808

2011													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	118	1302	206	308	701	333	280	1684	485	554	802	122	6895

2014													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	62	1372	201	237	733	214	213	1145	464	464	686	72	5863

2019													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	52	1378	151	238	681	311	179	1242	479	467	645	69	5892

2014-2019 GROWTH													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-3.5%	0.1%	-5.6%	0.1%	-1.5%	7.8%	-3.4%	1.6%	0.6%	0.1%	-1.2%	-0.8%	0.1%

2011-2019 GROWTH													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-9.7%	0.7%	-3.8%	-3.2%	-0.4%	-0.9%	-5.4%	-3.7%	-0.2%	-2.1%	-2.7%	-6.9%	-1.9%

2009-2019 GROWTH													
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	-8.1%	-0.3%	-2.6%	-0.1%	-0.4%	1.7%	-3.1%	-2.1%	-1.6%	-2.1%	-2.3%	-6.1%	-1.4%

2020 LA County CMP Growth Rate 2.6%

GLENCOE & WASHINGTON PM

2014

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
500-600	58	143	258	358	810	428	312	104	191	270	817	33	3782

2017

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	73	134	312	405	843	394	281	107	199	270	797	30	3845

2014-2017 GROWTH

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
	8.0%	-2.1%	6.5%	4.2%	1.3%	-2.7%	-3.4%	1.0%	1.4%	0.0%	-0.8%	-3.1%	0.6%

GLENCOE & WASHINGTON SAT

2014

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
445-545	*No 2014 data avaliable for Saturday												

2017

	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	86	99	330	453	858	331	284	149	187	240	854	44	3915

2014-2017 GROWTH

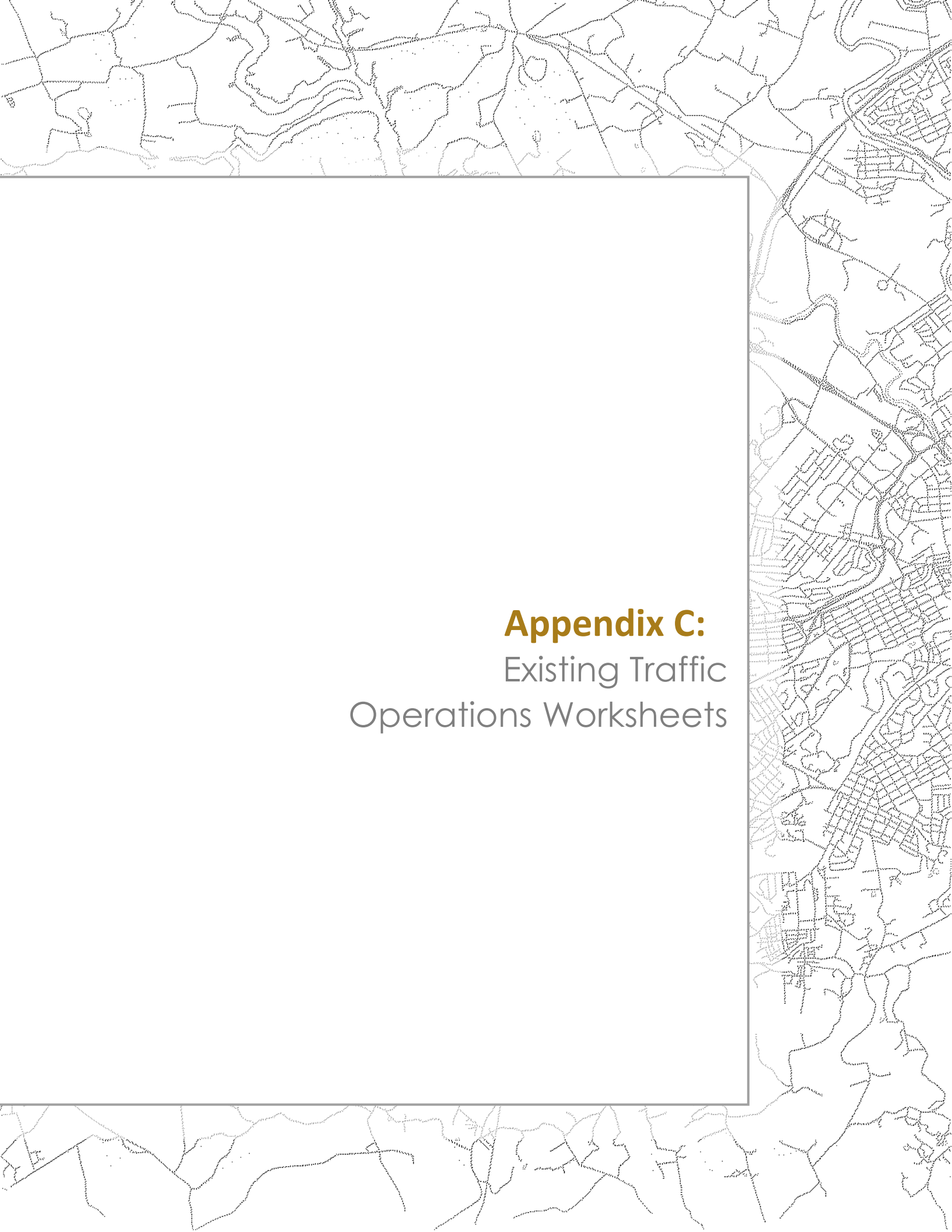
	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL

GLENCOE & WASHINGTON COMPARISON OF PM VS SAT

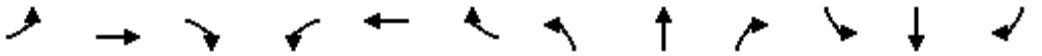
PM VS SAT COMPARISON

SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
15.1%	-35.4%	5.5%	10.6%	1.7%	-19.0%	1.1%	28.2%	-6.4%	-12.5%	6.7%	31.8%	1.8%

Comparison of through movements on Washington Blvd



Appendix C:
Existing Traffic Operations Worksheets



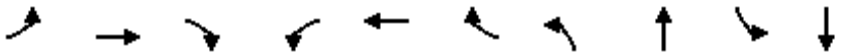
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	651	472	314	688	240	484	1254	181	153	1392	53
Future Volume (veh/h)	70	651	472	314	688	240	484	1254	181	153	1392	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	71	664	482	320	702	245	494	1280	185	156	1420	54
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	1035	639	256	1175	694	388	1582	229	369	1729	66
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.35	0.35	0.11	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	4577	662	3510	5128	195
Grp Volume(v), veh/h	71	664	482	320	702	245	494	967	498	156	958	516
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1781	1755	1729	1865
Q Serve(g_s), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Cycle Q Clear(g_c), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	117	1035	639	256	1175	694	388	1195	615	369	1166	629
V/C Ratio(X)	0.61	0.64	0.75	1.25	0.60	0.35	1.27	0.81	0.81	0.42	0.82	0.82
Avail Cap(c_a), veh/h	253	1069	654	256	1175	694	388	1195	615	369	1166	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	39.0	32.4	58.0	35.3	11.8	55.6	37.2	37.2	52.4	38.0	38.0
Incr Delay (d2), s/veh	5.0	1.3	4.8	139.9	0.8	0.3	142.3	6.0	11.0	0.8	6.6	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.0	13.3	9.0	9.1	3.2	13.7	14.0	15.3	2.3	14.1	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	40.2	37.3	197.8	36.1	12.1	197.9	43.1	48.1	53.1	44.5	49.5
LnGrp LOS	E	D	D	F	D	B	F	D	D	D	D	D
Approach Vol, veh/h		1217			1267			1959			1630	
Approach Delay, s/veh		40.5			72.3			83.4			46.9	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	49.0	15.0	41.8	20.0	48.2	10.2	46.7
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	7.2	33.8	11.1	34.2	15.8	33.7	4.5	22.4
Green Ext Time (p_c), s	0.2	7.7	0.0	1.6	0.0	5.4	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	62.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

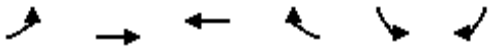


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	664	482	320	702	245	494	1465	156	1474
v/c Ratio	0.33	0.72	0.60	1.26	0.69	0.35	0.93	0.74	0.46	0.87
Control Delay	59.9	47.0	21.7	191.0	43.9	9.0	78.1	35.9	58.4	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	47.0	21.7	191.0	43.9	9.0	78.1	35.9	58.4	45.6
Queue Length 50th (ft)	28	258	209	~167	273	46	206	364	62	406
Queue Length 95th (ft)	53	308	322	#262	328	86	#370	452	98	471
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	252	1068	803	254	1081	732	530	1982	336	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.62	0.60	1.26	0.65	0.33	0.93	0.74	0.46	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

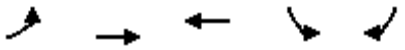
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	228	895	1126	88	118	201
Future Volume (veh/h)	228	895	1126	88	118	201
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	235	923	1161	91	122	207
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	513	2767	3222	252	264	375
Arrive On Green	0.09	0.78	1.00	1.00	0.15	0.15
Sat Flow, veh/h	1795	3647	5036	381	1795	1598
Grp Volume(v), veh/h	235	923	818	434	122	207
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1817	1795	1598
Q Serve(g_s), s	4.1	9.3	0.0	0.0	7.5	13.7
Cycle Q Clear(g_c), s	4.1	9.3	0.0	0.0	7.5	13.7
Prop In Lane	1.00			0.21	1.00	1.00
Lane Grp Cap(c), veh/h	513	2767	2271	1203	264	375
V/C Ratio(X)	0.46	0.33	0.36	0.36	0.46	0.55
Avail Cap(c_a), veh/h	588	2767	2271	1203	477	564
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	3.6	4.0	0.0	0.0	46.8	40.4
Incr Delay (d2), s/veh	0.2	0.2	0.4	0.7	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.8	0.1	0.2	3.4	12.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.8	4.2	0.4	0.7	47.3	40.9
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1158	1252		329	
Approach Delay, s/veh		4.1	0.5		43.2	
Approach LOS		A	A		D	

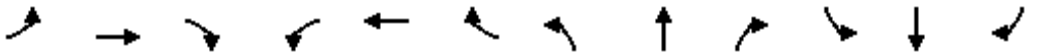
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		98.2		21.8	14.0	84.2
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		12.3		16.7	7.1	3.0
Green Ext Time (p_c), s		17.4		0.5	0.2	24.4

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A



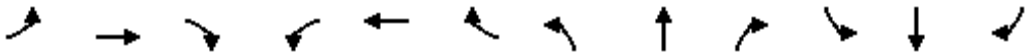
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	235	923	1252	122	207
v/c Ratio	0.57	0.32	0.36	0.56	0.48
Control Delay	8.4	3.7	7.0	58.9	32.0
Queue Delay	0.0	0.3	0.1	0.1	3.9
Total Delay	8.4	4.1	7.1	59.1	35.9
Queue Length 50th (ft)	30	79	97	91	105
Queue Length 95th (ft)	63	131	101	146	161
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	464	2845	3456	475	494
Starvation Cap Reductn	0	1189	635	58	207
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.56	0.44	0.29	0.72

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	758	246	371	867	410	223	133	304	324	166	65
Future Volume (vph)	34	758	246	371	867	410	223	133	304	324	166	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1709	1509	1715	1775	1615
Flt Permitted	0.32	1.00	1.00	0.11	1.00	1.00	0.95	0.99	1.00	0.95	0.98	1.00
Satd. Flow (perm)	616	3574	1615	213	3539	1615	1681	1709	1509	1715	1775	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	34	766	248	375	876	414	225	134	307	327	168	66
RTOR Reduction (vph)	0	0	185	0	0	145	0	0	235	0	0	47
Lane Group Flow (vph)	34	766	63	375	876	269	175	184	72	242	253	19
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	37.5	30.3	30.3	63.2	52.0	52.0	18.5	18.5	28.3	22.6	22.6	35.0
Effective Green, g (s)	37.5	30.3	30.3	63.2	52.0	52.0	18.5	18.5	28.3	22.6	22.6	35.0
Actuated g/C Ratio	0.31	0.25	0.25	0.53	0.43	0.43	0.15	0.15	0.24	0.19	0.19	0.29
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	902	407	479	1533	699	259	263	355	322	334	471
v/s Ratio Prot	0.01	c0.21		c0.18	0.25		0.10	c0.11	0.05	0.14	c0.14	0.01
v/s Ratio Perm	0.03		0.04	0.23		0.17						
v/c Ratio	0.13	0.85	0.15	0.78	0.57	0.38	0.68	0.70	0.20	0.75	0.76	0.04
Uniform Delay, d1	28.9	42.7	34.9	30.6	25.6	23.1	47.9	48.1	36.8	46.0	46.1	30.5
Progression Factor	0.93	1.02	1.58	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	9.5	0.8	8.2	1.6	1.6	6.8	7.9	0.3	9.5	9.4	0.0
Delay (s)	27.0	53.1	55.8	38.8	27.2	24.7	54.7	56.0	37.1	55.6	55.6	30.5
Level of Service	C	D	E	D	C	C	D	E	D	E	E	C
Approach Delay (s)		52.9			29.2			47.0			52.6	
Approach LOS		D			C			D			D	

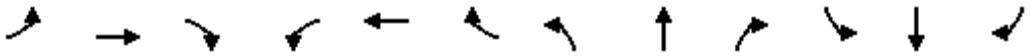
Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	766	248	375	876	414	175	184	307	242	253	66
v/c Ratio	0.11	0.85	0.42	0.78	0.56	0.48	0.68	0.70	0.52	0.75	0.76	0.13
Control Delay	17.6	53.1	9.0	43.2	29.8	13.0	60.3	61.6	8.8	60.2	60.4	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	53.1	9.0	43.2	29.8	13.0	60.3	61.6	8.8	60.2	60.4	6.7
Queue Length 50th (ft)	14	299	14	219	272	80	136	144	0	187	195	0
Queue Length 95th (ft)	37	374	80	#523	404	207	203	212	90	270	280	30
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	388	944	609	480	1557	854	389	396	590	378	391	597
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.81	0.41	0.78	0.56	0.48	0.45	0.46	0.52	0.64	0.65	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



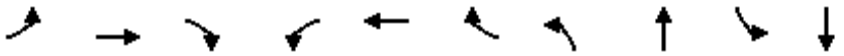
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	679	491	327	717	250	504	1307	188	159	1450	55
Future Volume (veh/h)	73	679	491	327	717	250	504	1307	188	159	1450	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	693	501	334	732	255	514	1334	192	162	1480	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	1046	642	479	1092	653	497	1526	220	507	1664	63
Arrive On Green	0.06	0.29	0.29	0.07	0.31	0.31	0.11	0.34	0.34	0.10	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	4509	649	3456	5049	191
Grp Volume(v), veh/h	74	693	501	334	732	255	514	1007	519	162	998	538
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1754	1728	1702	1836
Q Serve(g_s), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Cycle Q Clear(g_c), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	461	1046	642	479	1092	653	497	1152	594	507	1122	605
V/C Ratio(X)	0.16	0.66	0.78	0.70	0.67	0.39	1.03	0.87	0.87	0.32	0.89	0.89
Avail Cap(c_a), veh/h	505	1052	644	479	1092	653	497	1176	606	507	1122	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	38.7	32.4	30.6	37.8	11.9	38.5	38.8	38.8	49.6	39.7	39.7
Incr Delay (d2), s/veh	0.2	1.6	6.1	4.0	1.4	0.3	49.7	9.3	16.3	1.7	10.6	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.4	14.1	3.8	10.0	3.2	9.4	15.5	17.2	2.4	15.7	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	40.2	38.5	34.6	39.2	12.2	88.2	48.1	55.2	51.3	50.3	57.4
LnGrp LOS	C	D	D	C	D	B	F	D	E	D	D	E
Approach Vol, veh/h		1268			1321			2040			1698	
Approach Delay, s/veh		38.9			32.8			60.0			52.7	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	48.1	15.0	42.8	20.0	47.2	13.4	44.4
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	2.0	36.7	10.5	36.4	15.8	36.8	3.8	24.5
Green Ext Time (p_c), s	0.3	5.6	0.0	0.4	0.0	3.5	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	48.1
HCM 6th LOS	D

Notes

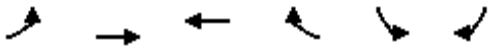
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	74	693	501	334	732	255	514	1526	162	1536
v/c Ratio	0.18	0.74	0.63	0.77	0.70	0.36	0.86	0.80	0.36	0.91
Control Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	39.0	43.4	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	39.0	43.4	49.5
Queue Length 50th (ft)	18	265	227	91	280	48	160	405	47	435
Queue Length 95th (ft)	33	326	349	122	345	92	#290	483	74	#513
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	443	1047	780	434	1079	727	600	1896	449	1680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.66	0.64	0.77	0.68	0.35	0.86	0.80	0.36	0.91

Intersection Summary

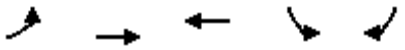
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	297	847	1006	142	179	244
Future Volume (veh/h)	297	847	1006	142	179	244
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	319	911	1082	153	192	262
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	501	2664	2885	407	301	404
Arrive On Green	0.08	0.75	1.00	1.00	0.17	0.17
Sat Flow, veh/h	1810	3647	4726	644	1795	1610
Grp Volume(v), veh/h	319	911	814	421	192	262
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1769	1795	1610
Q Serve(g_s), s	6.9	10.4	0.0	0.0	12.0	17.5
Cycle Q Clear(g_c), s	6.9	10.4	0.0	0.0	12.0	17.5
Prop In Lane	1.00			0.36	1.00	1.00
Lane Grp Cap(c), veh/h	501	2664	2172	1120	301	404
V/C Ratio(X)	0.64	0.34	0.37	0.38	0.64	0.65
Avail Cap(c_a), veh/h	576	2664	2172	1120	470	556
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.66	0.66	1.00	1.00
Uniform Delay (d), s/veh	5.2	5.1	0.0	0.0	46.5	40.2
Incr Delay (d2), s/veh	0.8	0.2	0.3	0.6	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.3	0.1	0.2	5.5	15.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	5.3	0.3	0.6	47.4	40.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1230	1235		454	
Approach Delay, s/veh		5.5	0.4		43.6	
Approach LOS		A	A		D	

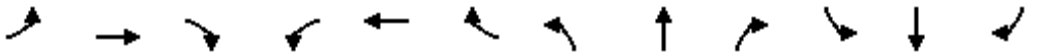
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.3		24.7	14.0	81.3
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		12.4		19.5	8.9	2.0
Green Ext Time (p_c), s		17.1		0.7	0.3	24.2

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A



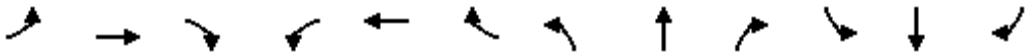
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	319	911	1235	192	262
v/c Ratio	0.69	0.36	0.46	0.56	0.40
Control Delay	19.8	6.6	3.0	50.8	22.2
Queue Delay	0.0	0.4	0.3	0.0	0.0
Total Delay	19.8	7.0	3.3	50.8	22.2
Queue Length 50th (ft)	79	121	24	136	113
Queue Length 95th (ft)	181	153	38	213	173
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	459	2565	2705	467	656
Starvation Cap Reductn	0	1027	718	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.59	0.62	0.41	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	784	208	290	842	517	163	122	241	397	109	82
Future Volume (vph)	44	784	208	290	842	517	163	122	241	397	109	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1773	1615	1715	1755	1615
Flt Permitted	0.14	1.00	1.00	0.12	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (perm)	261	3574	1615	227	3574	1615	1698	1773	1615	1715	1755	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	45	800	212	296	859	528	166	124	246	405	111	84
RTOR Reduction (vph)	0	0	106	0	0	245	0	0	50	0	0	50
Lane Group Flow (vph)	45	800	106	296	859	283	143	147	196	255	261	34
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	42.7	33.7	33.7	48.1	36.7	36.7	20.4	20.4	31.8	34.2	34.2	48.4
Effective Green, g (s)	42.7	33.7	33.7	48.1	36.7	36.7	20.4	20.4	31.8	34.2	34.2	48.4
Actuated g/C Ratio	0.36	0.28	0.28	0.40	0.31	0.31	0.17	0.17	0.27	0.29	0.29	0.40
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	208	1003	453	239	1093	493	288	301	427	488	500	651
v/s Ratio Prot	0.02	0.22		c0.12	0.24		c0.08	0.08	0.12	0.15	c0.15	0.02
v/s Ratio Perm	0.06		0.07	c0.38		0.18						
v/c Ratio	0.22	0.80	0.23	1.24	0.79	0.57	0.50	0.49	0.46	0.52	0.52	0.05
Uniform Delay, d1	27.3	40.0	33.2	30.0	38.1	35.1	45.1	45.1	36.9	36.0	36.0	21.8
Progression Factor	0.88	0.89	0.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	6.3	1.2	137.8	5.7	4.8	0.5	0.5	0.3	4.0	3.9	0.0
Delay (s)	24.0	41.9	23.2	167.8	43.8	39.9	45.6	45.5	37.2	40.0	39.9	21.8
Level of Service	C	D	C	F	D	D	D	D	D	D	D	C
Approach Delay (s)		37.4			64.4			41.7			37.4	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

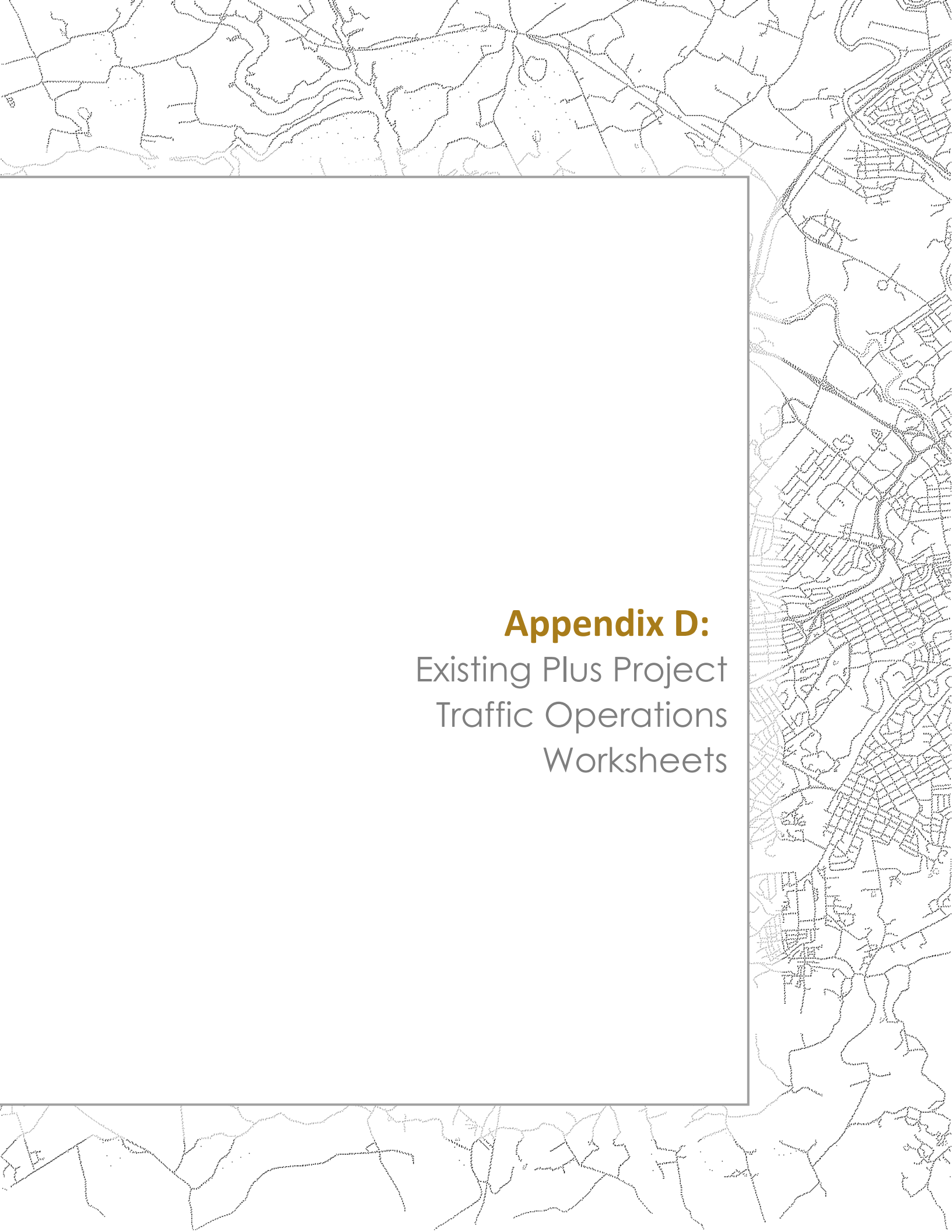


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	800	212	296	859	528	143	147	246	255	261	84
v/c Ratio	0.21	0.80	0.38	1.23	0.79	0.72	0.49	0.49	0.52	0.52	0.52	0.12
Control Delay	20.5	42.3	9.5	163.2	44.2	17.8	51.5	51.0	17.8	40.9	40.8	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	42.3	9.5	163.2	44.2	17.8	51.5	51.0	17.8	40.9	40.8	5.4
Queue Length 50th (ft)	17	313	30	~226	319	118	107	110	54	173	177	0
Queue Length 95th (ft)	36	388	108	#407	398	257	174	176	91	270	275	33
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	211	1003	559	240	1093	738	464	484	630	488	499	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.80	0.38	1.23	0.79	0.72	0.31	0.30	0.39	0.52	0.52	0.12

Intersection Summary

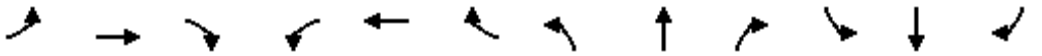
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Appendix D:

Existing Plus Project Traffic Operations Worksheets



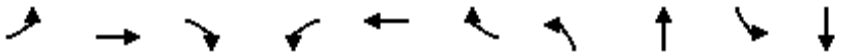
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	651	472	314	688	237	484	1254	181	152	1392	53
Future Volume (veh/h)	70	651	472	314	688	237	484	1254	181	152	1392	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	71	664	482	320	702	242	494	1280	185	155	1420	54
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	1035	639	256	1175	694	388	1582	229	369	1729	66
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.35	0.35	0.11	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	4577	662	3510	5128	195
Grp Volume(v), veh/h	71	664	482	320	702	242	494	967	498	155	958	516
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1781	1755	1729	1865
Q Serve(g_s), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Cycle Q Clear(g_c), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	117	1035	639	256	1175	694	388	1195	615	369	1166	629
V/C Ratio(X)	0.61	0.64	0.75	1.25	0.60	0.35	1.27	0.81	0.81	0.42	0.82	0.82
Avail Cap(c_a), veh/h	253	1069	654	256	1175	694	388	1195	615	369	1166	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	39.0	32.4	58.0	35.3	11.8	55.6	37.2	37.2	52.3	38.0	38.0
Incr Delay (d2), s/veh	5.0	1.3	4.8	139.1	0.8	0.3	142.3	6.0	11.0	0.8	6.6	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.0	13.3	9.0	9.1	3.1	13.7	14.0	15.3	2.3	14.1	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	40.2	37.3	197.1	36.1	12.1	197.9	43.1	48.1	53.1	44.5	49.5
LnGrp LOS	E	D	D	F	D	B	F	D	D	D	D	D
Approach Vol, veh/h		1217			1264			1959			1629	
Approach Delay, s/veh		40.5			72.2			83.4			46.9	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	49.0	15.0	41.8	20.0	48.2	10.2	46.7
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	7.2	33.8	11.1	34.2	15.8	33.7	4.5	22.4
Green Ext Time (p_c), s	0.2	7.7	0.0	1.6	0.0	5.4	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	62.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

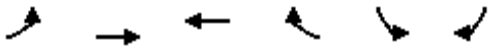


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	664	482	320	702	242	494	1465	155	1474
v/c Ratio	0.33	0.72	0.60	1.26	0.69	0.34	0.93	0.74	0.46	0.87
Control Delay	59.9	47.0	21.7	191.0	43.9	8.9	78.1	35.9	58.3	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	47.0	21.7	191.0	43.9	8.9	78.1	35.9	58.3	45.6
Queue Length 50th (ft)	28	258	209	~167	273	45	206	364	62	406
Queue Length 95th (ft)	53	308	322	#262	328	84	#370	452	98	471
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	252	1068	803	254	1081	732	530	1982	336	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.62	0.60	1.26	0.65	0.33	0.93	0.74	0.46	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

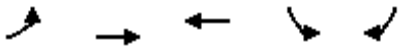
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	251	895	1059	192	186	283
Future Volume (veh/h)	251	895	1059	192	186	283
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	259	923	1092	198	192	292
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	482	2597	2690	487	350	451
Arrive On Green	0.09	0.73	1.00	1.00	0.20	0.20
Sat Flow, veh/h	1795	3647	4550	794	1795	1598
Grp Volume(v), veh/h	259	923	855	435	192	292
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1742	1795	1598
Q Serve(g_s), s	5.5	11.3	0.0	0.0	11.6	19.3
Cycle Q Clear(g_c), s	5.5	11.3	0.0	0.0	11.6	19.3
Prop In Lane	1.00			0.46	1.00	1.00
Lane Grp Cap(c), veh/h	482	2597	2107	1070	350	451
V/C Ratio(X)	0.54	0.36	0.41	0.41	0.55	0.65
Avail Cap(c_a), veh/h	557	2597	2107	1070	477	564
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.78	0.78	1.00	1.00
Uniform Delay (d), s/veh	5.3	5.9	0.0	0.0	43.5	37.8
Incr Delay (d2), s/veh	0.2	0.3	0.5	0.9	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.8	0.1	0.3	5.2	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	6.1	0.5	0.9	44.0	38.6
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1182	1290		484	
Approach Delay, s/veh		6.0	0.6		40.8	
Approach LOS		A	A		D	

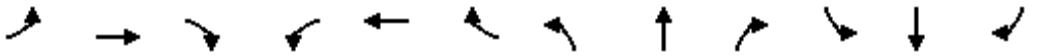
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.5		27.5	14.0	78.5
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		14.3		22.3	8.5	3.0
Green Ext Time (p_c), s		17.3		0.7	0.2	25.7

Intersection Summary		
HCM 6th Ctrl Delay	9.3	
HCM 6th LOS	A	



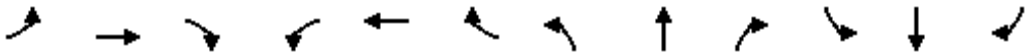
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	259	923	1290	192	292
v/c Ratio	0.65	0.34	0.40	0.68	0.57
Control Delay	14.0	5.2	7.3	59.6	31.7
Queue Delay	0.0	0.3	0.1	0.9	21.0
Total Delay	14.0	5.5	7.4	60.5	52.7
Queue Length 50th (ft)	43	98	78	143	158
Queue Length 95th (ft)	119	165	75	206	202
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	442	2719	3192	475	557
Starvation Cap Reductn	0	1089	512	116	256
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.57	0.48	0.53	0.97

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	860	249	371	967	321	227	128	304	258	161	65
Future Volume (vph)	15	860	249	371	967	321	227	128	304	258	161	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1709	1509	1715	1783	1615
Flt Permitted	0.29	1.00	1.00	0.11	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (perm)	557	3574	1615	205	3539	1615	1681	1709	1509	1715	1783	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	15	869	252	375	977	324	229	129	307	261	163	66
RTOR Reduction (vph)	0	0	182	0	0	99	0	0	232	0	0	48
Lane Group Flow (vph)	15	869	70	375	977	225	176	182	75	209	215	18
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	38.9	31.7	31.7	65.5	54.3	54.3	18.2	18.2	29.2	20.6	20.6	33.0
Effective Green, g (s)	38.9	31.7	31.7	65.5	54.3	54.3	18.2	18.2	29.2	20.6	20.6	33.0
Actuated g/C Ratio	0.32	0.26	0.26	0.55	0.45	0.45	0.15	0.15	0.24	0.17	0.17	0.28
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	944	426	492	1601	730	254	259	367	294	306	444
v/s Ratio Prot	0.00	c0.24		c0.19	0.28		0.10	c0.11	0.05	c0.12	0.12	0.01
v/s Ratio Perm	0.02		0.04	0.23		0.14						
v/c Ratio	0.06	0.92	0.16	0.76	0.61	0.31	0.69	0.70	0.20	0.71	0.70	0.04
Uniform Delay, d1	27.6	42.9	34.0	30.4	24.8	20.9	48.3	48.3	36.1	46.9	46.8	31.9
Progression Factor	0.85	1.02	1.28	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	14.9	0.8	6.9	1.7	1.1	7.9	8.3	0.3	7.9	7.1	0.0
Delay (s)	23.5	58.9	44.4	37.3	26.6	22.0	56.2	56.7	36.4	54.8	53.9	31.9
Level of Service	C	E	D	D	C	C	E	E	D	D	D	C
Approach Delay (s)		55.2			28.1			47.2			51.3	
Approach LOS		E			C			D			D	

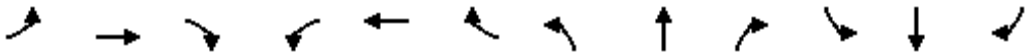
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	869	252	375	977	324	176	182	307	209	215	66
v/c Ratio	0.05	0.92	0.41	0.76	0.60	0.39	0.69	0.71	0.51	0.71	0.70	0.13
Control Delay	15.3	59.2	8.1	41.2	29.5	13.2	61.8	62.4	8.6	59.4	58.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	59.2	8.1	41.2	29.5	13.2	61.8	62.4	8.6	59.4	58.5	6.8
Queue Length 50th (ft)	5	353	21	213	303	68	137	143	0	162	166	0
Queue Length 95th (ft)	m13	#470	83	#527	#489	176	205	211	90	232	236	30
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	378	944	608	493	1624	838	389	395	599	375	390	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.92	0.41	0.76	0.60	0.39	0.45	0.46	0.51	0.56	0.55	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



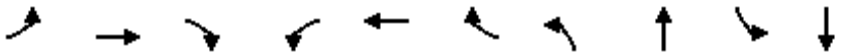
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	679	491	327	717	249	504	1307	187	157	1450	55
Future Volume (veh/h)	73	679	491	327	717	249	504	1307	187	157	1450	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	693	501	334	732	254	514	1334	191	160	1480	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	1046	642	479	1092	653	497	1527	219	507	1664	63
Arrive On Green	0.06	0.29	0.29	0.07	0.31	0.31	0.11	0.34	0.34	0.10	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	4512	646	3456	5049	191
Grp Volume(v), veh/h	74	693	501	334	732	254	514	1006	519	160	998	538
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1754	1728	1702	1836
Q Serve(g_s), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Cycle Q Clear(g_c), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	461	1046	642	479	1092	653	497	1152	594	507	1122	605
V/C Ratio(X)	0.16	0.66	0.78	0.70	0.67	0.39	1.03	0.87	0.87	0.32	0.89	0.89
Avail Cap(c_a), veh/h	505	1052	644	479	1092	653	497	1176	606	507	1122	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	38.7	32.4	30.6	37.8	11.9	38.5	38.8	38.8	49.6	39.7	39.7
Incr Delay (d2), s/veh	0.2	1.6	6.1	3.8	1.4	0.3	49.7	9.3	16.3	1.6	10.6	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.4	14.1	3.8	10.0	3.2	9.4	15.5	17.1	2.3	15.7	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	40.2	38.5	34.4	39.2	12.2	88.2	48.1	55.1	51.2	50.3	57.4
LnGrp LOS	C	D	D	C	D	B	F	D	E	D	D	E
Approach Vol, veh/h		1268			1320			2039			1696	
Approach Delay, s/veh		38.9			32.8			60.0			52.7	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	48.1	15.0	42.8	20.0	47.2	13.4	44.4
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	2.0	36.7	10.5	36.4	15.8	36.8	3.8	24.5
Green Ext Time (p_c), s	0.3	5.6	0.0	0.4	0.0	3.5	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	48.1
HCM 6th LOS	D

Notes

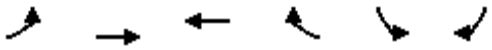
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	74	693	501	334	732	254	514	1525	160	1536
v/c Ratio	0.18	0.74	0.63	0.77	0.70	0.36	0.86	0.80	0.36	0.91
Control Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	38.9	43.3	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	38.9	43.3	49.5
Queue Length 50th (ft)	18	265	227	91	280	47	160	404	46	435
Queue Length 95th (ft)	33	326	349	122	345	92	#290	482	73	#513
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	443	1047	780	434	1079	727	600	1896	449	1680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.66	0.64	0.77	0.68	0.35	0.86	0.80	0.36	0.91

Intersection Summary

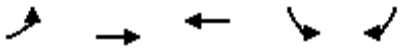
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	311	847	937	229	233	321
Future Volume (veh/h)	311	847	937	229	233	321
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	334	911	1008	246	251	345
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	483	2504	2403	585	382	487
Arrive On Green	0.09	0.70	1.00	1.00	0.21	0.21
Sat Flow, veh/h	1810	3647	4299	1006	1795	1610
Grp Volume(v), veh/h	334	911	837	417	251	345
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1704	1795	1610
Q Serve(g_s), s	8.5	12.2	0.0	0.0	15.3	22.8
Cycle Q Clear(g_c), s	8.5	12.2	0.0	0.0	15.3	22.8
Prop In Lane	1.00			0.59	1.00	1.00
Lane Grp Cap(c), veh/h	483	2504	1997	992	382	487
V/C Ratio(X)	0.69	0.36	0.42	0.42	0.66	0.71
Avail Cap(c_a), veh/h	548	2504	1997	992	470	565
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.55	0.55	1.00	1.00
Uniform Delay (d), s/veh	7.2	7.0	0.0	0.0	43.2	37.2
Incr Delay (d2), s/veh	1.6	0.3	0.4	0.7	1.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	4.2	0.1	0.2	7.0	19.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.8	7.3	0.4	0.7	44.5	39.7
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1245	1254		596	
Approach Delay, s/veh		7.7	0.5		41.7	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		89.8		30.2	14.7	75.1
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		14.2		24.8	10.5	2.0
Green Ext Time (p_c), s		17.0		0.7	0.2	24.9

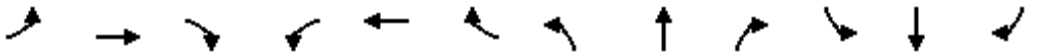
Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	334	911	1254	251	345
v/c Ratio	0.75	0.36	0.47	0.69	0.51
Control Delay	25.7	7.3	1.7	54.7	24.2
Queue Delay	0.0	0.4	0.3	0.0	0.0
Total Delay	25.7	7.7	2.0	54.7	24.2
Queue Length 50th (ft)	99	121	9	185	162
Queue Length 95th (ft)	#255	183	21	261	236
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	443	2525	2665	467	669
Starvation Cap Reductn	0	991	713	0	0
Spillback Cap Reductn	0	126	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.59	0.64	0.54	0.52

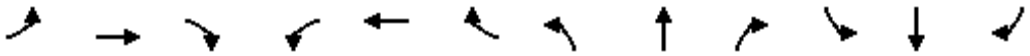
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	870	211	290	927	423	166	115	241	326	102	82
Future Volume (vph)	26	870	211	290	927	423	166	115	241	326	102	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1770	1615	1715	1758	1615
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (perm)	226	3574	1615	205	3574	1615	1698	1770	1615	1715	1758	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	27	888	215	296	946	432	169	117	246	333	104	84
RTOR Reduction (vph)	0	0	96	0	0	182	0	0	50	0	0	50
Lane Group Flow (vph)	27	888	119	296	946	250	140	146	196	216	221	34
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	42.7	33.7	33.7	48.1	36.7	36.7	20.4	20.4	31.8	34.2	34.2	48.4
Effective Green, g (s)	42.7	33.7	33.7	48.1	36.7	36.7	20.4	20.4	31.8	34.2	34.2	48.4
Actuated g/C Ratio	0.36	0.28	0.28	0.40	0.31	0.31	0.17	0.17	0.27	0.29	0.29	0.40
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	198	1003	453	232	1093	493	288	300	427	488	501	651
v/s Ratio Prot	0.01	0.25		c0.12	0.26		0.08	c0.08	0.12	c0.13	0.13	0.02
v/s Ratio Perm	0.04		0.07	c0.39		0.15						
v/c Ratio	0.14	0.89	0.26	1.28	0.87	0.51	0.49	0.49	0.46	0.44	0.44	0.05
Uniform Delay, d1	27.7	41.3	33.5	32.1	39.3	34.2	45.1	45.1	36.9	35.1	35.1	21.8
Progression Factor	0.83	0.88	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	10.7	1.3	153.2	9.2	3.7	0.5	0.5	0.3	2.9	2.8	0.0
Delay (s)	23.0	47.2	23.0	185.3	48.5	37.9	45.5	45.5	37.2	38.0	37.9	21.8
Level of Service	C	D	C	F	D	D	D	D	D	D	D	C
Approach Delay (s)		42.0			70.0			41.7			35.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



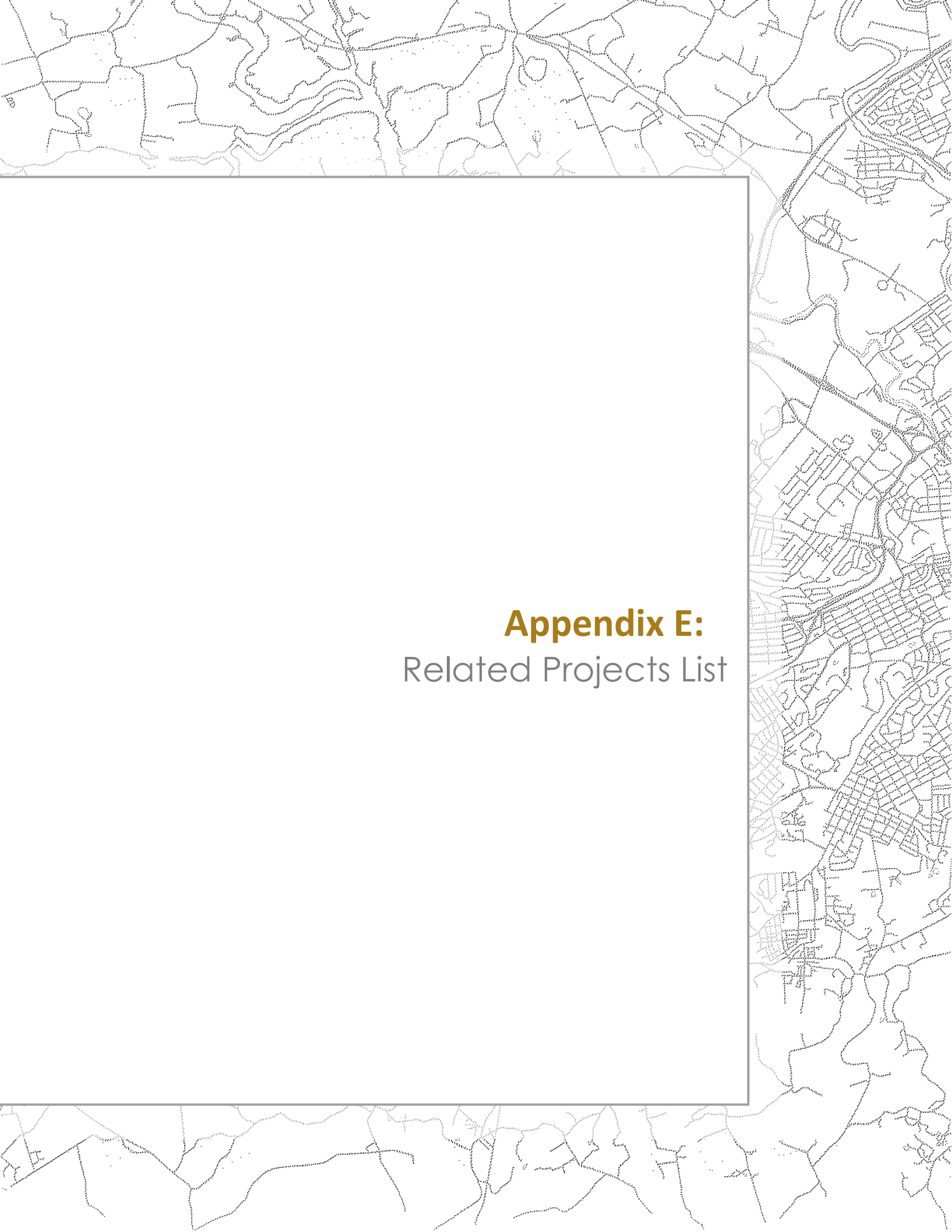
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	888	215	296	946	432	140	146	246	216	221	84
v/c Ratio	0.13	0.89	0.39	1.27	0.87	0.64	0.49	0.49	0.52	0.44	0.44	0.12
Control Delay	18.3	47.7	10.7	179.0	48.9	18.4	51.3	51.1	17.8	38.8	38.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	47.7	10.7	179.0	48.9	18.4	51.3	51.1	17.8	38.8	38.6	5.4
Queue Length 50th (ft)	11	358	46	~237	363	110	105	109	54	143	146	0
Queue Length 95th (ft)	m23	#461	78	#418	#454	225	171	177	91	227	232	33
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	201	1003	549	233	1093	675	464	483	630	489	501	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.89	0.39	1.27	0.87	0.64	0.30	0.30	0.39	0.44	0.44	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Appendix E:
Related Projects List

No.	Project Name	Address	Address_City	Description	City	Est. Date Completion	Completed Date	Project Phase	Date of Entitlement Approval	Planner
1	3-unit Washington Place Condos	12464 Washington Place	12464 Washington Place, Culver City	Three (3) new condominium dwelling units and demolition of single family dewlling, resulting in two (2) net new dwellings	CC	2019	3/26/2019	Completed - Occupied	4/26/2017	Gabriela Silva (310) 253-5736
2	Shell Carwash	11224 Venice Blvd	11224 Venice Blvd, Culver City	New 3,150 sq. ft. commercial building, which includes a 2,285 sq. ft. convenience store and 864 sq. ft. automated car wash facility, on a vacant site	CC	2019	6/5/2019	Completed - Occupied	12/9/2015	Gabriela Silva (310) 253-5736
3	One Culver 8-story Office Building Renovation	10000 Washington Blvd	10000 Washington Blvd, Culver City	Renovation of existing 8-story office building. Convert ground floor office space to retail and restaurant space. Total net increase of 10,614 sq. ft. of floor area, including a net reduction of 1,497 sq. ft. of office, increase of 8,424 sq. ft. of retail/ restaurant and 3,687 sq. ft. of fitness use	CC	2019	2019	Completed	6/22/2016	Planning Division (310) 253-5710
4	Grandview Apartments	4025 Grand View Blvd	4025 Grand View Blvd, Culver City	New 3-story, for lease housing development, consisting of 36 units, with subterranean parking. Previous/Existing use includes 20 mobile home units.	CC	2019	8/5/2019	Completed - Occupied	01/27/2016 (PC) 03/28/2016 (CC)	Jose Mendivil (310) 253-5757
5	Auto Repair Facility	2926 La Cienega Blvd	2926 La Cienega Blvd, Culver City	Four (4) bay auto repair use within existing car rental facility	CC	2019	8/17/2019	Completed - Occupied	8/8/2018	Jose Mendivil (310) 253-5757
6	Arora Condominiums	3837 Bentley Avenue	3837 Bentley Avenue, Culver City	Three (3) new condominium dwelling units, resulting in two (2) net new dwellings	CC	2019	10/3/2019	Completed - Occupied	4/8/2015	Gabriela Silva (310) 253-5736
7	New 4-unit Condo	4034 La Salle Avenue	4034 La Salle Avenue, Culver City	New four (4) unit residential condominium project, resulting in a net increase of three (3) dwelling units	CC	2019	11/19/2019	Completed	9/28/2016	William Kavadas (310) 253-5706
8	Office Use, Tandem Parking	5426 Sepulveda Blvd	5426 Sepulveda Blvd, Culver City	Change of use from auto repair to office use, with addition of tandem parking	CC	2019	12/10/2019	Completed	1/3/2019	William Kavadas (310) 253-5706
9	Retail Building	3030 La Cienega Blvd	3030 La Cienega Blvd, Culver City	Addition of 1,250 sq. ft. of retail floor area to an existing 8,338 sq. ft. retail building, and new tandem parking	CC	2020	1/3/2020	Completed	6/19/2017	Planning Division (310) 253-5710
10	Three unit condominium/ townhome Redevelopment	4241 Duquesne Avenue	4241 Duquesne Avenue, Culver City	New three (3) detached condominium/ townhomes, resulting in two (2) net new residential dwelling units	CC	2020	3/30/2020	Completed - Occupied	03/09/2016 (CC) 05/09/2016 (CC)	Jose Mendivil (310) 253-5757
11	2-unit Condominium	9615 Lucerne Ave	9615 Lucerne Ave, Culver City	Two (2) new residential condominium dwellings, resulting in one (1) net new dwelling unit	CC	2020	6/26/2020	Completed	9/27/2017	William Kavadas (310) 253-5706
12	Globe Affordable Housing Project	4044 - 4068 Globe Avenue	4044 - 4068 Globe Avenue, Culver City	Comprehensive Plan and Planned Development for a total of 10 new, for sale, residential dwelling units on currently vacant land; however, the site was previously developed with 7 single family homes.	CC	2020	7/16/2020	Completed - Occupied	03/23/2016 (PC) 05/05/2016 (CC)	Jose Mendivil (310) 253-5757

13	Baldwin Site	12803 Washington Blvd	12803 Washington Blvd, Culver City	New 4 story mixed use project, cosisting of 37 dwelling units and 7,206 sq. ft. of ground floor retail, on currently vacant site	CC	2020	9/2/2020	Completed	07/27/2016 (PC) 09/12/2016 (CC)	Jose Mendivil (310) 253-5757
14	Office Building	9919 Jefferson Blvd	9919 Jefferson Blvd, Culver City	New 3-story, 62,558 sq. ft., office and research and development (laboratory) building, as well as a five (5) level parking structure containing 398 parking spaces, and associated site improvements	CC	2020	TBD	Construction	10/26/2016	Gabriela Silva (310) 253-5736
15	Parcel B - Culver Steps	9300 Culver Blvd	9300 Culver Blvd, Culver City	118,000 G.S.F. of office, retail, and restaurant space.	CC	2020	TBD	Construction	7/7/2012	Susan Herbertson (310) 253-5755
16	New 3-unit Condo	4234 Sawtelle Blvd	4234 Sawtelle Blvd, Culver City	New three (3) unit residential condominium project, resulting in a net increase of two (2) dwelling units	CC	2020	TBD	Construction	3/8/2017	Planning Division (310) 253-5710
17	4-unit Townhome Development	4118 Wade Street	4118 Wade Street, Culver City	Sudivision of one parcel into four (4) townhome-style dwelling units, resulting in a net increase of one (1) new unit	CC	2020	TBD	Construction	06/12/2017 (PC) 09/11/2017 (CC)	Jose Mendivil (310) 253-5757
18	3906-3910 Sawtelle Blvd	3906-3910 Sawtelle Blvd	3906-3910 Sawtelle Blvd, Culver City	Addition of one (1) new dwelling unit to an existing triplex	CC	2020	TBD	Construction	6/19/2017	Gabriela Silva (310) 253-5736
19	3-unit Bentley Condos	3873 Bentley Avenue	3873 Bentley Avenue, Culver City	Three new residential condominium units, resulting in two (2) net new residential dwelling units	CC	2020	TBD	Construction	2/22/2017	William Kavadas 310-253-5706
20	6-unit Housing Complex	4227 Ince Boulevard	4227 Ince Boulevard, Culver City	Sudivision of one parcel into three (3) land lots with two (2) dwelling units each, for a total of six (6) new units, resulting in five (5) net new units	CC	2020	TBD	Construction	02/22/2017 (PC) 04/11/2017 (CC)	Jose Mendivil (310) 253-5757
21	5-unit Condominiums	3961 Tilden Avenue	3961 Tilden Avenue, Culver City	Construction of five (5) new residential condominium units, resulting in two (2) net new residential dwelling units	CC	2021	TBD	Construction	06/08/2016 (PC) 07/25/2016 (CC)	Gabriela Silva (310) 253-5736
22	Ivy Station Washington/ National TOD Comprehensive Plan	8824 National Blvd Corner of Washington Blvd/ National Blvd (8801, 8809 Washington Blvd)	8824 National Blvd Corner of Washington Blvd/ National Blvd (8801, 8809 Washington Blvd), Culver City	New TOD mixed use project consisting of a 148 room boutique hotel, approximately 57,742 gsf of retail and restaurant uses, 196,333 gsf of office use, and 200 residential units. Parking (1,531 spaces) provided on grade and in 3-level subterranean garage.	CC	2021	TBD	Construction	02/17/2016 (PC) 03/28/2016 (CC)	Susan Herbertson (310) 253-5755
23	Surfas Site	8777 Washington Blvd	8777 Washington Blvd, Culver City	New Office/Retail project, consisting of 128,000 sq. ft. of office, and 4,500 sq. ft. of retail/restaurant, with approximately 345 ground and subterranean (3 level) parking spaces	CC	2021	TBD	Construction	05/10/2017 (PC) 06/26/2017 (CC)	Susan Herbertson (310) 253-5755
24	Motel Mixed-Use	12654 Washington Blvd	12654 Washington Blvd, Culver City	New mixed-use building, including 6,836 sq. ft. ground floor commercial and one (1) 5,863 sq. ft. residential dwelling on top	CC	2021	TBD	Construction	5/29/2020	Jose Mendivil (310) 253-5757

25	New 4-unit Condo	4180 Duquesne Avenue	4180 Duquesne Avenue, Culver City	New four (4) unit residential condominium project, resulting in a net increase of three (3) dwelling units	CC	2021	TBD	Construction	9/28/2016	William Kavadas (310) 253-5706
26	4-unit Condos	3832 Bentley Avenue	3832 Bentley Avenue, Culver City	Four (4) new condominium dwelling units, resulting in three (3) net new dwellings	CC	2021	TBD	Construction	2/22/2017	Gabriela Silva (310) 253-5736
27	Synapse Office and Retail/Restaurant (ICC site)	8888 Washington Blvd	8888 Washington Blvd, Culver City	New 91,952 square foot, four (4) story, 56 ft. high, office and retail/restaurant building, including approximately 5,972 sq. ft. of ground floor space (for retail/restaurant uses) and 56,559 gsf of office space, and subterranean (24 ft. deep) automated parking accommodating up to 210 vertically stacked vehicles (3 stacked levels); the existing auto collision repair center will be demolished.	CC	2021	TBD	Construction	3/22/2017	Gabriela Silva (310) 253-5736
28	Lorcan O'Herlihy Architects	3434 Wesley Street	3434 Wesley Street, Culver City	New TOD Mixed Use project with 15 dwelling units, and 14,237sq. ft. of office/gallery on a vacant lot.	CC	2021	TBD	Construction	10/26/2016 (PC) 02/13/2017 (CC)	William Kavadas (310) 253-5706
29	West Los Angeles Community College Master Plan and EIR (2010)	LA County	LA County, Culver City	Approximately 92,000 sq. ft. of new building construction and renovation. Anticipate future student population of approx. 18,904 students.	LA County	2021	TBD	Construction	EIR Certified 2004	Susan Herbertson (310) 253-5755
30	Culver West Mixed Use Washington/Inglewood	11924 Washington Blvd	11924 Washington Blvd, Culver City	Mixed use project with 3,750 sq. ft. of restaurant, 11,250 sq. ft. of specialty retail, and 98 for lease residential apartment units. Previous use includes approximately 26,445 sq. ft. of commercial uses	CC/LA	2021	TBD	Construction	12/09/2015 (PC) 06/08/2016 (LA City)	Jose Mendivil (310) 253-5757
31	2-unit Condominium	4225 La Salle Ave	4225 La Salle Ave, Culver City	Sudivision of one (1) parcel into two (2) townhome-style dwelling units, resulting in one (1) net new dwelling unit	CC	2021	TBD	Construction	01/09/2019 (PC) 02/11/2019 (CC)	William Kavadas (310) 253-5706
32	Entrada Office Tower	6161 Centinela Blvd (6181 Centinela Blvd)	6161 Centinela Blvd (6181 Centinela Blvd), Culver City	New 281,194 sq. ft. creative office building	CC	2021	TBD	Construction	11/9/2016	Susan Herbertson (310) 253-5755
33	The Brick and the Machine	9735 Washington Boulevard	9735 Washington Boulevard, Culver City	New 3- to 4-story office and retail building consisting of 55,477 sq. ft. of office (upper floors), 12,249 sq. ft. of retail, 2,147 sq. ft. high turnover restaurant, and 2,000 sq. ft. of quality restaurant (on ground floor), and a 3-level, 228 space, subterranean parking garage. The existing vacant 16,200 sq. ft. bank and office building to be demolished.	CC	2021	TBD	Construction	06/27/2019 (PC) 11/12/2018 (CC)	Jose Mendivil (310) 253-5757
34	2-unit Condominium	4116 Higuera St	4116 Higuera St, Culver City	Sudivision of one (1) parcel into two (2) townhome-style dwelling units, resulting in one (1) net new dwelling unit	CC	2021	TBD	Construction	01/23/2019 (PC) 02/25/2019 (CC)	William Kavadas (310) 253-5706

35	Market Hall - Washington Centinela	12403 (12237-12423) Washington Boulevard	12403 (12237-12423) Washington Boulevard, Culver City	New multi-story 21,605 sq. ft. market hall and food retail building with attached parking structure (184 spaces) and a new single story 5,230 sq. ft. retail building with surface parking (20 spaces), on two currently vacant sites	CC	2021	TBD	Construction	10/25/2017 (PC) 01/22/2018 (CC) 02/12/2018 (CC)	Gabriela Silva (310) 253-5736
36	Culver Studios Innovation Plan Comprehensive Plan Amendment No.7	9336 Washington Blvd	9336 Washington Blvd, Culver City	New production office buildings to replace existing outmoded structures, to include 345,007 square feet of net new production space.	CC	2021	TBD	Construction	12/13/2017 (PC) 01/08/2018 (CC) 1/22/2018 (CC)	Susan Herbertson (310) 253-5755
37	Cosmetique	10744-10746 Washington Blvd	10744-10746 Washington Blvd, Culver City	New six (6) vehicle parking stacker for existing 4,700 sq. ft. medical office with additional 1,026 sq. ft.	CC	2021	TBD	Building Permit	12/11/2019	Jose Mendivil (310) 253-5757
38	Helms Homes	3336-3340 Helms Ave	3336-3340 Helms Ave, Culver City	Eight (8) new condominium dwelling units, resulting in six (6) net new dwelling uits	CC	2021	TBD	Building Permit	05/27/2020 (PC) 07/13/2020 (CC)	Gabriela Silva (310) 253-5736
39	6-unit Condominiums	3808 College Ave	3808 College Ave, Culver City	Six (6) new condominium dwelling units, resulting in three (3) net new dwelling units	CC	2021	TBD	Building Permit	07/22/2020 (PC) 09/14/2020 (CC)	Gabriela Silva (310) 253-5736
40	New Assisted Living Facility	11141 Washington Blvd	11141 Washington Blvd, Culver City	New 5-story, 157,500 sq. ft., 117 room assisted living facility, with subterranean parking. Exisitng 24,200 sq. ft. of commercial (retail, office, etc.) uses will be demolished.	CC	2021	TBD	Building Permit	3/11/2020	Gabriela Silva (310) 253-5736
41	Huntley Units	4338-4342 Huntley Ave	4338-4342 Huntley Ave, Culver City	Two (2) new residential dwellings on vacant lots, resulting in two (2) net new dwelling units	CC	2021	TBD	Building Permit	7/14/2020	William Kavadas (310) 253-5706
42	Outdoor dining and tandem parking for VFF Coffee	12680 Washington Blvd	12680 Washington Blvd, Culver City	New coffee shop and expansion of existing preschool use on a site currently developed with church. Project results in net increase of 952 sq. ft. (485 sq. ft. coffee shop outdoor dining, 315 sq. ft. coffee shop indoor use, 152 sq. ft. increase in preschool uses).	CC	2021	TBD	Pre-Building Permit	10/16/2020	Deborah Hong (310) 253-5714
43	Stacked Parking - NFL Building	10950 Washington Blvd	10950 Washington Blvd, Culver City	Addition of 164 parking spaces through installation of two- and three-level parking stackers and surface lot restriping for tandem parking to support exisitng media offices. No additional square feet.	CC	2021	TBD	Pre-Building Permit	4/10/2019 04/10/2020 (ET)	Gabriela Silva (310) 253-5736
44	Pure Carwash	11203 Washington Blvd	11203 Washington Blvd, Culver City	New waterless carwash, replacing auto repair use	CC	2021	TBD	Pre-Application	TBD	William Kavadas (310) 253-5706
45	Sweet Flower (Cannabis Retail)	10000 Culver Blvd	10000 Culver Blvd, Culver City	Conversion of existing 5,982 sq. ft. retail space to storefront cannabis retail store	CC	2021	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
46	Essence (Cannabis Retail)	12450 Washington Blvd	12450 Washington Blvd, Culver City	Conversion of existing 4,950 sq. ft. retail space to storefront cannabis retail space	CC	2021	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757

47	Office Building	11259 Washington Blvd APN: 4233-033-021	11259 Washington Blvd APN: 4233-033-021, Culver City	New 3-story, 4,022 sq. ft. office building with at-grade parking, on a currently vacant site	CC	2022	TBD	Construction	12/31/2018 12/31/2019 (ET)	Jose Mendivil (310) 253-5757
48	Lenawee-Culver Place	3814 Lenawee Avenue	3814 Lenawee Avenue, Culver City	New 8 single family dwelling units and 95 unit, 110 bed, assisted living and memory care facility	CC	2022	TBD	Construction	06/08/2016 (PC) 08/08/2016 (CC)	Jose Mendivil (310) 253-5757
49	Willows School	8509 Higuera Street 8476 Warner Drive	8509 Higuera Street 8476 Warner Drive, Culver City	Modification to previously approved CUP to allow a playfield and increase student enrollment by 100, from 475 to 575, consistent with School Master Plan.	CC	2022	TBD	Construction	6/12/2019	Jose Mendivil (310) 253-5757
50	4-unit condominium	3846 Bentley Ave	3846 Bentley Ave, Culver City	Four (4) new condominium dwelling units, resulting in three (3) net new dwelling units	CC	2022	TBD	Building Permit	9/25/2019	William Kavadas (310) 253-5706
51	Warner Parking Structure	8511 Warner Drive	8511 Warner Drive, Culver City	51,520 G.S.F. Retail/Restaurant;784 parking spaces, five levels; site currently developed as a surface parking lot	CC	2022	TBD	Building Permit	08/03/2009 ET - 01/09/2019	Jose Mendivil (310) 253-5757
52	Park Century School	3939 Landmark Street	3939 Landmark Street, Culver City	New athletic field, 2,441 sq. ft. classroom building, and two-level subterranean parking, to allow an increase in student enrollment from 120 to 170 and increase of 20 staff people.	CC	2022	TBD	Building Permit	8/14/2019	Jose Mendivil (310) 253-5757
53	4-unit Sawtelle Condominiums	4041 Sawtelled Blvd	4041 Sawtelled Blvd, Culver City	Four (4) new condominium dwelling units, resulting in three (3) net new dwelling units	CC	2022	TBD	Building Permit	3/11/2020	Gabriela Silva (310) 253-5736
54	Schaefer II	3516 Schaefer St	3516 Schaefer St, Culver City	An approx. 9,338 sq. ft. addition to a creative office building, on a site spanning (3) three parcels currently developed with a 7,500 sf building, resulting in a three-story 16,839 sq. ft. building. On-site parking will include 12 surface stalls and 16 within parking stackers.	CC	2022	TBD	Building Permit	08/28/2019. ET. 08/28/2020	Planning Division (310) 253-5710
55	5-unit Condo	3906 Tilden Ave	3906 Tilden Ave, Culver City	Five (5) new condominium dwelling units, resulting in two (2) net new dwelling units	CC	2022	TBD	Pre-Building Permit	6/10/2020 (PC) 8/10/2020 (CC)	William Kavadas (310) 253-5706
56	Jackson Condos	4051 and 4055 Jackson Ave	4051 and 4055 Jackson Ave, Culver City	New nine (9) unit residential condominium project replacing six (6) existing units, for a net increase of three (3) dwelling units	CC	2022	TBD	Pre-Building Permit	04/10/2019 (PC) 04/10/2020 (ET) TBD (CC)	Jose Mendivil (310) 253-5757
57	5-unit Condominiums	4080 Lafayette Pl	4080 Lafayette Pl, Culver City	Five (5) new condominium dwelling units, resulting in two (2) net new dwelling units	CC	2022	TBD	Pre-Building Permit	08/26/2020 (PC) 10/12/2020 (CC)	Gabriela Silva (310) 253-5736

58	Robertson Mixed Use	3727 Robertson Blvd	3727 Robertson Blvd, Culver City	New 5-story mixed-use development, including approximately 6,800 sq. ft. of commercial (food retail and office) floor area and twelve (12) dwelling units. Demolition of approximately 2,850 sq. ft. 1-story commercial building and surface parking.	CC	2022	TBD	Entitlement	TBD	Gabriela Silva (310) 253-5736
59	Sawtelle 4-unit Condo	4095 Sawtelle Blvd	4095 Sawtelle Blvd, Culver City	Four (4) new residential condominiums, resulting in a net increase of three (3) dwelling units	CC	2022	TBD	Entitlement	TBD	William Kavadas (310) 253-5706
60	Boutique Hotel	11469 Jefferson Blvd	11469 Jefferson Blvd, Culver City	Demolition of 12,958 sq. ft. commercial shopping center. New 5-story hotel of 183 rooms with restaurant and outdoor dining.	CC	2022	TBD	Entitlement	TBD	Jose Mendivil (310) 253-5757
61	4-unit La Salle Condo's	4030 La Salle Ave	4030 La Salle Ave, Culver City	Four (4) new condominium dwelling units, resulting in three (3) net new dwelling units	CC	2022	TBD	Entitlement	TBD	William Kavadas (310) 253-5706
62	4-unit Madison Condo's	4044 Madison Ave	4044 Madison Ave, Culver City	Three (3) new townhome dwelling units, resulting in two (2) net new dwelling units	CC	2022	TBD	Entitlement	TBD	William Kavadas (310) 253-5706
63	Volvo Auto Repair	11039 Washington Blvd	11039 Washington Blvd, Culver City	Expansion of existing 2-bay auto repair facility, to add three (3) new auto bays	CC	2022	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
64	Automated Parking	5977 Washington Blvd	5977 Washington Blvd, Culver City	New 48 space stacked parking facility on a property with a vacant commercial building, to serve as off-site parking for commercial building at 5965 Washington Blvd.	CC	2022	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
68	4-unit Condo	3826 Girard Ave	3826 Girard Ave, Culver City	Four (4) new residential condominiums, resulting in a net increase of three (3) dwelling units	CC	2022	TBD	Pre-Application	TBD	William Kavadas (310) 253-5706
66	East Condos	4233 East Blvd	4233 East Blvd, Culver City	Four (4) new residential condominiums, resulting in a net increase of three (3) dwelling units	CC	2022	TBD	Pre-Application	TBD	William Kavadas (310) 253-5706
67	TGS CC Ventures (Cannabis Retail)	3800 Sepulveda Blvd	3800 Sepulveda Blvd, Culver City	New 5,280 sq. ft. storefront cannabis retail space on a vacant lot.	CC	2022	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
68	Vista Del Sol - Assisted Living Expansion	11620 Washington Blvd	11620 Washington Blvd, Culver City	New 5-story, 72 bed, 33,747 sq. ft. expansion to exisitng assisted living facility.	CC	2022	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
69	Costco Fueling Station	13463 Washington Blvd	13463 Washington Blvd, Culver City	Demolition of two (2) commercial buildings, totaling ±8,520 sq. ft., and 16 exisitng fueling pumps; and construction of 24 new fueling pumps	CC	2022	TBD	Pre-Application	TBD	Gabriela Silva (310) 253-5736
70	Hillside Memorial Cemetary	6001 Centinela	6001 Centinela, Culver City	Conversion of existing maintenance yard to additional burial plots	CC	2022	TBD	Pre-Application	TBD	William Kavadas (310)253-5706

71	Southern California Hospital ER Remodel	3828 Delmas Terrace	3828 Delmas Terrace, Culver City	Remodel of existing E.R. department resulting in 5,500 square foot demolition of exisitng square footage to accomdate new short term parking/drop off area	CC	2022	TBD	Pre-Application	TBD	William Kavadas (310)253-5706
72	New Hotel	3868 Sepulveda Blvd	3868 Sepulveda Blvd, Culver City	New 5-story, 94 room hotel with 1,375 sq. ft. retail space. Existing hotel totaling 38 rooms will be demolished.	CC	2022	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
73	New office and retail building with subterranean automated parking.	3951 Higuera St	3951 Higuera St, Culver City	Demolition of an existing 4,480 square foot co-working office facility and construction of new 36,614 sq.ft. office and retail building with subterranean automated parking.	CC	2023	TBD	Pre-Application	TBD	Jose Mendivil (310) 253-5757
74	New office building with surface and subterranean parking.	5863 Washington Blvd	5863 Washington Blvd, Culver City	New 17,500 sq. ft. creative office development	CC	2023	TBD	Pre-Application	TBD	Deborah Hong (310) 253-5714
75		3817 Watseka Ave	3817 Watseka Ave, Culver City	New 4-story 149,439 square foot office building replacing surface parking and 2 existing office buildings totaling 7,370 square feet	CC	2023	TBD	Pre-Application	TBD	William Kavadas (310) 253-5706
76	Triangle Site	11111 Jefferson Blvd	11111 Jefferson Blvd, Culver City	New 5-story mixed-use development, with 55,400 sq. ft. ground floor commercial, 51,300 sq. ft. office space, and 252 dwelling units	CC	2023	TBD	Pre-Application	TBD	Planning Division (310) 253-5710
77	99¢ site	12727 Washington Blvd	12727 Washington Blvd, Culver City	New 6-story mixed-use development on a split-jurisdiction site, including 117 units (CC: 82 units; LA: 35 units), 17,880 sq. ft. of ground floor retail (CC), 258 parking spaces (CC: 72 retail stalls and 130 residential stalls; LA: 46 residential stalls) at grade and in a 2-level subterranean garage. Demolition of existing 13,000 sq. ft. commercial building.	CC/ LA	2023	TBD	Pre-Application	TBD	Michael Allen (310) 253-5710
78	Jazz Bakery	9814 Washington Blvd	9814 Washington Blvd, Culver City	New 200 seat Performace Theatre with a museum and bakery/café, 2-stories & estimated 7,500 sqaure feet, on a property developed with a vacant residential structure	CC	2023	TBD	Pre-Application	TBD	Planning Division (310) 253-5710
79	Bristol Parkway Mixed Use	6221-6229 Bristol Parkway	6221-6229 Bristol Parkway, Culver City	A new mixed-use development on a 6.26 acre site in the Fox Hills area, consisting of 20,767 sq. ft. of commercial/retai uses, 712 residential dwelling units (including 50 live-work units), and approximately 850 subterranean parking spaces. Existing shopping center (approximately 60,000 sq. ft. of commercial floor area) to be demolished.	CC	2023	TBD	Pre-Application	TBD	Michael Allen (310) 253-5710

80	ECF Site	8700, 8710, 8740, and 8750 Washington Boulevard	8700, 8710, 8740, and 8750 Washington Boulevard, Culver City	Preliminary Concept - Mixed Use TOD with approximately 199 residential units and 40,00 sq. ft. of commercial space (17,250 sq. ft. of live/work space, 5,000 sq. ft. of restaurant, and 17,750 sq. ft. of retail), on a 3.06 to possibly 3.53 acre site, currently developed with multiple uses	CC	2022	TBD	Pre-Application	TBD	Susan Herbertson (310) 253-5755
81	Federal Express Site	3710 and 3750 S. Robertson Boulevard	3710 and 3750 S. Robertson Boulevard, Culver City	Preliminary Concept - Mixed Use TOD with approximately 141 residential units and 64,200 sq. ft. of creative office and 30,042 sq. ft. commercial (retail/restaurant/live-work space), on a 2.2 acre site.	CC	2023	TBD	Pre-PPR	TBD	Susan Herbertson (310) 253-5755

CLATS
Case Logging and Tracking System

RELATED PROJECTS

Centroid Info:
PROJ ID: 50962
Address: 13463 WASHINGTON BLVD
CULVER CITY, CA 90292
Lat/Long: 33.9926, -118.447

Buffer Radius: 1.50 mile
Search

Include NULL "Trip info":
Include NULL "FirstStudySubmittalDate" (latest)
Include "Inactive" projects:
Include "Do not show in Related Project":
Net_AM_Trips - Select -
Net_PM_Trips - Select -
Net_Daily_Trips - Select -

Column

Record Count: 26 | Record Per Page: All Records

Results generated since: (1/31/2021 4:09:23 AM)

Proj ID	Office	Area	CD	Year	Project Title	Project Desc	Address	First Study Submittal Date	Inactive	Do not show in Related Project	Distance (mile)	Trip Info

12530 | Westchester | CTC | 11 | 2005 | Restaurant, High Turnover | Proposed House Pies Sit-Down Restaurant land use (3,895 sq. ft.) | 1020 E VENICE BLVD | 04/10/2013 | ☐ | ☐ | 0.3

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Other	S.F. Gross Area	3895	33	33	396	18	15	20	13
			33	**33**	**396**		**18**	**15**	**20**

13667 | Westchester | CTC | 11 | 2011 | New 77 Unit Apartment Project | New 77-Unit Apartment Project | 4100 S DEL REY AV | 05/06/2011 | ☐ | ☐ | 0.3

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	77	39	54	512	8	31	35	19
			39	**54**	**512**		**8**	**31**	**35**

13738 | Westchester | CTC | 11 | 2011 | MDR-LCP Amendment | MDR-LCP Amendment | 1 MARINA EXPRESSWAY | 02/16/2011 | ☐ | ☐ | 0.9

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Other	Total Units	2044		666					
Other	Total Units	129		22					
Other	Other	505		178					
Retail	S.F. Gross Area	273741		1215					
Other	Seats	1323		331					
Office	S.F. Gross Area	26000		57					
Other	S.F. Gross Area	3000		14					
Other	Other	375		18					
Other	Other		1707	2		622	1085	1378	1125
			1707	**2503**	**0**		**622**	**1085**	**1378**

40436 | Westchester | CTC | 11 | 2012 | New Apt & Office Bldg VTT-72107 | New 4-Story,67-Unit Apt & 3,211 SF Office Bldg over 2-level pkg garage | 4140 S GLENCOE AV | 08/01/2012 | ☐ | ☐ | 0.4

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	67	34	47	446	7	27	31	16
Office	S.F. Gross Area	3211	5	9	35	4	1	2	7
			39	**56**	**481**		**11**	**28**	**33**

40714 | Westchester | CTC | 11 | 2012 | Mixed-Use, Hotel, Retail & Restaurant Uses | New 92-Guest Room Hotel, 3,000 SF Retail & 2,072 SF Restaurant Use. | 1027 S ABBOT KINNEY BLVD | 12/17/2012 | ☐ | ☐ | 1.4

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Rooms	85	25	42	654	16	9	25	17
			25	**42**	**654**		**16**	**9**	**25**

41239 | Westchester | CTC | 11 | 2013 | Mixed-Use: Residential & Office | Proposed Mixed-Use:136 Condominium Units & 20,000 SF Commercial Office | 4210 S DEL REY AV | 11/05/2014 | ☐ | ☐ | 0.4

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Total Units	136	71	85	627	24	47	48	37
			71	**85**	**627**		**24**	**47**	**48**

41687 | Westchester | CTC | 11 | 2013 | Mixed-Use Project | Mixed-Use Bldg: 26 Condo Units, 1,184 SF Retail & 4,567 SF Restaurant | 1414 S MAIN ST | 12/15/2013 | ☐ | ☐ | 1.5

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Mixed Use	Total Units	26	9	40	421	3	6	29	11
			9	**40**	**421**		**3**	**6**	**29**

42024 | Westchester | CTC | 11 | 2014 | Condominium & Commercial Office Building | 67-DU Condo & 7,525 SF Commercial Office Bldg providing 141 pkg spaces | 4091 S REDWOOD AV | 04/25/2014 | ☐ | ☐ | 0.3

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Condominiums	Total Units	67	25	51	391	4	21	29	22
Apartments		77			39				

46994	Westchester	CTC	11	2018	Thatcher Yard Residential	98-DU: Affordable Senior(50), Family(23) & Perm Supportive(25) Housing	3233 S THATCHER AV	05/23/2018	☐	☐	0.5

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	98	21	19	212	8	13	10	9
			21	**19**	**212**		**8**	**13**	**10**

47496	Westchester	CTC	11	2018	Mixed-Use: Affordable Housing & Commercial	140-DU Affordable Apts, 1 ksf Cafe, 4065 sf Retail & 3155 sf Art space	204 E North Venice Blvd	11/13/2019	☐	☐	1.4

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	140	88	124	911	39	49	63	61
			88	**124**	**911**		**39**	**49**	**63**

48252	Westchester	CTC	11	2019	Change of Use: Office to Medical Office	COU: 40ksf Office to Med Office w-in 130,312 sf Office/Med Office bldg	13160 W MINDANAO WY	08/15/2019	☐	☐	0.8

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Office	S.F. Gross Area	130312	64	44	1003	46	18	26	18
			64	**44**	**1003**		**46**	**18**	**26**

48488	Westchester	CTC	11	2019	Office & Retail	new 121,822 sf Commercial Office & 1,500 sf Retail Complex(4 bldgs.)	4204 S GLENCOE AV	10/23/2019	☐	☐	0.4

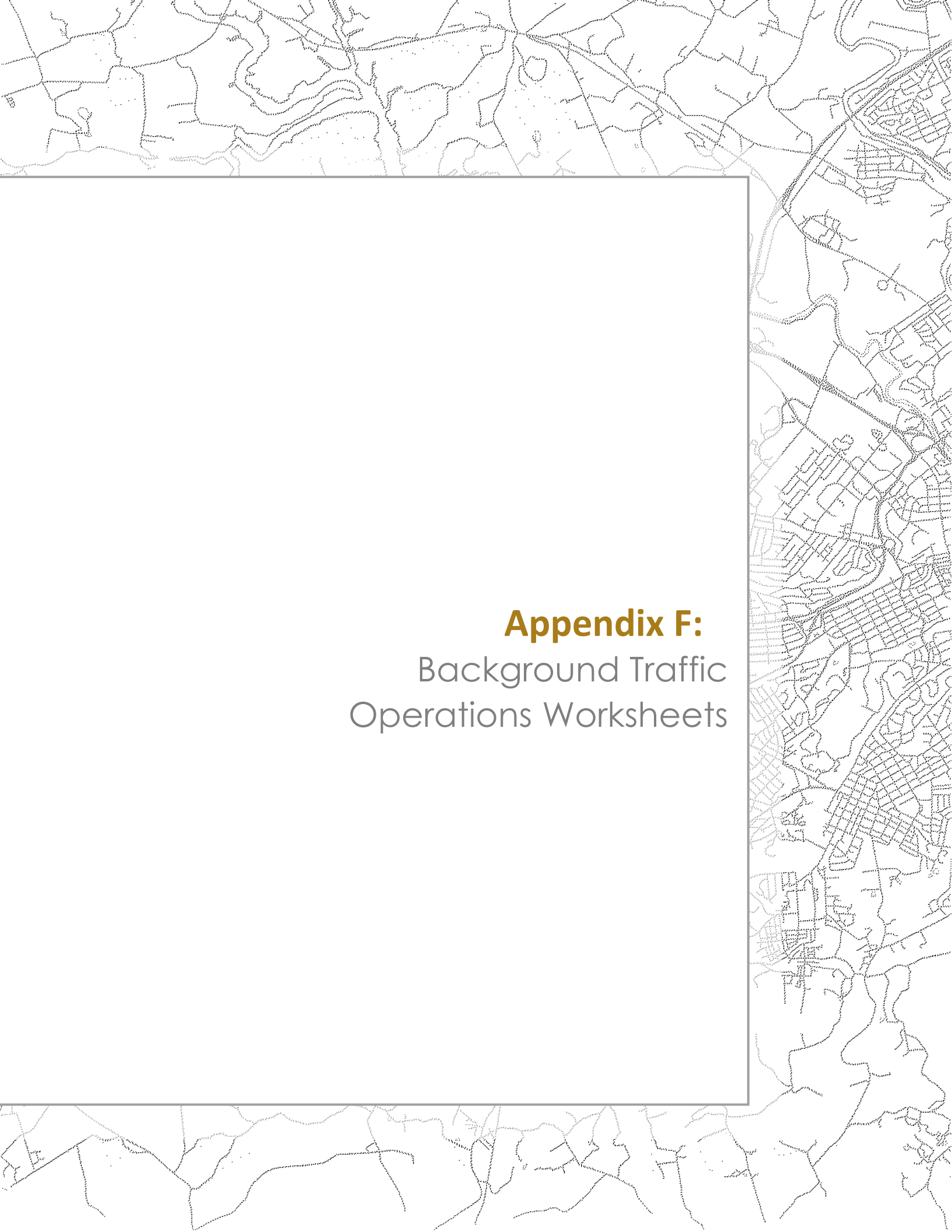
Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Office	S.F. Gross Area	121822	79	155	816	65	14	24	131
			79	**155**	**816**		**65**	**14**	**24**

48532	Westchester	CTC	11	2019	New 4-Story 77 Apts	Demolish 7 Apts & 1 Duplex, Construct 77 Apts with underground parking	1600 E Venice Bl	09/16/2019	☐	☐	0.3

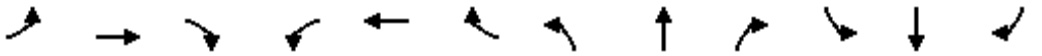
Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	77	25	27	341	7	18	16	11
			25	**27**	**341**		**7**	**18**	**16**

49101	Westchester	CTC	11	2019	Apartments & Restaurant	new MU: 6-Story, 50-Unit Residential Apt. & 4,458 sf Restaurant bldg.	1808 S LINCOLN BLVD	12/05/2019	☐	☐	0.6

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut
Apartments	Total Units	50	45	44	557	20	25	28	16
			45	**44**	**557**		**20**	**25**	**28**



Appendix F:
Background Traffic Operations Worksheets



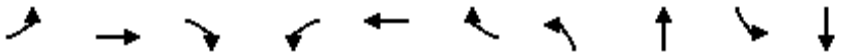
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	701	476	345	736	331	489	1320	249	236	1453	54
Future Volume (veh/h)	71	701	476	345	736	331	489	1320	249	236	1453	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	72	715	486	352	751	338	499	1347	254	241	1483	55
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	118	1041	642	256	1179	693	388	1515	285	364	1723	64
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.35	0.35	0.10	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	4383	826	3510	5133	190
Grp Volume(v), veh/h	72	715	486	352	751	338	499	1062	539	241	999	539
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1751	1755	1729	1866
Q Serve(g_s), s	2.5	22.0	32.5	9.1	22.1	2.8	13.8	36.3	36.3	8.3	33.7	33.7
Cycle Q Clear(g_c), s	2.5	22.0	32.5	9.1	22.1	2.8	13.8	36.3	36.3	8.3	33.7	33.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.10
Lane Grp Cap(c), veh/h	118	1041	642	256	1179	693	388	1195	605	364	1161	626
V/C Ratio(X)	0.61	0.69	0.76	1.38	0.64	0.49	1.29	0.89	0.89	0.66	0.86	0.86
Avail Cap(c_a), veh/h	253	1069	654	256	1179	693	388	1195	605	364	1161	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	39.5	32.4	58.0	35.8	12.7	55.6	38.6	38.6	53.9	38.8	38.8
Incr Delay (d2), s/veh	5.0	1.8	5.0	190.6	1.0	0.5	147.6	10.0	17.7	4.4	8.4	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.9	13.4	10.8	9.9	4.7	13.9	16.5	18.0	3.8	15.2	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	41.3	37.3	248.6	36.8	13.2	203.2	48.7	56.3	58.4	47.2	53.2
LnGrp LOS	E	D	D	F	D	B	F	D	E	E	D	D
Approach Vol, veh/h		1273			1441			2100			1779	
Approach Delay, s/veh		41.1			83.0			87.4			50.6	
Approach LOS		D			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	49.0	15.0	42.0	20.0	48.0	10.2	46.8
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	10.3	38.3	11.1	34.5	15.8	35.7	4.5	24.1
Green Ext Time (p_c), s	0.1	4.4	0.0	1.6	0.0	4.2	0.1	5.3

Intersection Summary	
HCM 6th Ctrl Delay	67.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

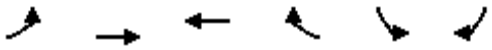


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	715	486	352	751	338	499	1601	241	1538
v/c Ratio	0.33	0.75	0.60	1.39	0.71	0.47	1.01	0.83	0.72	0.90
Control Delay	59.9	47.1	21.8	238.3	43.8	13.5	96.1	39.8	67.6	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	47.1	21.8	238.3	43.8	13.5	96.1	39.8	67.6	48.3
Queue Length 50th (ft)	29	274	212	~194	288	86	~237	427	98	432
Queue Length 95th (ft)	54	336	327	#293	356	143	#375	509	#146	498
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	252	1068	797	254	1094	737	494	1927	336	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.67	0.61	1.39	0.69	0.46	1.01	0.83	0.72	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

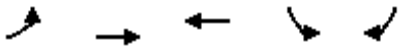
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	231	986	1284	89	120	203
Future Volume (veh/h)	231	986	1284	89	120	203
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	238	1016	1324	92	124	209
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	470	2763	3247	226	266	377
Arrive On Green	0.09	0.78	1.00	1.00	0.15	0.15
Sat Flow, veh/h	1795	3647	5083	341	1795	1598
Grp Volume(v), veh/h	238	1016	925	491	124	209
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1824	1795	1598
Q Serve(g_s), s	4.2	10.7	0.0	0.0	7.6	13.8
Cycle Q Clear(g_c), s	4.2	10.7	0.0	0.0	7.6	13.8
Prop In Lane	1.00			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	470	2763	2268	1205	266	377
V/C Ratio(X)	0.51	0.37	0.41	0.41	0.47	0.55
Avail Cap(c_a), veh/h	545	2763	2268	1205	477	564
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.73	0.73	1.00	1.00
Uniform Delay (d), s/veh	3.7	4.2	0.0	0.0	46.8	40.3
Incr Delay (d2), s/veh	0.2	0.2	0.4	0.7	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.1	0.1	0.3	3.5	12.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.8	4.4	0.4	0.7	47.2	40.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1254	1416		333	
Approach Delay, s/veh		4.3	0.5		43.2	
Approach LOS		A	A		D	

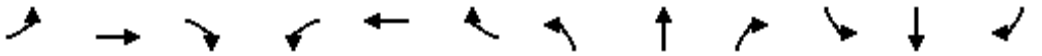
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		98.1		21.9	14.0	84.1
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		13.7		16.8	7.2	3.0
Green Ext Time (p_c), s		20.2		0.5	0.2	29.1

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A



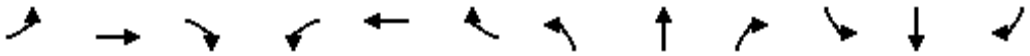
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	238	1016	1416	124	209
v/c Ratio	0.62	0.36	0.42	0.54	0.47
Control Delay	13.6	4.2	8.1	57.0	33.6
Queue Delay	0.0	0.4	0.1	0.2	5.9
Total Delay	13.6	4.5	8.2	57.2	39.5
Queue Length 50th (ft)	32	95	113	91	119
Queue Length 95th (ft)	107	154	97	147	165
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	424	2823	3372	475	497
Starvation Cap Reductn	0	1126	612	70	229
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.60	0.51	0.31	0.78

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	758	246	447	948	414	311	134	414	328	168	66
Future Volume (vph)	34	758	246	447	948	414	311	134	414	328	168	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1704	1509	1715	1775	1615
Flt Permitted	0.26	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	485	3574	1615	213	3539	1615	1681	1704	1509	1715	1775	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	34	766	248	452	958	418	314	135	418	331	170	67
RTOR Reduction (vph)	0	0	182	0	0	140	0	0	325	0	0	48
Lane Group Flow (vph)	34	766	66	452	958	278	220	229	93	245	256	19
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	38.9	31.7	31.7	60.5	49.3	49.3	21.5	21.5	24.2	22.3	22.3	34.7
Effective Green, g (s)	38.9	31.7	31.7	60.5	49.3	49.3	21.5	21.5	24.2	22.3	22.3	34.7
Actuated g/C Ratio	0.32	0.26	0.26	0.50	0.41	0.41	0.18	0.18	0.20	0.19	0.19	0.29
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	236	944	426	421	1453	663	301	305	304	318	329	467
v/s Ratio Prot	0.01	0.21		c0.22	0.27		0.13	c0.13	0.06	0.14	c0.14	0.01
v/s Ratio Perm	0.04		0.04	c0.32		0.17						
v/c Ratio	0.14	0.81	0.15	1.07	0.66	0.42	0.73	0.75	0.31	0.77	0.78	0.04
Uniform Delay, d1	28.0	41.4	33.9	36.0	28.6	25.2	46.5	46.7	40.8	46.4	46.5	30.7
Progression Factor	0.87	1.00	1.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	7.2	0.7	64.9	2.4	2.0	8.8	10.0	0.6	11.0	11.0	0.0
Delay (s)	24.7	48.4	48.0	101.0	30.9	27.1	55.3	56.7	41.3	57.4	57.5	30.7
Level of Service	C	D	D	F	C	C	E	E	D	E	E	C
Approach Delay (s)		47.5			47.4			48.9			54.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

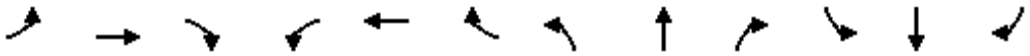


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	766	248	452	958	418	220	229	418	245	256	67
v/c Ratio	0.13	0.81	0.41	1.07	0.65	0.51	0.73	0.75	0.66	0.77	0.78	0.13
Control Delay	17.5	48.8	8.0	97.4	33.4	15.5	60.4	61.7	11.3	62.4	62.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	48.8	8.0	97.4	33.4	15.5	60.4	61.7	11.3	62.4	62.5	7.1
Queue Length 50th (ft)	15	299	20	~354	327	102	169	177	7	189	198	0
Queue Length 95th (ft)	26	374	79	#664	#453	228	248	256	#123	280	291	32
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	358	944	609	423	1478	812	389	394	629	371	385	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.81	0.41	1.07	0.65	0.51	0.57	0.58	0.66	0.66	0.66	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



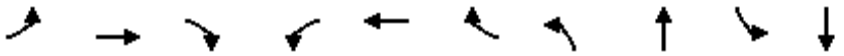
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	728	496	351	766	334	509	1356	253	242	1518	56
Future Volume (veh/h)	75	728	496	351	766	334	509	1356	253	242	1518	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	743	506	358	782	341	519	1384	258	247	1549	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1050	643	461	1094	644	497	1487	277	465	1660	61
Arrive On Green	0.06	0.30	0.30	0.07	0.31	0.31	0.11	0.34	0.34	0.10	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	4324	805	3456	5055	186
Grp Volume(v), veh/h	77	743	506	358	782	341	519	1089	553	247	1043	563
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1725	1728	1702	1837
Q Serve(g_s), s	1.8	23.3	34.8	9.1	24.4	4.8	13.8	38.6	38.7	3.8	37.1	37.1
Cycle Q Clear(g_c), s	1.8	23.3	34.8	9.1	24.4	4.8	13.8	38.6	38.7	3.8	37.1	37.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.10
Lane Grp Cap(c), veh/h	431	1050	643	461	1094	644	497	1171	594	465	1118	603
V/C Ratio(X)	0.18	0.71	0.79	0.78	0.71	0.53	1.04	0.93	0.93	0.53	0.93	0.93
Avail Cap(c_a), veh/h	474	1052	644	461	1094	644	497	1176	596	465	1122	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	39.2	32.4	31.5	38.4	13.6	38.0	39.6	39.6	51.5	40.6	40.6
Incr Delay (d2), s/veh	0.2	2.2	6.4	7.1	1.9	0.7	52.6	14.1	23.4	4.3	15.0	23.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	10.4	14.3	4.2	10.9	4.8	9.6	17.9	19.7	3.8	17.4	20.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	41.4	38.8	38.6	40.3	14.3	90.6	53.7	63.0	55.8	55.6	64.1
LnGrp LOS	C	D	D	D	D	B	F	D	E	E	E	E
Approach Vol, veh/h		1326			1481			2161			1853	
Approach Delay, s/veh		39.7			33.9			64.9			58.2	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	48.8	15.0	42.9	20.0	47.1	13.4	44.5
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	5.8	40.7	11.1	36.8	15.8	39.1	3.8	26.4
Green Ext Time (p_c), s	0.4	2.3	0.0	0.1	0.0	1.8	0.1	4.9

Intersection Summary	
HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

Notes

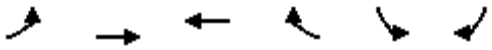
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	77	743	506	358	782	341	519	1642	247	1606
v/c Ratio	0.19	0.77	0.64	0.86	0.73	0.47	0.90	0.89	0.55	0.96
Control Delay	23.9	47.6	23.2	47.7	44.1	13.5	51.9	43.7	50.0	55.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	47.6	23.2	47.7	44.1	13.5	51.9	43.7	50.0	55.7
Queue Length 50th (ft)	19	285	231	96	300	86	165	457	74	464
Queue Length 95th (ft)	34	354	355	#148	373	147	#294	#567	107	#571
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	425	1047	776	416	1087	730	578	1852	449	1671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.71	0.65	0.86	0.72	0.47	0.90	0.89	0.55	0.96

Intersection Summary

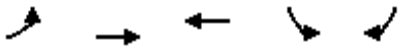
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	300	1017	1147	143	180	246
Future Volume (veh/h)	300	1017	1147	143	180	246
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	323	1094	1233	154	194	265
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	461	2658	2926	365	304	407
Arrive On Green	0.08	0.75	1.00	1.00	0.17	0.17
Sat Flow, veh/h	1810	3647	4803	579	1795	1610
Grp Volume(v), veh/h	323	1094	913	474	194	265
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1781	1795	1610
Q Serve(g_s), s	7.0	13.4	0.0	0.0	12.1	17.7
Cycle Q Clear(g_c), s	7.0	13.4	0.0	0.0	12.1	17.7
Prop In Lane	1.00			0.32	1.00	1.00
Lane Grp Cap(c), veh/h	461	2658	2166	1125	304	407
V/C Ratio(X)	0.70	0.41	0.42	0.42	0.64	0.65
Avail Cap(c_a), veh/h	536	2658	2166	1125	470	556
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.55	0.55	1.00	1.00
Uniform Delay (d), s/veh	5.4	5.5	0.0	0.0	46.4	40.1
Incr Delay (d2), s/veh	1.5	0.3	0.3	0.6	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.3	0.1	0.2	5.5	15.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.9	5.8	0.3	0.6	47.2	40.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1417	1387		459	
Approach Delay, s/veh		6.0	0.4		43.5	
Approach LOS		A	A		D	

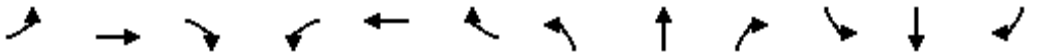
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.1		24.9	14.0	81.1
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		15.4		19.7	9.0	2.0
Green Ext Time (p_c), s		22.5		0.7	0.3	28.7

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A



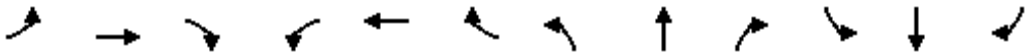
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	323	1094	1387	194	265
v/c Ratio	0.74	0.43	0.52	0.56	0.40
Control Delay	28.2	7.2	3.2	51.0	23.7
Queue Delay	0.0	0.5	0.4	0.0	0.0
Total Delay	28.2	7.8	3.6	51.0	23.7
Queue Length 50th (ft)	119	155	25	138	124
Queue Length 95th (ft)	224	196	43	214	188
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	438	2563	2653	467	661
Starvation Cap Reductn	0	950	661	0	0
Spillback Cap Reductn	0	204	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.68	0.70	0.42	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	940	224	362	924	522	235	124	263	401	110	82
Future Volume (vph)	44	940	224	362	924	522	235	124	263	401	110	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1759	1615	1715	1755	1615
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	226	3574	1615	205	3574	1615	1698	1759	1615	1715	1755	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	45	959	229	369	943	533	240	127	268	409	112	84
RTOR Reduction (vph)	0	0	95	0	0	226	0	0	49	0	0	51
Lane Group Flow (vph)	45	959	134	369	943	307	180	187	219	258	263	33
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.6	21.6	33.0	33.0	33.0	47.2
Effective Green, g (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.6	21.6	33.0	33.0	33.0	47.2
Actuated g/C Ratio	0.36	0.28	0.28	0.40	0.31	0.31	0.18	0.18	0.28	0.28	0.28	0.39
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	198	1003	453	232	1093	493	305	316	444	471	482	635
v/s Ratio Prot	0.02	0.27		c0.15	0.26		0.11	c0.11	0.14	c0.15	0.15	0.02
v/s Ratio Perm	0.06		0.08	c0.49		0.19						
v/c Ratio	0.23	0.96	0.30	1.59	0.86	0.62	0.59	0.59	0.49	0.55	0.55	0.05
Uniform Delay, d1	28.0	42.4	33.8	32.6	39.3	35.7	45.1	45.2	36.5	37.1	37.1	22.5
Progression Factor	0.89	0.88	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	18.6	1.5	285.2	9.0	5.8	2.0	2.0	0.3	4.5	4.4	0.0
Delay (s)	25.2	56.0	24.4	317.8	48.3	41.6	47.2	47.1	36.8	41.7	41.5	22.6
Level of Service	C	E	C	F	D	D	D	D	D	D	D	C
Approach Delay (s)		49.0			100.3			42.8			38.9	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	68.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

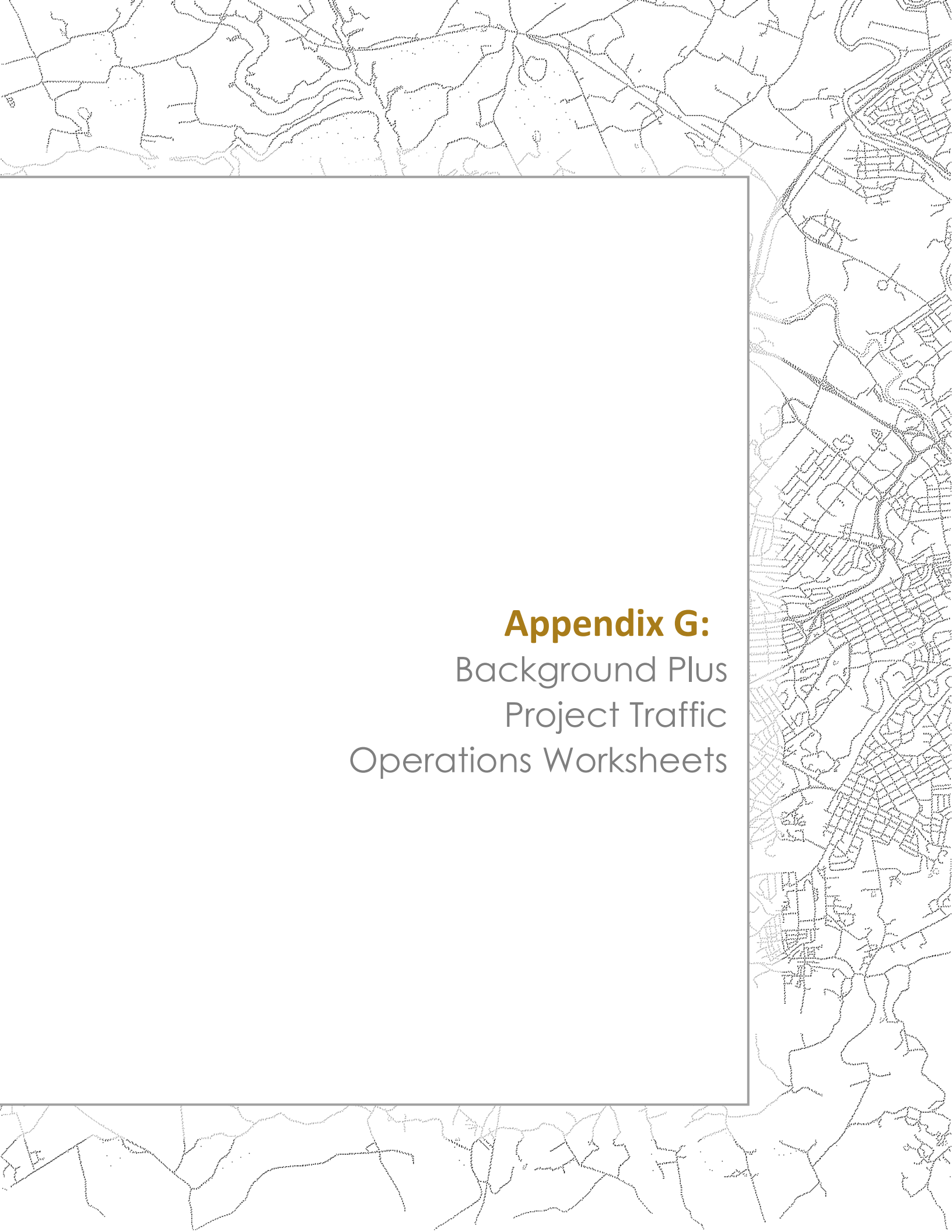


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	959	229	369	943	533	180	187	268	258	263	84
v/c Ratio	0.22	0.96	0.42	1.58	0.86	0.74	0.59	0.59	0.55	0.55	0.55	0.13
Control Delay	21.0	56.6	12.2	307.5	48.7	21.1	53.3	53.1	18.3	43.0	42.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	56.6	12.2	307.5	48.7	21.1	53.3	53.1	18.3	43.0	42.8	5.9
Queue Length 50th (ft)	17	392	42	~357	362	147	137	144	62	176	180	0
Queue Length 95th (ft)	35	#524	120	#552	#451	290	206	212	102	288	291	35
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	201	1003	548	233	1093	719	464	480	630	471	482	671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.96	0.42	1.58	0.86	0.74	0.39	0.39	0.43	0.55	0.55	0.13

Intersection Summary

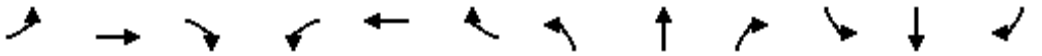
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Appendix G:

Background Plus Project Traffic Operations Worksheets



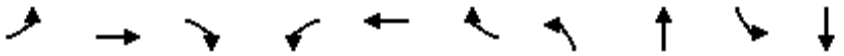
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	703	476	346	737	330	489	1320	251	240	1453	54
Future Volume (veh/h)	71	703	476	346	737	330	489	1320	251	240	1453	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	72	717	486	353	752	337	499	1347	256	245	1483	55
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	118	1041	642	256	1180	693	388	1513	287	364	1723	64
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.35	0.35	0.10	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	4377	831	3510	5133	190
Grp Volume(v), veh/h	72	717	486	353	752	337	499	1064	539	245	999	539
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1750	1755	1729	1866
Q Serve(g_s), s	2.5	22.0	32.5	9.1	22.1	2.7	13.8	36.4	36.4	8.4	33.7	33.7
Cycle Q Clear(g_c), s	2.5	22.0	32.5	9.1	22.1	2.7	13.8	36.4	36.4	8.4	33.7	33.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.10
Lane Grp Cap(c), veh/h	118	1041	642	256	1180	693	388	1195	605	364	1161	626
V/C Ratio(X)	0.61	0.69	0.76	1.38	0.64	0.49	1.29	0.89	0.89	0.67	0.86	0.86
Avail Cap(c_a), veh/h	253	1069	654	256	1180	693	388	1195	605	364	1161	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	39.5	32.4	58.0	35.8	12.7	55.6	38.7	38.7	54.0	38.8	38.8
Incr Delay (d2), s/veh	5.0	1.8	5.0	191.5	1.0	0.5	147.6	10.1	17.8	4.8	8.5	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.9	13.4	10.8	9.9	4.7	13.9	16.6	18.1	3.9	15.2	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	41.3	37.3	249.4	36.8	13.1	203.2	48.8	56.5	58.8	47.2	53.2
LnGrp LOS	E	D	D	F	D	B	F	D	E	E	D	D
Approach Vol, veh/h		1275			1442			2102			1783	
Approach Delay, s/veh		41.1			83.3			87.4			50.7	
Approach LOS		D			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	49.0	15.0	42.0	20.0	48.0	10.2	46.8
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	10.4	38.4	11.1	34.5	15.8	35.7	4.5	24.1
Green Ext Time (p_c), s	0.1	4.3	0.0	1.6	0.0	4.2	0.1	5.3

Intersection Summary	
HCM 6th Ctrl Delay	67.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

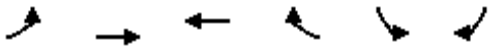


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	717	486	353	752	337	499	1603	245	1538
v/c Ratio	0.33	0.75	0.60	1.39	0.71	0.47	1.01	0.83	0.73	0.90
Control Delay	59.9	47.1	21.8	239.9	43.8	13.4	96.7	39.9	68.3	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	47.1	21.8	239.9	43.8	13.4	96.7	39.9	68.3	48.3
Queue Length 50th (ft)	29	275	212	~195	288	86	~237	428	101	432
Queue Length 95th (ft)	54	337	327	#294	356	143	#375	509	#153	498
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	252	1068	797	254	1095	737	493	1925	336	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.67	0.61	1.39	0.69	0.46	1.01	0.83	0.73	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

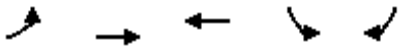
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	253	995	1222	192	188	285
Future Volume (veh/h)	253	995	1222	192	188	285
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	261	1026	1260	198	194	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	442	2593	2749	432	352	453
Arrive On Green	0.09	0.73	1.00	1.00	0.20	0.20
Sat Flow, veh/h	1795	3647	4654	705	1795	1598
Grp Volume(v), veh/h	261	1026	964	494	194	294
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1758	1795	1598
Q Serve(g_s), s	5.6	13.2	0.0	0.0	11.7	19.4
Cycle Q Clear(g_c), s	5.6	13.2	0.0	0.0	11.7	19.4
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	442	2593	2103	1078	352	453
V/C Ratio(X)	0.59	0.40	0.46	0.46	0.55	0.65
Avail Cap(c_a), veh/h	517	2593	2103	1078	477	564
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	5.4	6.2	0.0	0.0	43.5	37.7
Incr Delay (d2), s/veh	0.3	0.3	0.5	1.0	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.4	0.1	0.3	5.3	16.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.7	6.4	0.5	1.0	44.0	38.6
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1287	1458		488	
Approach Delay, s/veh		6.3	0.7		40.7	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.4		27.6	14.0	78.4
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		16.2		22.4	8.6	3.0
Green Ext Time (p_c), s		20.3		0.7	0.2	30.6

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

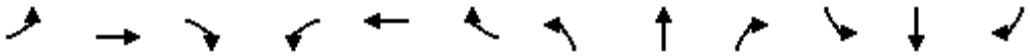


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	261	1026	1458	194	294
v/c Ratio	0.69	0.38	0.48	0.65	0.55
Control Delay	21.6	5.9	8.3	56.1	31.5
Queue Delay	0.0	0.4	0.1	1.2	54.7
Total Delay	21.6	6.3	8.5	57.3	86.2
Queue Length 50th (ft)	59	120	102	142	167
Queue Length 95th (ft)	160	194	52	207	206
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	407	2682	3074	475	569
Starvation Cap Reductn	0	1021	590	131	298
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.62	0.59	0.56	1.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	945	266	447	1053	325	315	129	414	261	163	66
Future Volume (vph)	15	945	266	447	1053	325	315	129	414	261	163	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1704	1509	1715	1783	1615
Flt Permitted	0.22	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	415	3574	1615	205	3539	1615	1681	1704	1509	1715	1783	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	15	955	269	452	1064	328	318	130	418	264	165	67
RTOR Reduction (vph)	0	0	177	0	0	95	0	0	326	0	0	49
Lane Group Flow (vph)	15	955	92	452	1064	233	219	229	92	211	218	18
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	38.9	31.7	31.7	62.6	51.4	51.4	21.5	21.5	26.3	20.2	20.2	32.6
Effective Green, g (s)	38.9	31.7	31.7	62.6	51.4	51.4	21.5	21.5	26.3	20.2	20.2	32.6
Actuated g/C Ratio	0.32	0.26	0.26	0.52	0.43	0.43	0.18	0.18	0.22	0.17	0.17	0.27
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	944	426	449	1515	691	301	305	330	288	300	438
v/s Ratio Prot	0.00	0.27		c0.22	0.30		0.13	c0.13	0.06	c0.12	0.12	0.01
v/s Ratio Perm	0.02		0.06	c0.30		0.14						
v/c Ratio	0.07	1.01	0.22	1.01	0.70	0.34	0.73	0.75	0.28	0.73	0.73	0.04
Uniform Delay, d1	27.8	44.1	34.5	36.8	28.0	22.9	46.5	46.7	39.0	47.3	47.3	32.2
Progression Factor	0.86	0.98	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	31.3	1.1	44.1	2.7	1.3	8.5	10.0	0.5	9.3	8.5	0.0
Delay (s)	24.1	74.7	33.5	80.9	30.8	24.2	55.0	56.7	39.4	56.6	55.8	32.2
Level of Service	C	E	C	F	C	C	D	E	D	E	E	C
Approach Delay (s)		65.2			41.9			47.9			52.9	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



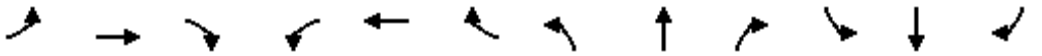
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	955	269	452	1064	328	219	229	418	211	218	67
v/c Ratio	0.06	1.01	0.45	1.00	0.69	0.41	0.73	0.75	0.64	0.73	0.72	0.14
Control Delay	16.4	74.7	8.4	79.1	33.5	15.4	60.1	61.7	9.6	61.6	60.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	74.7	8.4	79.1	33.5	15.4	60.1	61.7	9.6	61.6	60.7	7.3
Queue Length 50th (ft)	4	~405	32	~328	365	83	169	177	0	164	169	0
Queue Length 95th (ft)	m14	#546	67	#668	#565	191	246	256	107	242	247	32
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	339	944	603	450	1538	796	389	394	656	368	383	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	1.01	0.45	1.00	0.69	0.41	0.56	0.58	0.64	0.57	0.57	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



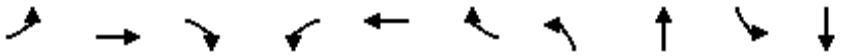
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	728	496	351	766	333	509	1356	252	240	1519	56
Future Volume (veh/h)	75	728	496	351	766	333	509	1356	252	240	1519	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	743	506	358	782	340	519	1384	257	245	1550	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	1050	643	461	1094	644	497	1488	276	465	1660	61
Arrive On Green	0.06	0.30	0.30	0.07	0.31	0.31	0.11	0.34	0.34	0.10	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	4327	803	3456	5055	186
Grp Volume(v), veh/h	77	743	506	358	782	340	519	1088	553	245	1044	563
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1726	1728	1702	1837
Q Serve(g_s), s	1.8	23.3	34.8	9.1	24.4	4.7	13.8	38.5	38.6	3.7	37.1	37.1
Cycle Q Clear(g_c), s	1.8	23.3	34.8	9.1	24.4	4.7	13.8	38.5	38.6	3.7	37.1	37.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.10
Lane Grp Cap(c), veh/h	431	1050	643	461	1094	644	497	1171	594	465	1118	603
V/C Ratio(X)	0.18	0.71	0.79	0.78	0.71	0.53	1.04	0.93	0.93	0.53	0.93	0.93
Avail Cap(c_a), veh/h	474	1052	644	461	1094	644	497	1176	596	465	1122	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	39.2	32.4	31.5	38.4	13.6	38.0	39.5	39.6	51.5	40.7	40.7
Incr Delay (d2), s/veh	0.2	2.2	6.4	6.8	1.9	0.7	52.6	14.1	23.3	4.2	15.0	23.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	10.4	14.3	4.2	10.9	4.7	9.6	17.8	19.7	3.8	17.4	20.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	41.4	38.8	38.4	40.2	14.3	90.6	53.6	62.9	55.7	55.7	64.2
LnGrp LOS	C	D	D	D	D	B	F	D	E	E	E	E
Approach Vol, veh/h		1326			1480			2160			1852	
Approach Delay, s/veh		39.7			33.8			64.9			58.3	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	48.8	15.0	42.9	20.0	47.1	13.4	44.5
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	5.7	40.6	11.1	36.8	15.8	39.1	3.8	26.4
Green Ext Time (p_c), s	0.4	2.4	0.0	0.1	0.0	1.8	0.1	4.9

Intersection Summary	
HCM 6th Ctrl Delay	51.4
HCM 6th LOS	D

Notes

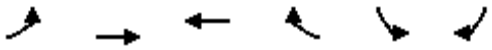
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	77	743	506	358	782	340	519	1641	245	1607
v/c Ratio	0.19	0.77	0.64	0.86	0.73	0.47	0.90	0.89	0.55	0.96
Control Delay	23.9	47.6	23.2	47.7	44.1	13.4	51.9	43.6	49.9	55.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	47.6	23.2	47.7	44.1	13.4	51.9	43.6	49.9	55.8
Queue Length 50th (ft)	19	285	231	96	300	85	165	457	73	464
Queue Length 95th (ft)	34	354	355	#148	373	146	#294	#566	107	#572
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	425	1047	776	416	1087	730	578	1854	449	1671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.71	0.65	0.86	0.72	0.47	0.90	0.89	0.55	0.96

Intersection Summary

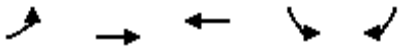
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	314	1017	1078	231	234	323
Future Volume (veh/h)	314	1017	1078	231	234	323
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	338	1094	1159	248	252	347
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	449	2501	2461	527	384	490
Arrive On Green	0.09	0.70	1.00	1.00	0.21	0.21
Sat Flow, veh/h	1810	3647	4414	908	1795	1610
Grp Volume(v), veh/h	338	1094	937	470	252	347
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1722	1795	1610
Q Serve(g_s), s	8.6	15.8	0.0	0.0	15.4	22.9
Cycle Q Clear(g_c), s	8.6	15.8	0.0	0.0	15.4	22.9
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	449	2501	1990	998	384	490
V/C Ratio(X)	0.75	0.44	0.47	0.47	0.66	0.71
Avail Cap(c_a), veh/h	512	2501	1990	998	470	567
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.43	0.43	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.6	0.0	0.0	43.1	37.0
Incr Delay (d2), s/veh	2.8	0.4	0.3	0.7	1.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	5.5	0.1	0.2	7.0	19.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	8.0	0.3	0.7	44.5	39.5
LnGrp LOS	B	A	A	A	D	D
Approach Vol, veh/h		1432	1407		599	
Approach Delay, s/veh		8.5	0.5		41.6	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		89.7		30.3	14.9	74.9
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		17.8		24.9	10.6	2.0
Green Ext Time (p_c), s		22.3		0.7	0.2	29.4

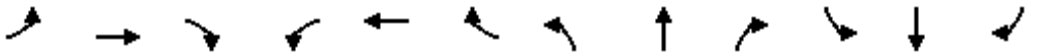
Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	338	1094	1407	252	347
v/c Ratio	0.81	0.44	0.54	0.68	0.51
Control Delay	36.6	8.2	2.0	53.6	25.6
Queue Delay	0.0	0.6	0.5	0.0	0.0
Total Delay	36.6	8.8	2.4	53.6	25.6
Queue Length 50th (ft)	137	155	12	185	170
Queue Length 95th (ft)	#345	246	m25	257	255
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	419	2512	2603	467	669
Starvation Cap Reductn	0	907	643	0	0
Spillback Cap Reductn	0	317	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.72	0.54	0.52

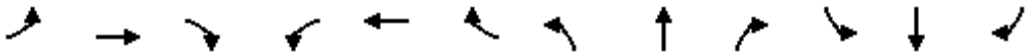
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Future Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1756	1615	1715	1758	1615
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	226	3574	1615	205	3574	1615	1698	1756	1615	1715	1758	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	27	1047	232	369	1030	437	242	118	268	337	105	84
RTOR Reduction (vph)	0	0	88	0	0	169	0	0	49	0	0	51
Lane Group Flow (vph)	27	1047	144	369	1030	268	177	183	219	219	223	33
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.5	21.5	32.9	33.1	33.1	47.3
Effective Green, g (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.5	21.5	32.9	33.1	33.1	47.3
Actuated g/C Ratio	0.36	0.28	0.28	0.40	0.31	0.31	0.18	0.18	0.27	0.28	0.28	0.39
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	198	1003	453	232	1093	493	304	314	442	473	484	636
v/s Ratio Prot	0.01	0.29		c0.15	0.29		c0.10	0.10	0.14	c0.13	0.13	0.02
v/s Ratio Perm	0.04		0.09	c0.49		0.17						
v/c Ratio	0.14	1.04	0.32	1.59	0.94	0.54	0.58	0.58	0.49	0.46	0.46	0.05
Uniform Delay, d1	28.5	43.1	34.1	32.8	40.6	34.7	45.1	45.1	36.6	36.1	36.0	22.5
Progression Factor	0.82	0.87	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	39.2	1.7	285.2	16.5	4.2	1.8	1.8	0.3	3.2	3.1	0.0
Delay (s)	23.4	76.7	23.8	318.0	57.1	38.9	47.0	46.9	36.9	39.3	39.2	22.5
Level of Service	C	E	C	F	E	D	D	D	D	D	D	C
Approach Delay (s)		66.2			105.2			42.7			36.6	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	75.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



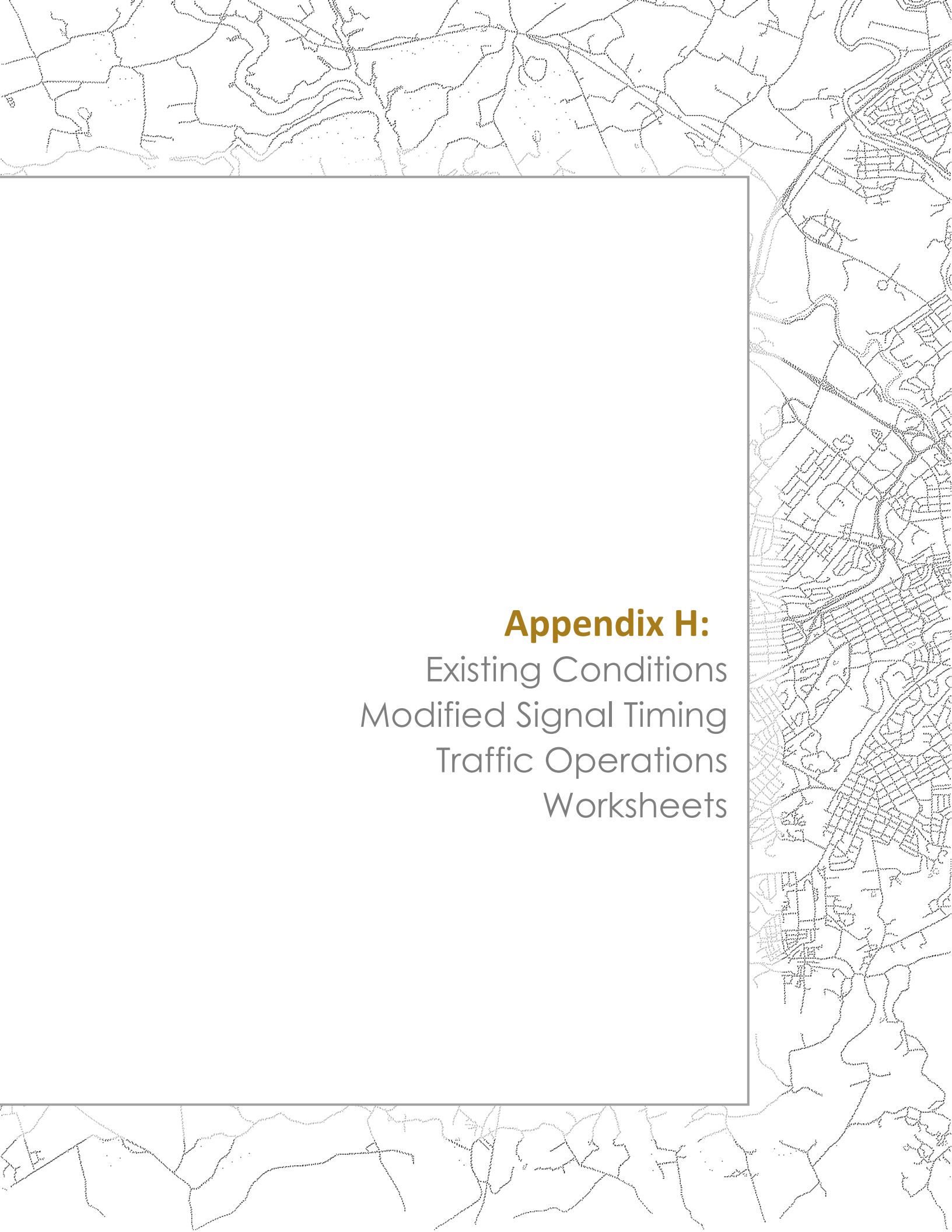
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	1047	232	369	1030	437	177	183	268	219	223	84
v/c Ratio	0.13	1.04	0.43	1.58	0.94	0.66	0.58	0.58	0.55	0.46	0.46	0.12
Control Delay	18.1	76.5	12.8	307.5	57.4	20.7	53.2	52.9	18.4	40.6	40.4	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	76.5	12.8	307.5	57.4	20.7	53.2	52.9	18.4	40.6	40.4	5.9
Queue Length 50th (ft)	10	~466	58	~357	408	128	135	140	62	145	148	0
Queue Length 95th (ft)	m21	#603	75	#552	#543	247	204	209	102	243	246	35
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	201	1003	542	233	1093	663	464	480	630	473	485	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.04	0.43	1.58	0.94	0.66	0.38	0.38	0.43	0.46	0.46	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

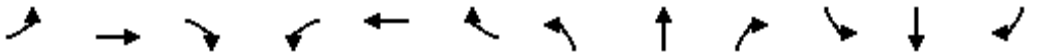
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Appendix H:

Existing Conditions
Modified Signal Timing
Traffic Operations
Worksheets



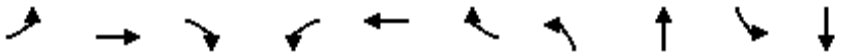
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	651	472	314	688	237	484	1254	181	152	1392	53
Future Volume (veh/h)	70	651	472	314	688	237	484	1254	181	152	1392	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	71	664	482	320	702	242	494	1280	185	155	1420	54
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	1035	639	256	1175	694	388	1582	229	369	1729	66
Arrive On Green	0.03	0.29	0.29	0.07	0.33	0.33	0.11	0.35	0.35	0.11	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	4577	662	3510	5128	195
Grp Volume(v), veh/h	71	664	482	320	702	242	494	967	498	155	958	516
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1729	1781	1755	1729	1865
Q Serve(g_s), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Cycle Q Clear(g_c), s	2.5	20.1	32.2	9.1	20.4	1.8	13.8	31.8	31.8	5.2	31.7	31.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	117	1035	639	256	1175	694	388	1195	615	369	1166	629
V/C Ratio(X)	0.61	0.64	0.75	1.25	0.60	0.35	1.27	0.81	0.81	0.42	0.82	0.82
Avail Cap(c_a), veh/h	253	1069	654	256	1175	694	388	1195	615	369	1166	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	39.0	32.4	58.0	35.3	11.8	55.6	37.2	37.2	52.3	38.0	38.0
Incr Delay (d2), s/veh	5.0	1.3	4.8	139.1	0.8	0.3	142.3	6.0	11.0	0.8	6.6	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.0	13.3	9.0	9.1	3.1	13.7	14.0	15.3	2.3	14.1	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	40.2	37.3	197.1	36.1	12.1	197.9	43.1	48.1	53.1	44.5	49.5
LnGrp LOS	E	D	D	F	D	B	F	D	D	D	D	D
Approach Vol, veh/h		1217			1264			1959			1629	
Approach Delay, s/veh		40.5			72.2			83.4			46.9	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	49.0	15.0	41.8	20.0	48.2	10.2	46.7
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	7.2	33.8	11.1	34.2	15.8	33.7	4.5	22.4
Green Ext Time (p_c), s	0.2	7.7	0.0	1.6	0.0	5.4	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	62.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

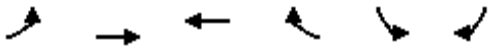


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	664	482	320	702	242	494	1465	155	1474
v/c Ratio	0.33	0.72	0.60	1.26	0.69	0.34	0.93	0.74	0.46	0.87
Control Delay	59.9	47.0	21.7	191.0	43.9	8.9	78.1	35.9	58.3	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	47.0	21.7	191.0	43.9	8.9	78.1	35.9	58.3	45.6
Queue Length 50th (ft)	28	258	209	~167	273	45	206	364	62	406
Queue Length 95th (ft)	53	308	322	#262	328	84	#370	452	98	471
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	252	1068	803	254	1081	732	530	1982	336	1704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.62	0.60	1.26	0.65	0.33	0.93	0.74	0.46	0.87

Intersection Summary

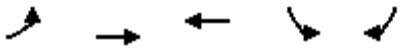
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



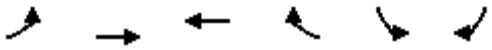
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	251	895	1059	192	186	283
Future Volume (vph)	251	895	1059	192	186	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.8	4.8		4.1	4.1
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	3539	5017		1787	1599
Flt Permitted	0.17	1.00	1.00		0.95	1.00
Satd. Flow (perm)	312	3539	5017		1787	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	259	923	1092	198	192	292
RTOR Reduction (vph)	0	0	16	0	0	41
Lane Group Flow (vph)	259	923	1274	0	192	251
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases	2					
Actuated Green, G (s)	91.7	91.7	75.4		18.4	35.3
Effective Green, g (s)	92.2	92.2	75.9		18.9	35.8
Actuated g/C Ratio	0.77	0.77	0.63		0.16	0.30
Clearance Time (s)	4.0	5.3	5.3		4.6	
Vehicle Extension (s)	2.0	5.0	5.0		2.0	
Lane Grp Cap (vph)	397	2719	3173		281	477
v/s Ratio Prot	c0.07	0.26	0.25		c0.11	0.16
v/s Ratio Perm	c0.43					
v/c Ratio	0.65	0.34	0.40		0.68	0.53
Uniform Delay, d1	6.5	4.4	10.9		47.7	35.0
Progression Factor	1.00	1.00	0.60		1.00	1.00
Incremental Delay, d2	2.9	0.3	0.3		5.4	0.5
Delay (s)	9.4	4.7	6.8		53.1	35.5
Level of Service	A	A	A		D	D
Approach Delay (s)		5.7	6.8		42.5	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	259	923	1290	192	292
v/c Ratio	0.65	0.34	0.40	0.68	0.57
Control Delay	14.0	5.2	7.2	59.6	31.7
Queue Delay	0.0	0.3	0.1	0.9	21.0
Total Delay	14.0	5.5	7.3	60.5	52.7
Queue Length 50th (ft)	43	98	76	143	158
Queue Length 95th (ft)	119	165	71	206	202
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	442	2719	3192	475	557
Starvation Cap Reductn	0	1089	517	116	256
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.57	0.48	0.53	0.97

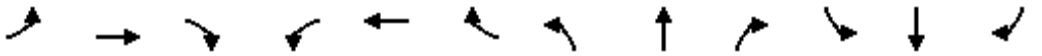
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	251	895	1059	192	186	283
Future Volume (veh/h)	251	895	1059	192	186	283
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	259	923	1092	198	192	292
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	482	2597	2690	487	350	451
Arrive On Green	0.09	0.73	1.00	1.00	0.20	0.20
Sat Flow, veh/h	1795	3647	4550	794	1795	1598
Grp Volume(v), veh/h	259	923	855	435	192	292
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1742	1795	1598
Q Serve(g_s), s	5.5	11.3	0.0	0.0	11.6	19.3
Cycle Q Clear(g_c), s	5.5	11.3	0.0	0.0	11.6	19.3
Prop In Lane	1.00			0.46	1.00	1.00
Lane Grp Cap(c), veh/h	482	2597	2107	1070	350	451
V/C Ratio(X)	0.54	0.36	0.41	0.41	0.55	0.65
Avail Cap(c_a), veh/h	557	2597	2107	1070	477	564
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.78	0.78	1.00	1.00
Uniform Delay (d), s/veh	5.3	5.9	0.0	0.0	43.5	37.8
Incr Delay (d2), s/veh	0.2	0.3	0.5	0.9	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.8	0.1	0.3	5.2	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	6.1	0.5	0.9	44.0	38.6
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1182	1290		484	
Approach Delay, s/veh		6.0	0.6		40.8	
Approach LOS		A	A		D	

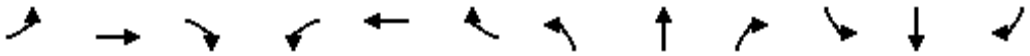
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.5		27.5	14.0	78.5
Change Period (Y+Rc), s		5.3		4.6	4.0	5.3
Max Green Setting (Gmax), s		78.7		31.4	15.0	59.7
Max Q Clear Time (g_c+I1), s		14.3		22.3	8.5	3.0
Green Ext Time (p_c), s		17.3		0.7	0.2	25.7

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	860	249	371	967	321	227	128	304	258	161	65
Future Volume (vph)	15	860	249	371	967	321	227	128	304	258	161	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1709	1509	1715	1783	1615
Flt Permitted	0.29	1.00	1.00	0.11	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (perm)	557	3574	1615	211	3539	1615	1681	1709	1509	1715	1783	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	15	869	252	375	977	324	229	129	307	261	163	66
RTOR Reduction (vph)	0	0	182	0	0	99	0	0	230	0	0	48
Lane Group Flow (vph)	15	869	70	375	977	225	176	182	77	209	215	18
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	37.9	30.7	30.7	65.5	54.3	54.3	18.2	18.2	30.2	20.6	20.6	33.0
Effective Green, g (s)	37.9	30.7	30.7	65.5	54.3	54.3	18.2	18.2	30.2	20.6	20.6	33.0
Actuated g/C Ratio	0.32	0.26	0.26	0.55	0.45	0.45	0.15	0.15	0.25	0.17	0.17	0.28
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	250	914	413	507	1601	730	254	259	379	294	306	444
v/s Ratio Prot	0.00	c0.24		c0.19	0.28		0.10	c0.11	0.05	c0.12	0.12	0.01
v/s Ratio Perm	0.02		0.04	0.22		0.14						
v/c Ratio	0.06	0.95	0.17	0.74	0.61	0.31	0.69	0.70	0.20	0.71	0.70	0.04
Uniform Delay, d1	28.3	43.9	34.7	29.6	24.8	20.9	48.3	48.3	35.4	46.9	46.8	31.9
Progression Factor	0.85	1.02	1.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	19.4	0.8	5.6	1.7	1.1	7.9	8.3	0.3	7.9	7.1	0.0
Delay (s)	24.1	64.2	44.0	35.2	26.6	22.0	56.2	56.7	35.7	54.8	53.9	31.9
Level of Service	C	E	D	D	C	C	E	E	D	D	D	C
Approach Delay (s)		59.2			27.6			46.9			51.3	
Approach LOS		E			C			D			D	

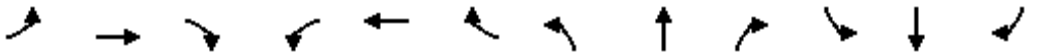
Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	869	252	375	977	324	176	182	307	209	215	66
v/c Ratio	0.05	0.95	0.42	0.74	0.60	0.39	0.69	0.71	0.50	0.71	0.70	0.13
Control Delay	15.5	64.5	8.4	39.3	29.5	13.2	61.8	62.4	8.3	59.4	58.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	64.5	8.4	39.3	29.5	13.2	61.8	62.4	8.3	59.4	58.5	6.8
Queue Length 50th (ft)	4	356	21	210	303	68	137	143	0	162	166	0
Queue Length 95th (ft)	m14	#483	85	#515	#489	176	205	211	89	232	236	30
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	374	914	595	508	1624	838	389	395	609	375	390	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.95	0.42	0.74	0.60	0.39	0.45	0.46	0.50	0.56	0.55	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



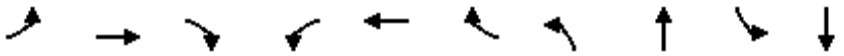
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	679	491	327	717	249	504	1307	187	157	1450	55
Future Volume (veh/h)	73	679	491	327	717	249	504	1307	187	157	1450	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	693	501	334	732	254	514	1334	191	160	1480	56
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	1046	642	479	1092	653	497	1527	219	507	1664	63
Arrive On Green	0.06	0.29	0.29	0.07	0.31	0.31	0.11	0.34	0.34	0.10	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	4512	646	3456	5049	191
Grp Volume(v), veh/h	74	693	501	334	732	254	514	1006	519	160	998	538
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1754	1728	1702	1836
Q Serve(g_s), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Cycle Q Clear(g_c), s	1.8	21.4	34.4	8.5	22.5	2.6	13.8	34.7	34.7	0.0	34.7	34.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.10
Lane Grp Cap(c), veh/h	461	1046	642	479	1092	653	497	1152	594	507	1122	605
V/C Ratio(X)	0.16	0.66	0.78	0.70	0.67	0.39	1.03	0.87	0.87	0.32	0.89	0.89
Avail Cap(c_a), veh/h	505	1052	644	479	1092	653	497	1176	606	507	1122	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	38.7	32.4	30.6	37.8	11.9	38.5	38.8	38.8	49.6	39.7	39.7
Incr Delay (d2), s/veh	0.2	1.6	6.1	3.8	1.4	0.3	49.7	9.3	16.3	1.6	10.6	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.4	14.1	3.8	10.0	3.2	9.4	15.5	17.1	2.3	15.7	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	40.2	38.5	34.4	39.2	12.2	88.2	48.1	55.1	51.2	50.3	57.4
LnGrp LOS	C	D	D	C	D	B	F	D	E	D	D	E
Approach Vol, veh/h		1268			1320			2039			1696	
Approach Delay, s/veh		38.9			32.8			60.0			52.7	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	48.1	15.0	42.8	20.0	47.2	13.4	44.4
Change Period (Y+Rc), s	* 6	5.8	5.9	* 6	* 6.2	* 6	6.0	* 6
Max Green Setting (Gmax), s	* 12	43.2	9.1	* 37	* 14	* 41	9.0	* 37
Max Q Clear Time (g_c+I1), s	2.0	36.7	10.5	36.4	15.8	36.8	3.8	24.5
Green Ext Time (p_c), s	0.3	5.6	0.0	0.4	0.0	3.5	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	48.1
HCM 6th LOS	D

Notes

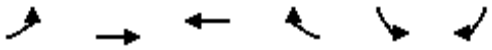
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	74	693	501	334	732	254	514	1525	160	1536
v/c Ratio	0.18	0.74	0.63	0.77	0.70	0.36	0.86	0.80	0.36	0.91
Control Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	38.9	43.3	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	47.0	23.1	39.3	43.7	9.3	46.6	38.9	43.3	49.5
Queue Length 50th (ft)	18	265	227	91	280	47	160	404	46	435
Queue Length 95th (ft)	33	326	349	122	345	92	#290	482	73	#513
Internal Link Dist (ft)		2378			480			1614		1054
Turn Bay Length (ft)	155			285			475		200	
Base Capacity (vph)	443	1047	780	434	1079	727	600	1896	449	1680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.66	0.64	0.77	0.68	0.35	0.86	0.80	0.36	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



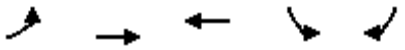
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	311	847	937	229	233	321
Future Volume (veh/h)	311	847	937	229	233	321
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	334	911	1008	246	251	345
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	703	2689	1882	459	289	672
Arrive On Green	0.26	0.76	0.91	0.91	0.16	0.16
Sat Flow, veh/h	1810	3647	4299	1006	1795	1610
Grp Volume(v), veh/h	334	911	837	417	251	345
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1704	1795	1610
Q Serve(g_s), s	0.8	10.1	5.1	5.1	16.4	0.0
Cycle Q Clear(g_c), s	0.8	10.1	5.1	5.1	16.4	0.0
Prop In Lane	1.00			0.59	1.00	1.00
Lane Grp Cap(c), veh/h	703	2689	1564	777	289	672
V/C Ratio(X)	0.48	0.34	0.54	0.54	0.87	0.51
Avail Cap(c_a), veh/h	703	2689	1564	777	470	835
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.55	0.55	1.00	1.00
Uniform Delay (d), s/veh	20.4	4.8	3.1	3.1	49.1	25.9
Incr Delay (d2), s/veh	0.1	0.2	0.7	1.5	5.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	3.2	1.2	1.4	7.8	11.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.6	5.0	3.8	4.6	54.5	26.1
LnGrp LOS	C	A	A	A	D	C
Approach Vol, veh/h		1245	1254		596	
Approach Delay, s/veh		9.2	4.1		38.1	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.1		23.9	36.1	60.0
Change Period (Y+Rc), s		5.3		4.6	5.3	* 5.3
Max Green Setting (Gmax), s		78.7		31.4	20.0	* 55
Max Q Clear Time (g_c+I1), s		12.1		18.4	2.8	7.1
Green Ext Time (p_c), s		17.1		0.9	0.4	22.9

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

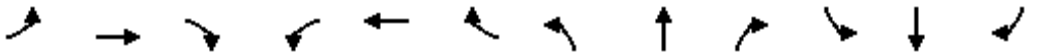
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



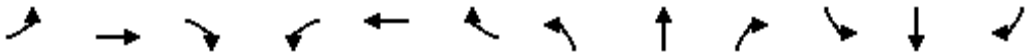
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	334	911	1254	251	345
v/c Ratio	0.70	0.36	0.48	0.69	0.50
Control Delay	34.8	7.3	2.1	54.9	24.8
Queue Delay	0.0	0.4	0.3	0.0	0.0
Total Delay	34.8	7.6	2.4	54.9	24.8
Queue Length 50th (ft)	86	121	12	185	168
Queue Length 95th (ft)	209	181	28	263	238
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	475	2527	2600	467	775
Starvation Cap Reductn	0	994	632	0	0
Spillback Cap Reductn	0	57	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.59	0.64	0.54	0.45

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	870	211	290	927	423	166	115	241	326	102	82
Future Volume (vph)	26	870	211	290	927	423	166	115	241	326	102	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1770	1615	1715	1758	1615
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (perm)	232	3574	1615	205	3574	1615	1698	1770	1615	1715	1758	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	27	888	215	296	946	432	169	117	246	333	104	84
RTOR Reduction (vph)	0	0	97	0	0	182	0	0	49	0	0	50
Lane Group Flow (vph)	27	888	118	296	946	250	140	146	197	216	221	34
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	41.7	32.7	32.7	49.1	36.7	36.7	20.4	20.4	32.8	34.2	34.2	48.4
Effective Green, g (s)	41.7	32.7	32.7	49.1	36.7	36.7	20.4	20.4	32.8	34.2	34.2	48.4
Actuated g/C Ratio	0.35	0.27	0.27	0.41	0.31	0.31	0.17	0.17	0.27	0.29	0.29	0.40
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	198	973	440	247	1093	493	288	300	441	488	501	651
v/s Ratio Prot	0.01	0.25		c0.12	0.26		0.08	c0.08	0.12	c0.13	0.13	0.02
v/s Ratio Perm	0.04		0.07	c0.37		0.15						
v/c Ratio	0.14	0.91	0.27	1.20	0.87	0.51	0.49	0.49	0.45	0.44	0.44	0.05
Uniform Delay, d1	28.1	42.3	34.3	33.3	39.3	34.2	45.1	45.1	36.1	35.1	35.1	21.8
Progression Factor	0.79	0.79	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	13.5	1.4	121.6	9.2	3.7	0.5	0.5	0.3	2.9	2.8	0.0
Delay (s)	22.3	46.7	19.6	154.9	48.5	37.9	45.5	45.5	36.3	38.0	37.9	21.8
Level of Service	C	D	B	F	D	D	D	D	D	D	D	C
Approach Delay (s)		40.9			64.6			41.3			35.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



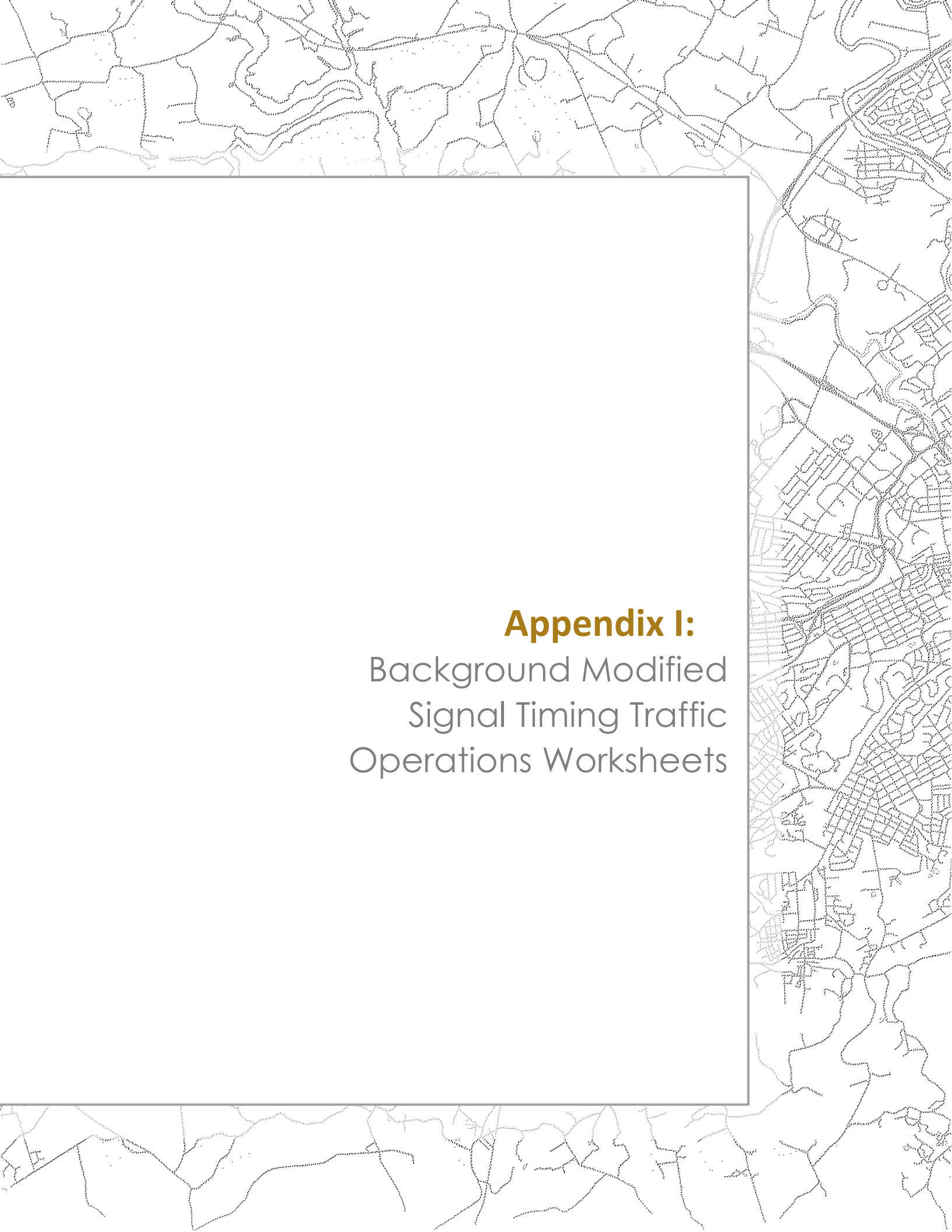
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	888	215	296	946	432	140	146	246	216	221	84
v/c Ratio	0.13	0.91	0.40	1.19	0.87	0.64	0.49	0.49	0.51	0.44	0.44	0.12
Control Delay	17.6	47.3	9.5	149.0	48.9	18.4	51.3	51.1	17.2	38.8	38.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	47.3	9.5	149.0	48.9	18.4	51.3	51.1	17.2	38.8	38.6	5.4
Queue Length 50th (ft)	9	362	25	~225	363	110	105	109	54	143	146	0
Queue Length 95th (ft)	m21	#452	72	#405	#454	225	171	177	89	227	232	33
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	201	973	536	248	1093	675	464	483	642	489	501	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.91	0.40	1.19	0.87	0.64	0.30	0.30	0.38	0.44	0.44	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

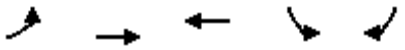
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



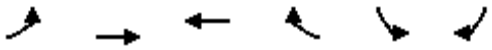
Appendix I:

Background Modified Signal Timing Traffic Operations Worksheets



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	261	1026	1460	229	259
v/c Ratio	0.60	0.38	0.51	0.76	0.44
Control Delay	29.2	6.0	9.2	63.1	27.5
Queue Delay	0.0	0.4	0.2	2.0	2.9
Total Delay	29.2	6.4	9.3	65.1	30.4
Queue Length 50th (ft)	59	122	104	171	135
Queue Length 95th (ft)	160	196	51	243	185
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	483	2678	2869	475	735
Starvation Cap Reductn	0	1014	521	132	363
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.62	0.62	0.67	0.70

Intersection Summary



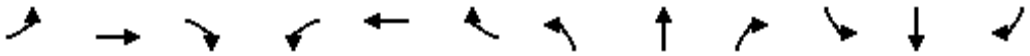
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	253	995	1224	192	222	251
Future Volume (veh/h)	253	995	1224	192	222	251
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	261	1026	1262	198	229	259
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	767	2727	1650	259	284	828
Arrive On Green	0.36	0.77	0.74	0.73	0.16	0.16
Sat Flow, veh/h	1795	3647	4655	704	1795	1598
Grp Volume(v), veh/h	261	1026	965	495	229	259
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1758	1795	1598
Q Serve(g_s), s	3.5	11.3	20.4	20.5	14.8	0.0
Cycle Q Clear(g_c), s	3.5	11.3	20.4	20.5	14.8	0.0
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	767	2727	1262	647	284	828
V/C Ratio(X)	0.34	0.38	0.76	0.76	0.81	0.31
Avail Cap(c_a), veh/h	767	2727	1521	780	477	999
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	22.5	4.6	12.7	12.9	48.7	16.6
Incr Delay (d2), s/veh	0.1	0.2	3.1	5.9	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.5	4.7	5.3	6.8	8.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.6	4.8	15.8	18.8	50.8	16.7
LnGrp LOS	C	A	B	B	D	B
Approach Vol, veh/h		1287	1460		488	
Approach Delay, s/veh		8.4	16.9		32.7	
Approach LOS		A	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.9		23.1	48.0	48.9
Change Period (Y+Rc), s		5.3		4.6	5.3	* 5.3
Max Green Setting (Gmax), s		78.7		31.4	22.0	* 53
Max Q Clear Time (g_c+I1), s		14.3		17.8	6.5	23.4
Green Ext Time (p_c), s		20.4		0.7	0.3	20.2

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



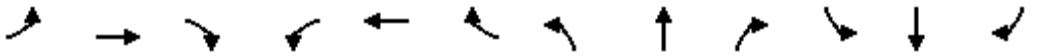
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	955	269	452	1064	329	219	228	418	211	217	67
v/c Ratio	0.06	1.04	0.46	0.97	0.69	0.41	0.73	0.75	0.63	0.73	0.72	0.14
Control Delay	16.6	81.3	6.9	70.3	33.4	15.3	60.4	61.7	9.3	61.6	60.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	81.3	6.9	70.3	33.4	15.3	60.4	61.7	9.3	61.6	60.5	7.3
Queue Length 50th (ft)	4	~425	33	~305	364	83	169	176	0	164	168	0
Queue Length 95th (ft)	m15	#536	45	#656	#565	191	246	255	106	242	246	32
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	340	914	589	466	1540	798	389	394	666	368	383	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	1.04	0.46	0.97	0.69	0.41	0.56	0.58	0.63	0.57	0.57	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

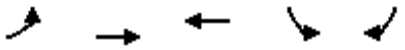
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	945	266	447	1053	326	315	128	414	261	162	66
Future Volume (vph)	16	945	266	447	1053	326	315	128	414	261	162	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1704	1509	1715	1783	1615
Flt Permitted	0.23	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	429	3574	1615	210	3539	1615	1681	1704	1509	1715	1783	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	16	955	269	452	1064	329	318	129	418	264	164	67
RTOR Reduction (vph)	0	0	176	0	0	96	0	0	323	0	0	49
Lane Group Flow (vph)	16	955	93	452	1064	233	219	228	95	211	217	18
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	38.0	30.8	30.8	62.7	51.5	51.5	21.4	21.4	27.3	20.2	20.2	32.6
Effective Green, g (s)	38.0	30.8	30.8	62.7	51.5	51.5	21.4	21.4	27.3	20.2	20.2	32.6
Actuated g/C Ratio	0.32	0.26	0.26	0.52	0.43	0.43	0.18	0.18	0.23	0.17	0.17	0.27
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	218	917	414	464	1518	693	299	303	343	288	300	438
v/s Ratio Prot	0.00	0.27		c0.22	0.30		0.13	c0.13	0.06	c0.12	0.12	0.01
v/s Ratio Perm	0.02		0.06	c0.29		0.14						
v/c Ratio	0.07	1.04	0.22	0.97	0.70	0.34	0.73	0.75	0.28	0.73	0.72	0.04
Uniform Delay, d1	28.4	44.6	35.2	36.0	28.0	22.8	46.6	46.8	38.2	47.3	47.3	32.2
Progression Factor	0.86	0.91	0.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	40.1	1.2	34.8	2.7	1.3	8.9	10.1	0.4	9.3	8.4	0.0
Delay (s)	24.7	80.8	24.3	70.8	30.7	24.2	55.5	56.9	38.7	56.6	55.6	32.2
Level of Service	C	F	C	E	C	C	E	E	D	E	E	C
Approach Delay (s)		67.8			39.3			47.7			52.9	
Approach LOS		E			D			D			D	

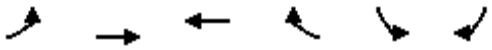
Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	338	1094	1407	252	347
v/c Ratio	0.73	0.43	0.56	0.69	0.50
Control Delay	40.8	7.9	4.1	55.0	25.7
Queue Delay	0.0	0.5	0.4	0.0	0.0
Total Delay	40.8	8.5	4.5	55.0	25.7
Queue Length 50th (ft)	129	155	23	185	180
Queue Length 95th (ft)	#253	231	m56	264	249
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	461	2527	2517	467	788
Starvation Cap Reductn	0	920	543	0	0
Spillback Cap Reductn	0	244	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.68	0.71	0.54	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



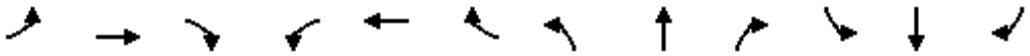
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	314	1017	1078	231	234	323
Future Volume (veh/h)	314	1017	1078	231	234	323
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	338	1094	1159	248	252	347
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	689	2687	1864	399	290	699
Arrive On Green	0.27	0.76	0.88	0.88	0.16	0.16
Sat Flow, veh/h	1810	3647	4414	908	1795	1610
Grp Volume(v), veh/h	338	1094	937	470	252	347
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1722	1795	1610
Q Serve(g_s), s	4.1	13.0	8.8	8.8	16.4	0.0
Cycle Q Clear(g_c), s	4.1	13.0	8.8	8.8	16.4	0.0
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	689	2687	1507	756	290	699
V/C Ratio(X)	0.49	0.41	0.62	0.62	0.87	0.50
Avail Cap(c_a), veh/h	689	2687	1507	756	470	860
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.43	0.43	1.00	1.00
Uniform Delay (d), s/veh	23.6	5.2	4.6	4.6	49.1	24.5
Incr Delay (d2), s/veh	0.1	0.3	0.8	1.7	5.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	4.1	1.9	2.0	7.9	11.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.7	5.4	5.5	6.3	54.6	24.7
LnGrp LOS	C	A	A	A	D	C
Approach Vol, veh/h		1432	1407		599	
Approach Delay, s/veh		9.8	5.7		37.3	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	38.0	58.0
Change Period (Y+Rc), s		5.3		4.6	5.3	* 5.3
Max Green Setting (Gmax), s		78.7		31.4	22.0	* 53
Max Q Clear Time (g_c+I1), s		15.0		18.4	6.1	10.8
Green Ext Time (p_c), s		22.6		0.9	0.4	24.7

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



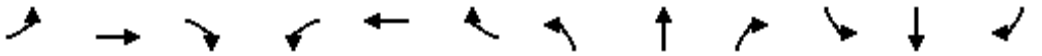
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	1047	232	369	1030	437	177	183	268	219	223	84
v/c Ratio	0.13	1.04	0.43	1.58	0.94	0.66	0.58	0.58	0.55	0.46	0.46	0.12
Control Delay	18.8	74.5	13.3	307.5	57.4	20.7	53.2	52.9	18.4	40.6	40.4	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	74.5	13.3	307.5	57.4	20.7	53.2	52.9	18.4	40.6	40.4	5.9
Queue Length 50th (ft)	9	~466	37	~357	408	128	135	140	62	145	148	0
Queue Length 95th (ft)	m22	#580	101	#552	#543	247	204	209	102	243	246	35
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	201	1003	542	233	1093	663	464	480	630	473	485	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	1.04	0.43	1.58	0.94	0.66	0.38	0.38	0.43	0.46	0.46	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

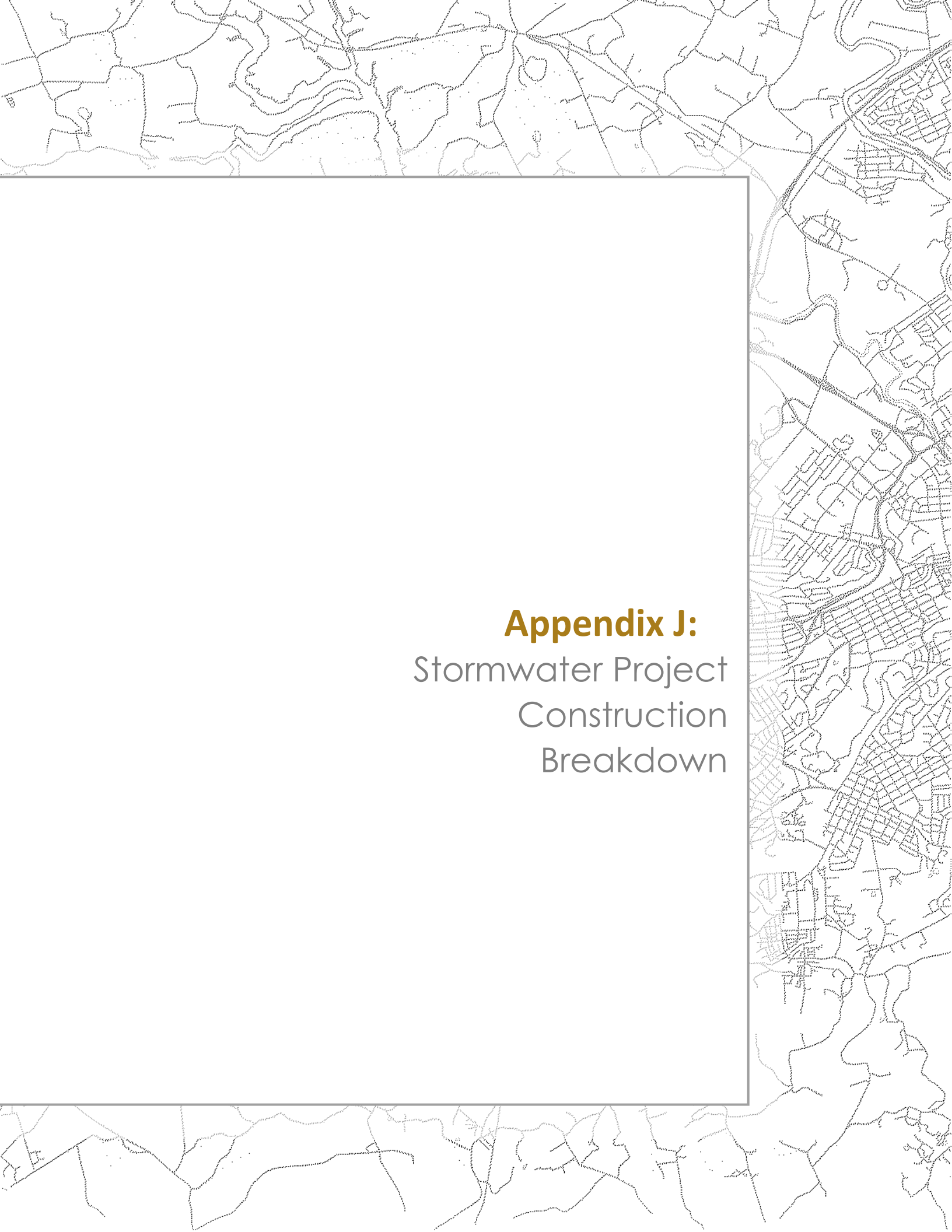
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



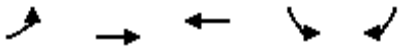
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Future Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1756	1615	1715	1758	1615
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	226	3574	1615	205	3574	1615	1698	1756	1615	1715	1758	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	27	1047	232	369	1030	437	242	118	268	337	105	84
RTOR Reduction (vph)	0	0	88	0	0	169	0	0	49	0	0	51
Lane Group Flow (vph)	27	1047	144	369	1030	268	177	183	219	219	223	33
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.5	21.5	32.9	33.1	33.1	47.3
Effective Green, g (s)	42.7	33.7	33.7	48.1	36.7	36.7	21.5	21.5	32.9	33.1	33.1	47.3
Actuated g/C Ratio	0.36	0.28	0.28	0.40	0.31	0.31	0.18	0.18	0.27	0.28	0.28	0.39
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	198	1003	453	232	1093	493	304	314	442	473	484	636
v/s Ratio Prot	0.01	0.29		c0.15	0.29		c0.10	0.10	0.14	c0.13	0.13	0.02
v/s Ratio Perm	0.04		0.09	c0.49		0.17						
v/c Ratio	0.14	1.04	0.32	1.59	0.94	0.54	0.58	0.58	0.49	0.46	0.46	0.05
Uniform Delay, d1	28.5	43.1	34.1	32.8	40.6	34.7	45.1	45.1	36.6	36.1	36.0	22.5
Progression Factor	0.85	0.81	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	39.2	1.7	285.2	16.5	4.2	1.8	1.8	0.3	3.2	3.1	0.0
Delay (s)	24.3	74.4	24.8	318.0	57.1	38.9	47.0	46.9	36.9	39.3	39.2	22.5
Level of Service	C	E	C	F	E	D	D	D	D	D	D	C
Approach Delay (s)		64.5			105.2			42.7			36.6	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	75.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



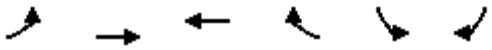
Appendix J:

Stormwater Project Construction Breakdown



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	261	1026	1460	229	259
v/c Ratio	0.60	0.38	0.51	0.76	0.44
Control Delay	29.2	6.0	9.2	63.1	27.5
Queue Delay	0.0	0.4	0.2	2.0	2.9
Total Delay	29.2	6.4	9.3	65.1	30.4
Queue Length 50th (ft)	59	122	104	171	135
Queue Length 95th (ft)	160	196	51	243	185
Internal Link Dist (ft)		480	440	166	
Turn Bay Length (ft)	135				
Base Capacity (vph)	483	2678	2869	475	735
Starvation Cap Reductn	0	1014	521	132	363
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.62	0.62	0.67	0.70

Intersection Summary



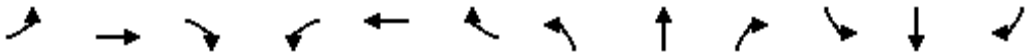
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	253	995	1224	192	222	251
Future Volume (veh/h)	253	995	1224	192	222	251
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1885	1885
Adj Flow Rate, veh/h	261	1026	1262	198	229	259
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	2	1	1	1	1
Cap, veh/h	767	2727	1650	259	284	828
Arrive On Green	0.36	0.77	0.74	0.73	0.16	0.16
Sat Flow, veh/h	1795	3647	4655	704	1795	1598
Grp Volume(v), veh/h	261	1026	965	495	229	259
Grp Sat Flow(s),veh/h/ln	1795	1777	1716	1758	1795	1598
Q Serve(g_s), s	3.5	11.3	20.4	20.5	14.8	0.0
Cycle Q Clear(g_c), s	3.5	11.3	20.4	20.5	14.8	0.0
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	767	2727	1262	647	284	828
V/C Ratio(X)	0.34	0.38	0.76	0.76	0.81	0.31
Avail Cap(c_a), veh/h	767	2727	1521	780	477	999
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	22.5	4.6	12.7	12.9	48.7	16.6
Incr Delay (d2), s/veh	0.1	0.2	3.1	5.9	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.5	4.7	5.3	6.8	8.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.6	4.8	15.8	18.8	50.8	16.7
LnGrp LOS	C	A	B	B	D	B
Approach Vol, veh/h		1287	1460		488	
Approach Delay, s/veh		8.4	16.9		32.7	
Approach LOS		A	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.9		23.1	48.0	48.9
Change Period (Y+Rc), s		5.3		4.6	5.3	* 5.3
Max Green Setting (Gmax), s		78.7		31.4	22.0	* 53
Max Q Clear Time (g_c+I1), s		14.3		17.8	6.5	23.4
Green Ext Time (p_c), s		20.4		0.7	0.3	20.2

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



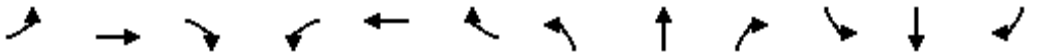
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	955	269	452	1064	329	219	228	418	211	217	67
v/c Ratio	0.06	1.04	0.46	0.97	0.69	0.41	0.73	0.75	0.63	0.73	0.72	0.14
Control Delay	16.6	81.3	6.9	70.3	33.4	15.3	60.4	61.7	9.3	61.6	60.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	81.3	6.9	70.3	33.4	15.3	60.4	61.7	9.3	61.6	60.5	7.3
Queue Length 50th (ft)	4	~425	33	~305	364	83	169	176	0	164	168	0
Queue Length 95th (ft)	m15	#536	45	#656	#565	191	246	255	106	242	246	32
Internal Link Dist (ft)		440			2455			2238			219	
Turn Bay Length (ft)	330			265		150	105					
Base Capacity (vph)	340	914	589	466	1540	798	389	394	666	368	383	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	1.04	0.46	0.97	0.69	0.41	0.56	0.58	0.63	0.57	0.57	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

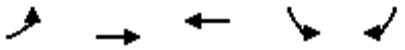
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	945	266	447	1053	326	315	128	414	261	162	66
Future Volume (vph)	16	945	266	447	1053	326	315	128	414	261	162	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1805	3574	1615	1770	3539	1615	1681	1704	1509	1715	1783	1615
Flt Permitted	0.23	1.00	1.00	0.11	1.00	1.00	0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	429	3574	1615	210	3539	1615	1681	1704	1509	1715	1783	1615
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	16	955	269	452	1064	329	318	129	418	264	164	67
RTOR Reduction (vph)	0	0	176	0	0	96	0	0	323	0	0	49
Lane Group Flow (vph)	16	955	93	452	1064	233	219	228	95	211	217	18
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	2%	5%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Over	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	38.0	30.8	30.8	62.7	51.5	51.5	21.4	21.4	27.3	20.2	20.2	32.6
Effective Green, g (s)	38.0	30.8	30.8	62.7	51.5	51.5	21.4	21.4	27.3	20.2	20.2	32.6
Actuated g/C Ratio	0.32	0.26	0.26	0.52	0.43	0.43	0.18	0.18	0.23	0.17	0.17	0.27
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	4.6	5.2	5.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	218	917	414	464	1518	693	299	303	343	288	300	438
v/s Ratio Prot	0.00	0.27		c0.22	0.30		0.13	c0.13	0.06	c0.12	0.12	0.01
v/s Ratio Perm	0.02		0.06	c0.29		0.14						
v/c Ratio	0.07	1.04	0.22	0.97	0.70	0.34	0.73	0.75	0.28	0.73	0.72	0.04
Uniform Delay, d1	28.4	44.6	35.2	36.0	28.0	22.8	46.6	46.8	38.2	47.3	47.3	32.2
Progression Factor	0.86	0.91	0.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	40.1	1.2	34.8	2.7	1.3	8.9	10.1	0.4	9.3	8.4	0.0
Delay (s)	24.7	80.8	24.3	70.8	30.7	24.2	55.5	56.9	38.7	56.6	55.6	32.2
Level of Service	C	F	C	E	C	C	E	E	D	E	E	C
Approach Delay (s)		67.8			39.3			47.7			52.9	
Approach LOS		E			D			D			D	

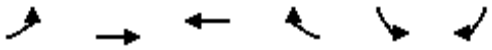
Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	338	1094	1407	252	347
v/c Ratio	0.73	0.43	0.56	0.69	0.50
Control Delay	40.8	7.9	2.8	55.0	25.7
Queue Delay	0.0	0.5	0.5	0.0	0.0
Total Delay	40.8	8.5	3.3	55.0	25.7
Queue Length 50th (ft)	129	155	15	185	180
Queue Length 95th (ft)	#253	231	m38	264	249
Internal Link Dist (ft)		480	440	186	
Turn Bay Length (ft)	135				
Base Capacity (vph)	461	2527	2517	467	788
Starvation Cap Reductn	0	920	579	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.68	0.73	0.54	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



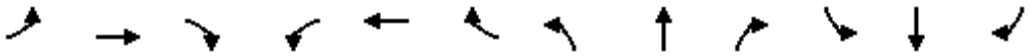
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	314	1017	1078	231	234	323
Future Volume (veh/h)	314	1017	1078	231	234	323
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1900	1870	1885	1885	1885	1900
Adj Flow Rate, veh/h	338	1094	1159	248	252	347
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	1	1	1	0
Cap, veh/h	689	2687	1864	399	290	699
Arrive On Green	0.27	0.76	0.88	0.88	0.16	0.16
Sat Flow, veh/h	1810	3647	4414	908	1795	1610
Grp Volume(v), veh/h	338	1094	937	470	252	347
Grp Sat Flow(s),veh/h/ln	1810	1777	1716	1722	1795	1610
Q Serve(g_s), s	4.1	13.0	8.8	8.8	16.4	0.0
Cycle Q Clear(g_c), s	4.1	13.0	8.8	8.8	16.4	0.0
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	689	2687	1507	756	290	699
V/C Ratio(X)	0.49	0.41	0.62	0.62	0.87	0.50
Avail Cap(c_a), veh/h	689	2687	1507	756	470	860
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.19	0.19	1.00	1.00
Uniform Delay (d), s/veh	23.6	5.2	4.6	4.6	49.1	24.5
Incr Delay (d2), s/veh	0.1	0.3	0.4	0.7	5.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	4.1	1.8	1.8	7.9	11.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.7	5.4	5.0	5.4	54.6	24.7
LnGrp LOS	C	A	A	A	D	C
Approach Vol, veh/h		1432	1407		599	
Approach Delay, s/veh		9.8	5.1		37.3	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	38.0	58.0
Change Period (Y+Rc), s		5.3		4.6	5.3	* 5.3
Max Green Setting (Gmax), s		78.7		31.4	22.0	* 53
Max Q Clear Time (g_c+I1), s		15.0		18.4	6.1	10.8
Green Ext Time (p_c), s		22.6		0.9	0.4	24.7

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



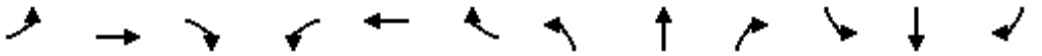
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	1047	232	369	1030	437	177	183	268	219	223	84
v/c Ratio	0.09	1.15	0.46	1.26	1.09	0.73	0.58	0.58	0.50	0.48	0.47	0.11
Control Delay	18.6	112.4	16.1	171.4	99.1	26.8	53.3	53.1	16.0	41.6	41.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	112.4	16.1	171.4	99.1	26.8	53.3	53.1	16.0	41.6	41.4	5.1
Queue Length 50th (ft)	10	~505	41	~307	~473	149	135	140	60	147	150	0
Queue Length 95th (ft)	m25	#619	119	#502	#606	278	204	210	94	245	248	32
Internal Link Dist (ft)		440			2455			2238			214	
Turn Bay Length (ft)	330		150	265		150	105					
Base Capacity (vph)	291	914	501	293	944	595	393	407	617	460	471	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.15	0.46	1.26	1.09	0.73	0.45	0.45	0.43	0.48	0.47	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Future Volume (vph)	26	1026	227	362	1009	428	237	116	263	330	103	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1805	3574	1615	1787	3574	1615	1698	1756	1615	1715	1758	1615
Flt Permitted	0.13	1.00	1.00	0.13	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	248	3574	1615	237	3574	1615	1698	1756	1615	1715	1758	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	27	1047	232	369	1030	437	242	118	268	337	105	84
RTOR Reduction (vph)	0	0	89	0	0	169	0	0	47	0	0	47
Lane Group Flow (vph)	27	1047	143	369	1030	268	177	183	221	219	223	37
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	1%	1%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3	3 1	4	4	4 5
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	45.7	30.7	30.7	47.1	31.7	31.7	21.4	21.4	36.8	32.2	32.2	52.4
Effective Green, g (s)	45.7	30.7	30.7	47.1	31.7	31.7	21.4	21.4	36.8	32.2	32.2	52.4
Actuated g/C Ratio	0.38	0.26	0.26	0.39	0.26	0.26	0.18	0.18	0.31	0.27	0.27	0.44
Clearance Time (s)	4.0	5.3	5.3	4.6	5.3	5.3	5.2	5.2		5.2	5.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	289	914	413	291	944	426	302	313	495	460	471	705
v/s Ratio Prot	0.01	0.29		c0.16	0.29		c0.10	0.10	0.14	c0.13	0.13	0.02
v/s Ratio Perm	0.02		0.09	c0.33		0.17						
v/c Ratio	0.09	1.15	0.35	1.27	1.09	0.63	0.59	0.58	0.45	0.48	0.47	0.05
Uniform Delay, d1	26.4	44.6	36.5	34.5	44.1	39.0	45.2	45.2	33.4	36.8	36.8	19.5
Progression Factor	0.91	0.83	0.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	77.4	2.1	145.0	57.3	6.9	1.9	1.8	0.2	3.5	3.4	0.0
Delay (s)	23.9	114.4	28.9	179.4	101.5	45.8	47.1	47.0	33.6	40.3	40.2	19.5
Level of Service	C	F	C	F	F	D	D	D	C	D	D	B
Approach Delay (s)		97.3			103.9			41.3			36.9	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	84.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment 2

Costco Fuel Station Relocation Project
Prepared by Acoustical Engineering Services, Inc., Inc.,
dated May 2024.

(Attached)

Environmental Noise Impact Study

COSTCO FUEL STATION RELOCATION PROJECT
13463 WASHINGTON BOULEVARD
CULVER CITY, CALIFORNIA

Prepared for:
Barghausen Consulting Engineers, Inc.

May 2024

Report Ref:
R2021116.5

Prepared by:
Acoustical Engineering Services, Inc.
22801 Crespi Street
Woodland Hills, CA 91364

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Appendix A: Ambient Noise Measurements
Appendix B: Construction Noise and Vibration Calculations Worksheets
Appendix C: Operation Noise Calculations Worksheets

EXECUTIVE SUMMARY

This Noise Impact Study (Study) evaluates the potential noise and vibration impacts from the construction and operation of the Fuel Station Relocation at the Costco Wholesale, located at 13463 Washington Boulevard in the City of Culver City, California (Project). The Project will relocate the existing fuel station with eight (8) product dispensers located near the southeastern portion to the southwestern corner of the Costco Project Site. The relocated fuel station will include a total of fifteen (15) product dispensers.

Findings

In order to analyze the potential noise impacts of Project construction and operations, the existing ambient noise environment at the five sensitive noise receptors in the vicinity of the Project Site were measured and tabulated in this report. The measured ambient sound data were utilized as baseline noise levels, and in conjunction with the applicable standards and guidelines, was used to define the Project noise impact thresholds. All technical terms, levels of significance, and Project Design Features are explained in the body of this report.

The key findings of the report, all as more fully described later in this Study, are as follows:

Construction Noise Impacts

- The estimated noise levels from on-site temporary construction activities would temporarily increase ambient noise levels in the immediate vicinity of the Project Site. However, the construction noise level would be below the significance threshold with implementation of the specified Project Design Features. As such, construction noise impacts would be less than significant; and, therefore, no mitigation measure is required.

- The estimated noise levels from the on-site generators to be used during the Project construction would be well below the existing ambient noise levels. As such, noise impacts associated with the generators would be less than significant; and, therefore, no mitigation measure is required.

Construction Vibration Impacts

- The estimated vibration levels from Project on-site temporary construction activities would be below the significance threshold for building damage at the nearest off-site buildings to the north, south, east and west. Therefore, temporary vibration impacts associated with Project on-site construction activities would be less than significant.

- The estimated vibration levels from the Project's on-site temporary construction activities would be below the 80 VdB significance threshold pursuant to human annoyance at all off-site vibration sensitive receptors. Therefore, Project-level vibration impacts from on-site construction activities with respect to human annoyance would be less than significant.

Operational Noise Impacts

- Noise levels associated with the fuel station typical operation would include running product dispensers, vehicle circulation, and arrival, unloading and departure of a delivery truck. The estimated overall noise levels from the product dispensers and vehicles range from 13.5 dBA (L_{eq}) at receptor R2 to 43.6 dBA (L_{eq}) at receptor location R1, which would be below the existing ambient noise levels. As such, the estimated noise levels at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) above ambient noise levels.

- The estimated noise levels from the product delivery truck operation range from 30.3 dBA (L_{eq}) at receptor R2 to 52.5 dBA (L_{eq}) at receptor location R4, which would be consistent with the existing ambient noise levels. As such, the estimated noise levels increase at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) increase over the ambient noise levels.

- The estimated noise levels from the on-site generator to be used for the new fuel station (on a temporary basis) would be well below the existing ambient noise levels. As such, noise impacts associated with the generators would be less than significant; and, therefore, no mitigation measure is required.

- In addition, a noise analysis was conducted to evaluate the potential sleep disturbance, associated with the product delivery trucks. The potential sleep disturbance was analyzed using the Sound Exposure Level (SEL) and based on the recommended SEL noise limit from the LAX South Airfield Improvement Project EIR. The estimated SEL noise level at all off-site receptors ranged from 65.9 dBA SEL at the exterior of receptor R2 to 88.1 dBA SEL at the exterior of receptor R4, which would be below the maximum exterior noise limit of 94 dBA SEL (assuming windows open). In addition, the estimated SEL at the interior of the residence, with the window opens (worst-case noise scenario) would be approximately 52.9 to 75.1 dBA SEL, which would be below the 81 dBA SEL interior noise limits.

- A composite operational noise analysis was performed to evaluate the noise impacts (concurrent operation) from all Project-related noise sources, including product dispensers, vehicle queueing, and product delivery truck operations. The Project

would result in a maximum increase of 0.1 dBA CNEL at receptor R2 to 2.4 dBA CNEL at receptor R1. The increases in noise levels due to Project operations (all noise sources) at off-site receptors R1, R2, R3 and R5 would be below the 5 dBA CNEL significance threshold, as the estimated noise levels would be below 65 dBA CNEL. The estimated noise level increase at off-site receptor R4 would be below the 3 dBA CNEL significance threshold for noise level greater than 65 dBA CNEL. Therefore, the composite operational noise level impacts due to Project operation would be less than significant; and, therefore, no mitigation measure is required.

1 INTRODUCTION

This Noise Impact Study (Study) evaluates the potential noise and vibration impacts from the construction and operation of the Fuel Station Relocation at the Costco Wholesale, located at 13463 Washington Boulevard in the City of Culver City, California (Project), as shown in Figure 1 (on page 7).

1.1 Project Description

The Project includes a new, approximately 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three (3) 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. In addition, temporary noise barriers will be provided along the project's western property line, northern property line, and the existing fueling facility's eastern property line; the power construction equipment will contain noise shielding and muffling devices, consistent with manufacturers' standards; and a portion of the project construction activities will not occur concurrently with the City's Washington Boulevard Stormwater and Urban Runoff Project, as further described herein.

The existing fueling facility will be razed and removed from the site and the existing currently unoccupied commercial uses (consisting of retail buildings and a coffee shop with a total area of 6,890 square feet, and a Starbucks Coffee with an area of 1,590 square feet) will be demolished.[1] The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fueling facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state of the art facility to provide a more efficient fuel purchasing experience for Costco members.

The operational hours are anticipated to match the existing hours of operation, which are: Monday through Friday 5:30 a.m. to 9:30 p.m.; Saturday 6:00 a.m. to 8:00 p.m., and Sunday 6:00 a.m. to 7:30 p.m. The fuel station is anticipated to receive up to eight nighttime deliveries spread out evenly between 10:00 p.m. and 6:00 a.m. (i.e., one fuel delivery per hour).

[1] *Under applicable case law (North County Advocates v. City of Carlsbad (2015) 241 Cal. App. 4th 94), these uses are considered to be part of the CEQA baseline even though the buildings are currently unoccupied. Therefore, consistent with CEQA, this analysis includes a trip credit for the removal of these uses from the Project site. Moreover, as the buildings were occupied when the historic traffic counts at local roadways were taken, not taking such a credit would overstate post-Project traffic noise conditions.*

The objectives of this Study are to:

a) Evaluate the Project's construction-related noise and vibration impacts on sensitive uses in the vicinity of the Project Site,

b) Determine potential noise impacts on existing off-site noise sensitive uses from Project operation-related noise sources, including the fuel station operation and fuel delivery trucks, and

c) Provide Project Design Features to avoid or reduce the potential noise impacts.

2 ENVIRONMENTAL SETTING

2.1 Fundamentals of Sound and Environmental Noise

Noise is commonly defined as sound that is undesirable because it can interfere with speech communication and hearing, may cause sleep disturbance, or may otherwise be considered annoying (unwanted sound). The decibel (dB) is a conventional unit for measuring the amplitude of sound because it accounts for the large variations in sound pressure amplitude and reflects the way people perceive changes in sound amplitude.[2] The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human frequency-dependent response, the A-weighted filtering system is used to adjust measured sound levels (dBA). The term "A-weighted" refers to filtering the noise signal in a manner that corresponds to the way the human ear perceives sound. Examples of various sound sources and decibel levels in outdoor and indoor environments are provided in Table 1 (on page 8).

Generally, people judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness." To the normal human ear, a change in sound level of 3 dB is considered "just perceptible," a change in sound level of 5 dB is considered "clearly noticeable," and a change (i.e., increase) of 10 dB is generally recognized as "twice as loud."[3]

2.1.1 Outdoor Sound Propagation

In an outdoor environment, sound levels attenuate (reduce) through the air as a function of distance. Such attenuation is commonly referred to as "distance loss" or "geometric spreading," and is based on the noise source configuration (e.g., point source, or line source). For a point source, such as the fuel pump the rate of sound dissipation is about 6 dB per doubling of distance from the noise source. For example, a fuel pump generates a sound level of 66 dBA at a distance of three feet would attenuate to 60 dBA at a distance of six feet. For a line source,

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[2] *All sound levels measured in decibel (dB) in this study are relative to $2x10^{-5}$ N/m^2.*

[3] *Engineering Noise Control, Bies & Hansen, 1988.*

such as a constant flow of auto traffic on a roadway, the rate of sound attenuation is about 3 dB per doubling of distance.[4]

In addition, structures (e.g., buildings, parapet walls) and natural topography (e.g., hills) that obstruct the acoustic line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the "acoustic shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a

[4] *Caltrans, "Technical Noise Supplement (TeNS)", 2013.*

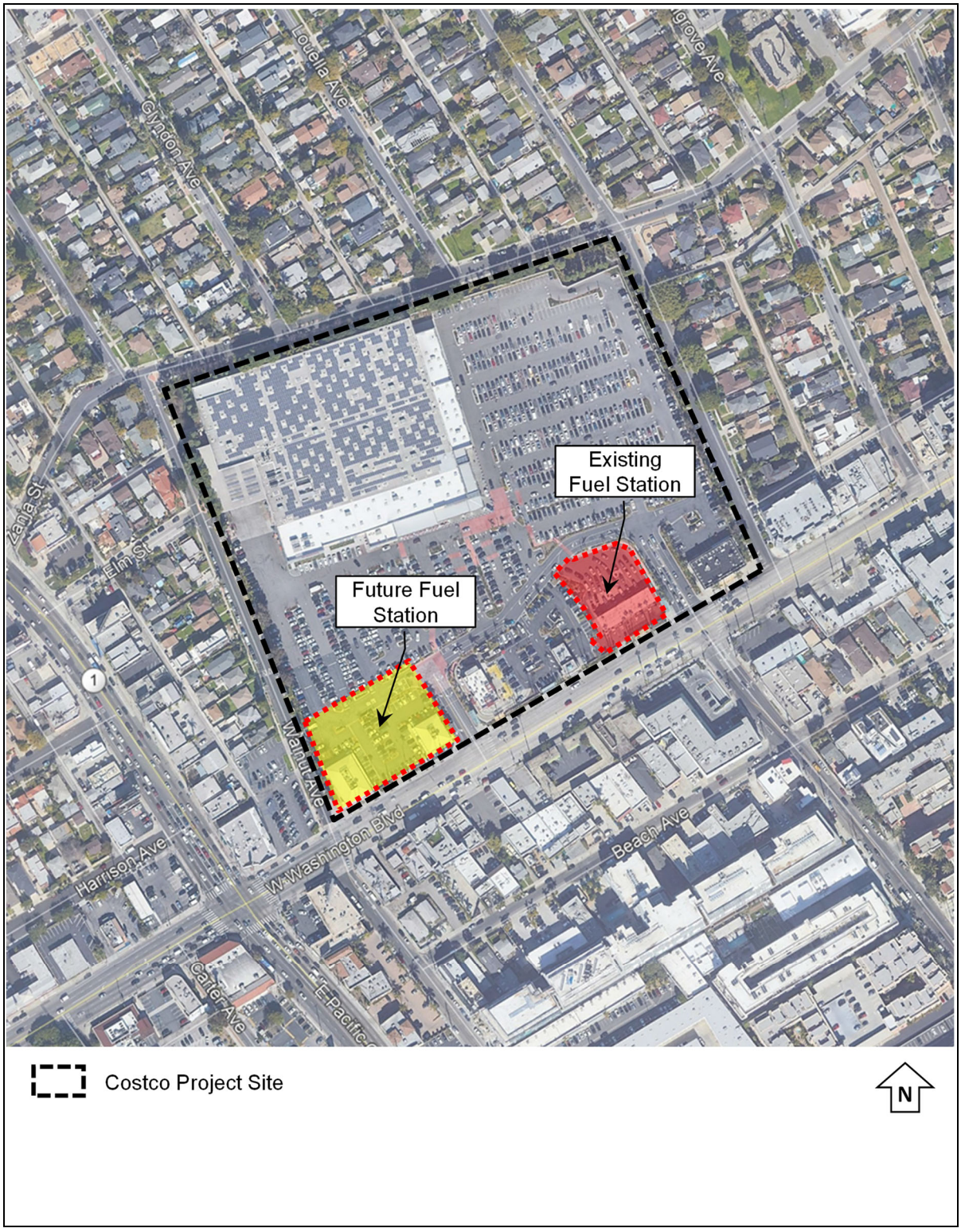

Figure 1. Project Site Map

Table 1. Typical Noise Levels

Common Outdoor Activities	Noise Levels, dBA	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 1000 feet		
	100	
Gas Lawn Mower at 3 feet		
	90	
Diesel Truck at 50 feet at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
Gas Lawn Mower at 100 feet	**70**	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	**60**	
		Large Business Office
Quiet Urban Daytime	**50**	Dishwasher Next Room
Quiet Urban Nighttime	**40**	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio (background)
	10	
Lowest Threshold of Human Hearing	**0**	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement (TeNS), 2013		

receptor is located behind the wall but still has a view of the source (i.e., acoustic line-of-sight is not fully blocked), some barrier insertion loss would still occur, however to a lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may experience an increase in the perceived noise level as the wall reflects noise back to the receptor, thereby compounding the noise. Outdoor sound walls can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the acoustic line-of-sight between the noise source and receiver) to an upper range of 20 dBA with a more substantial barrier.[5]

[5] *Caltrans, "Technical Noise Supplement (TeNS)", 2013.*

2.1.2 Environmental Noise Descriptors

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider the total acoustical energy content, as well as the time and duration of occurrence. The most frequently used noise descriptors, including those used by Culver City, are summarized below.

Equivalent Sound Level (L_{eq}). L_{eq} is a measurement of the acoustic energy content of noise averaged over a specified period. Thus, the L_{eq} of a time-varying sound and that of a steady sound are the same if they deliver the same amount of energy to the receptor's ear during exposure. L_{eq} for one-hour periods, during the daytime or nighttime hours, and 24 hours are commonly used in environmental noise assessments. L_{eq} can be measured for any period but is typically measured for an increment of no less than 15 minutes for environmental studies. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during day or night.

Community Noise Equivalent Level (CNEL). CNEL is the time average of all A-weighted sound levels for a 24-hour period with a 10 dBA adjustment (upward) added to the sound levels that occur between the hours of 10:00 P.M. and 7:00 A.M. (nighttime), and a 5 dBA adjustment (upward) added to the sound levels which occur between the hours of 7:00 P.M. and 10:00 P.M. (evening). These penalties attempt to account for increased human sensitivity to noise during the nighttime and evening periods, particularly where sleep is the most probable activity. CNEL has been adopted by the State of California to define the community noise environment for development of the community noise element of a General Plan and is also used by the City of Culver City for land use planning in the City's General Plan.[6]

2.2 Ground-borne Vibration

Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root-mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal and is typically used for evaluating potential building damage.[7] The RMS velocity is defined as the square-root of the average of the squared amplitude of the vibration signal and is typically more suitable for evaluating human response to ground-borne vibration.[8] The RMS

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[6] *State of California, General Plan Guidelines, 2003. Culver City General Plan Noise Element, Approved July 22, 1996.*

[7] *Vibration levels described in this report are in terms peak particle velocity level in the unit of inches per second.*

[8] *Federal Transit Administration (FTA), "Transit Noise and Vibration Impact Assessment," Section 5.1, September 2018.*

vibration velocity level can be presented in inch per second or in VdB (a decibel unit referenced to 1 micro-inch per second).[9] Ground-borne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance away from the source of the vibration.

2.3 Application Noise Standards

Government agencies have established noise standards and guidelines to protect citizens from potential hearing damage and other adverse physiological and social effects associated with noise. The Culver City General Plan establishes CNEL guidelines for land use compatibility and includes number of goals, objectives, and policies for land use planning purposes. The City also has regulations to control excessive and annoying noise, as set forth in the Culver City Municipal Code (CCMC) Chapters 9.04 and 9.07. Standards and guidelines that may be applicable to this Project are discussed below.

2.3.1 Culver City General Plan Noise Element

The overall purpose of the General Plan Noise Element is to guide policy makers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels. The following Culver City Noise Element policies and objectives are applicable to the Project:[10]

Objective 1. Land Use Compatibility: Ensure the compatibility of adjacent land uses with regard to noise sources and receptors.

Policy 1.A: Ensure the consistent application of adopted noise standards and criteria in the review of all discretionary land use decisions.

Policy 1.D: Investigate the opportunity to construction barriers to mitigate sound emissions where necessary and where feasible.

Objective 2. Stationary Noise Sources: Protect those areas that are or may be subject to unacceptable noise from stationary noise sources.

Policy 2.A: Create a comprehensive ordinance establishing noise regulation criteria, and standards for noise sources and receptors to include but not limited to the following:

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[9] *VdB (velocity level in decibel) = 20 x Log (V / V_{ref}), where V is the RMS velocity amplitude in micro-inch per second and V_{ref} is the reference velocity amplitude of $1x10^{-6}$ inch per second (1 micro-inch per second).*

[10] *Culver City General Plan Noise Element, Approved July 22, 1996.*

- Noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses, such as schools, hospitals, convalescent homes, and libraries.

- Standards for mechanical equipment such as fans, air conditioners, compressors, and exhaust vents.

- Temporary sound barrier installation at construction site if construction noise is impacting nearby noise sensitive land uses.

- Noise abatement and acoustical design criteria for construction and operation of any new development.

Policy 2.B: Require addition of noise reduction features to all existing and proposed stationary-related noise sources which exceed established noise standards to reduce impacts on noise sensitive land uses.

The City's maximum allowed exterior/interior noise standards in CNEL standards are provided in Table 2 (below).

Table 2. Culver City Interior and Exterior Noise Standards

Land Uses	Interior, dBA CNEL	Exterior, dBA CNEL
Residential	45	65
Hotel, Motel, Transient Lodging	45	65
Commercial Retail	55	--
Office Building	50	--

-- No applicable standard.
Source: Culver City General Plan Noise Element, Table N-3, November 1996.

2.3.2 Culver City Municipal Code

The following sections of the Culver City Municipal Code, partially or entirely, may be applicable to the operation of the fuel station:

Section 9.04.015.H Noise Disturbances

1. *General.* Any noise that is made, generated, produced, or continued, whether by a person, activity, animal, fowl, automobile, motorcycle, engine, machine, or other mechanical device, whether on public or private property, in such a manner that it unreasonably disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitivities, or that otherwise violates any provision of the Culver City Municipal Code, including the regulations set forth in Chapter 9.07 ("Noise Regulations") and/or the noise limits set forth in the Culver City Zoning Code. Factors which shall be

considered in determining whether the noise is a nuisance shall include, but not be limited to the following:

(a) The volume of the noise;

(b) The intensity of the noise;

(c) Whether the nature of the noise is usual or unusual;

(d) Whether the origin of the noise is natural or unnatural;

(e) The volume and intensity of the background noise, if any;

(f) The proximity of the noise to residential sleeping facilities;

(g) The nature of the zoning of the area from which the noise emanates;

(h) The density of inhabitation of the area from which the noise emanates;

(i) The time of day or night the noise occurs;

(j) The duration of the noise;

(k) Whether the noise is recurrent, intermittent, or constant;

(l) Whether the noise is produced by commercial or noncommercial activity; and

(m) Whether the noise is a consequence or expected result of an otherwise lawful use.

4. *Mechanical noise or construction noise near residential zones.*

(a) The use or operation of any automobile, motorcycle, engine, machine, or mechanical device, or other contrivance or facility, or the carrying on of any trade or business, causing between the hours of 8:00 p.m. and 8:00 a.m., any loud or unusual noise or sound, disturbing the peace of residents of a residentially zoned neighborhood.

(b) Any construction or excavation work, except between the hours of 8:00 a.m. and 8:00 p.m. Mondays through Fridays, or between the hours of 9:00 a.m. and 7:00 p.m. on Saturdays, or between the hours of 10:00 a.m. and 7:00 p.m. on Sundays.

Section 9.04.035 Construction

A. All construction activity shall be prohibited, except between the hours of:

- 8:00 a.m. and 8:00 p.m. Mondays through Fridays

- 9:00 a.m. and 7:00 p.m. Saturdays

- 10:00 a.m. and 7:00 p.m. Sundays

B. It is prohibited for any person to operate a device, which amplified music or sound, at a construction site in a manner that results in noise levels that are audible beyond the construction site property line.

D. In the case of an emergency, the Building Office may issue a permit for construction activity for periods during which construction is prohibited by Subsection A. of this Section. Such permit shall be issued for only the period of the emergency.

2.4 Applicable Vibration Standards

The City does not have any adopted standards, guidelines, or thresholds relative to ground-borne vibration. As such, available guidelines from the Federal Transit Administration (FTA) are utilized to assess impacts due to ground-borne vibration. The FTA has published a technical manual titled, "Transit Noise and Vibration Impacts Assessment," that provides ground-borne vibration impact criteria with respect to building damage during construction activities.[11] Table 3 (below) provides the vibration criteria (based on FTA) applicable to construction activities. According to FTA guidelines, a vibration criterion of 0.2 PPV should be considered as the significant impact level for non-engineered timber and masonry buildings. Structures or buildings constructed of reinforced concrete, steel, or timber, have a vibration damage criterion of 0.5 PPV, and structures that are extremely susceptible to vibration damage have a vibration damage criterion of 0.12 PPV, pursuant to the FTA guidelines.

Table 3. FTA Construction Vibration Impact Criteria for Building Damage

Building Category	Peak Particle Velocity (PPV), (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
Source: FTA, 2018	

In addition, the FTA guidance manual also provides vibration criteria for human annoyance for various uses. These criteria were established primarily for rapid transit (rail) projects and, as indicated in Table 4 (on page 14), are based on the frequency of vibration events. Specific criteria are provided for three land use categories: (1) Vibration Category 1—High Sensitivity; (2) Vibration Category 2—Residential; and (3) Vibration Category 3—Institutional.

[11] *FTA, "Transit Noise and Vibration Impact Assessment," September 2018.*

Table 4. FTA Construction Vibration Impact Criteria for Human Annoyance

Land Use Category	Ground-Borne Vibration Impacts Levels (VdB)		
	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Building where vibration would interfere with interior operations	65[d]	65[d]	65[d]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

[a] *"Frequent Events" are defined as more than 70 vibration events of the same source per day.*
[b] *"Occasional Events" are defined as between 30 and 70 vibration events of the same source per day.*
[c] *"Infrequent Events" are defined as fewer than 30 vibration events of the same source per day.*
[d] *This criterion limit is based on the levels that are acceptable for most moderately sensitive equipment such as optical microscopes.*
Source: FTA, 2018

2.5 Existing Ambient Noise Levels

Some land uses are considered more sensitive to intrusive noise than others based on the types of activities typically involved at the receptor location. Based on a review of the land uses in the Project area, a total of five noise sensitive receptor locations were selected to represent nearest noise sensitive uses surrounding the Project site. The locations of the five noise-sensitive receptors are identified as R1 through R5 in Figure 2 (on page 15). Descriptions of the noise receptor locations are provided in Table 5 (on page 16).

Ambient noise measurements were taken at five selected off-site locations (R1 through R5). The ambient noise monitoring program was conducted using a Larson-Davis Model 870 Integrating/Logging Sound Level Meters, the sound level meter meets the minimum industry standard performance requirements for "Type 1" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. Two 15-minute measurements, one during the daytime hours (between 9 a.m. and 11 a.m.) and another during the nighttime hours (between 12 a.m. and 2 a.m.), were conducted at the off-site receptor locations, on May 19, 2021.

Table 6 (on page 16) presents the measured ambient noise levels at the selected noise receptors located in the close vicinity of the Project site, in L_{eq} (average sound level). Based on field observation and measured sound data, the current ambient noise environment in the vicinity of the Project Site is controlled primarily by vehicular traffic on local roadways and other typical urban noise. As indicated in Table 6, the existing daytime ambient noise levels ranged from 52.6 dBA L_{eq} at receptor R5 to 71.3 dBA L_{eq} at receptor R4. The existing nighttime ambient noise levels ranged from 40.0 dBA L_{eq} at receptor R2 to 62.6 dBA L_{eq} at receptor R4.

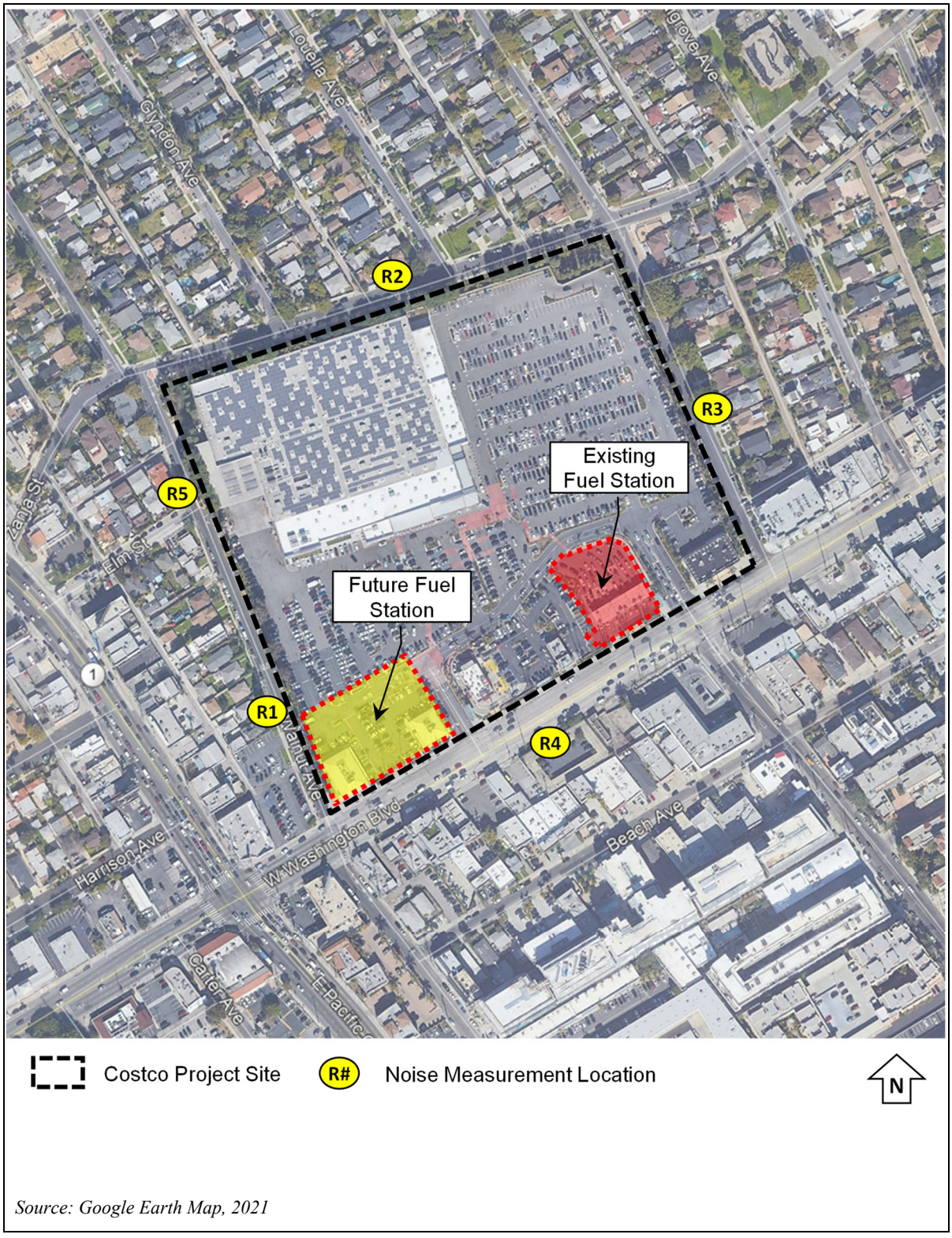

Figure 2. Noise Receptor Locations

Table 5. Description of Noise Receptor Locations

Location	General Description of Measurements Locations	Approximate Distance to Future Relocated Fuel Station, Feet	Representing Nearby Land Uses
R1	Residence at 2567 Walnut Avenue, west of the Project Site	75	Residential
R2	Residence at 2489 Louella Avenue, north of the Project Site	865	Residential
R3	Residence at 3942 Glencoe Avenue, east of the Project Site	820	Residential
R4	Encore Motel Venice at 13432 Washington Boulevard, south of the Project Site	180	Motel
R5	Residence at 1231 Elm Street, northwest of the Project Site	515	Residential

Source: AES, 2021

Table 6. Existing Ambient Noise Levels

Location	Noise-Sensitive Land Use	Measured Ambient Noise Levels, dBA L_{eq}		24-hour CNEL[a]
		Daytime Hours (between 9 a.m. and 11 a.m.)	Nighttime Hours (between 12 a.m. and 2 a.m.)	
R1	Residential	55.9	45.3	56.8
R2	Residential	56.0	40.0	56.0
R3	Residential	53.4	46.9	55.8
R4	Motel	71.3	62.6	72.8
R5	Residential	52.6	45.7	54.8

[a] *Calculated based on short-term (15-minute) noise measurements based on FTA procedures. Calculations procedure and assumptions are depicted on the project ambient noise measurements in Appendix A.*

Source: AES, 2021, See Appendix A for detail ambient noise measurements data.

3 IMPACT ANALYSIS

3.1 Methodology

3.1.1 Construction Noise

Construction noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the construction-related noise levels at representative sensitive receptor locations and comparing these estimated construction-related noise levels to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). Construction noise associated with the Project was analyzed based on the Project's potential construction equipment inventory, construction durations, and construction schedule. The construction equipment noise levels are based on the published noise data (equipment source levels) by the FHWA "Roadway Construction Noise Model (FHWA 2006)." The construction noise levels were then calculated for sensitive receptor locations based on the standard point source (e.g., generator or bulldozer) noise-distance attenuation factor of 6 dBA for each doubling of distance. Additional noise attenuation was assigned to receptor locations where the line-of-sight to the Project Site was interrupted by the presence of intervening structures. For the noise analysis, a 5 dBA attenuation was assigned for receptor locations where the acoustic line-of-sight is just interrupted (i.e., around the edge of a building) and up to 15 dBA for receptor locations where the acoustic line-of-sight is fully interrupted (i.e., by intervening buildings).

3.1.2 Construction Vibration

Ground-borne vibration impacts due to the Project's construction activities were evaluated by identifying potential vibration sources (i.e., construction equipment), estimating the vibration levels at the potentially affected receptors (building structures), and comparing the Project's activities to the applicable vibration significance thresholds, as described below.

Vibration levels were calculated based on the FTA published standard vibration velocities for various construction equipment operations.[12] The vibration velocities were calculated based on a point source with standard distance propagation conditions, pursuant to FTA procedures. Construction of the Project would not use impact pile driving methods and as such, impact pile driving vibration is not included in this construction vibration analysis.

3.1.3 Operational Noise

On-site stationary point-source noise impacts were evaluated by (1) identifying the noise levels that would be generated by the Project's stationary noise sources, such as product dispensers and fuel delivery trucks, (2) calculating the noise level from each noise source at surrounding

[12] *FTA, "Transit Noise and Vibration Impact Assessment," Table 7-4, September 2018.*

sensitive receptor property line locations; and (3) comparing such noise levels to ambient noise levels to determine significance. The on-site stationary noise sources were calculated using SoundPLAN (version 8.2), a 3-dimensional computer noise prediction model, which calculates noise transference (propagation) using approved engineering procedures and incorporates national and international noise standards. This calculation tool is widely used by acoustical engineers as a noise modeling tool for environmental noise analysis. In addition, the SoundPLAN utilizes the FHWA's TNM 2.5 (FHWA and Caltrans official traffic noise model) for traffic noise calculations (i.e., fuel delivery trucks).

3.2 Significance Thresholds

In accordance with the State CEQA Guidelines Appendix G, the Project would have a significant impact related to noise if it would result in the:

Threshold (a): *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies,*

Threshold (b): *Generation of excessive groundborne vibration or groundborne noise levels.*

Threshold (c): *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.*

3.2.1 Construction Noise

Based on the City Municipal Code described above, significant noise impacts would occur if any of the following occur:

- Project construction activities occur between the hours of 8:00 p.m. and 8:00 a.m. on Mondays through Fridays; 7:00 p.m. and 9:00 a.m. on Saturdays; and 7:00 p.m. and 10:00 a.m. on Sundays.
- Project construction activities would result in noise levels 5 dBA L_{eq} greater than the measured ambient noise levels (see Table 6 on page 16) at noise-sensitive receptors.

3.2.2 Construction Vibration

As described above, the City does not have significance criteria to assess vibration impacts during construction. Thus, FTA guidelines set forth in FTA's Transit Noise and Vibration Assessment are used to evaluate the Project's potential vibration impacts for both building damage and human annoyance. Based on this FTA guidance, impacts relative to ground-borne

vibration associated with potential building damage would be considered significant if any of the following future events were to occur:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidelines, construction vibration impacts associated with human annoyance would be significant if the following were to occur:

- Project construction activities cause ground-borne vibration levels to exceed 80 VdB at off-site sensitive uses, including residential and hotel uses.

3.2.3 Operations Noise

The City Municipal Code does not have quantitative noise limits as specifically applied to the proposed fuel station operation. However, as noted above the City Municipal Code Section 9.04.015.H and Section 9.07.15 prohibits the following:

(a) The use or operation of any automobile, motorcycle, engine, machine, or mechanical device, or other contrivance or facility, or the carrying on of any trade or business, causing between the hours of 8:00 p.m. and 8:00 a.m., any loud or unusual noise or sound, disturbing the peace of residents of a residentially zoned neighborhood.

(b) Any noise which is reasonably determined to be excessively loud, piercing, or offensive to occupants of neighboring properties.

As previously discussed, with respect to the community noise assessment, changes in noise levels less than 3 dBA are generally not discernable to most people, while changes greater than 5 dBA are readily noticeable and would be considered a significant increase. As such, the significance threshold for the proposed fuel station operation is based on human perceptibility to changes in noise levels (increases), with regards to the existing ambient noise conditions.

As discussed above, the City (Municipal Code) currently does not have a quantitative noise limits; however, the City Municipal Code Section 9.04.015.H prohibits loud or unusual noises. This can be interpreted as an increase of 3 or 5 dBA above the existing ambient noise levels,

as further described below. Therefore, the Project noise impact thresholds are based on the City General Plan Noise Element exterior noise standard (in terms of 24-hour CNEL) and other municipalities (in terms of 1-hour L_{eq}). Based on the aforementioned thresholds, the Project operation would have a noise impact on the current outdoor sound environment if:

- The noise level generated by the fuel station operation increase the existing ambient noise level (L_{eq}) at noise sensitive uses by 5 dBA.

- The noise level generated by the fuel station operation increase the existing CNEL ambient noise levels at noise sensitive uses by 5 dBA where the existing ambient noise level is less than 65 dBA CNEL (City's exterior noise standard for residential, school and church uses, see Table 2 on page 11) or 3 dBA where the existing ambient noise level is 65 dBA CNEL or greater.

3.3 Project Design Features

The following Project Design Features would be implemented as part of the Project to reduce the construction-related noise impacts:

PDF-1: Temporary noise barriers would be provided at the following locations to block the line-of-sight between the construction equipment and the adjacent noise sensitive uses.

- Along the project's western property line. The noise barrier shall provide minimum 20 dBA noise reduction (minimum 16 feet high, relative to local grade elevation) at the residences across the Project Site to the west (receptor location R1).

- Along the project's northern property line. The noise barrier shall provide minimum 5 dBA noise reduction (minimum 6 feet high, relative to local grade elevation) at the residences to the northwest (receptor location R5).

- Along the existing fuel station eastern property line. The noise barrier shall provide minimum 12 dBA noise reduction (minimum 12 feet high, relative to local grade elevation) to the residences across the Project Site to the east (receptor location R3).

PDF-2: The Project contractor will use power construction equipment with properly operating and maintained noise shielding and muffling devices, consistent with manufacturers' standards.

PDF-3: The Project construction activities will avoid concurrent construction with the Washington Boulevard Stormwater and Urban Runoff Project (City's Stormwater Project) as follows:

- Avoid concurrent construction within 500 feet of the City's Stormwater Project and receptor location R1
- Avoid concurrent construction within 400 feet of the City's Stormwater Project and receptor location R3
- Avoid concurrent construction within 100 feet of the City's Stormwater Project and receptor location R4

3.4 Construction Noise Impacts

Noise impacts from Project construction activities would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Construction activities for the Project would generally include demolition, site grading and excavation, building construction, and landscaping. Each stage of construction would involve the use of various types of construction equipment and would, therefore, have its own distinct noise characteristics. Demolition would involve the use of jackhammers, excavators, breakers, backhoes, and heavy-duty trucks. Grading and excavation would require the use of graders, excavators, breakers, jackhammers, backhoes, compactors, and heavy-duty trucks. Building construction would involve the use of air compressors, cranes, concrete trucks, paving trucks, compactors, and delivery trucks. Landscaping would involve the use of backhoes and work trucks. Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project Site.

Individual pieces of construction equipment that would be used for construction of the Project produce maximum noise levels of 75 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in Table 7 (on page 22). The construction equipment noise levels at 50 feet distance (Referenced Maximum Noise Levels) are based on the FHWA Roadway Construction Noise Model User's Guide (RCNM, 2006), which is a technical report containing actual measured noise data for construction equipment. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites often operate under less than full power conditions, or part power. To more accurately characterize construction-period noise levels, the average (Hourly L_{eq}) noise level associated with each construction stage is calculated based on the quantity, type, and usage factors for each type of equipment that would

be used during each construction stage.[13,14] These noise levels are typically associated with multiple pieces of equipment operating simultaneously.

Table 7. Construction Equipment Noise Emission Levels and Usage Factors

Type of Equipment	Acoustical Usage Factor[a] (%)	Reference Maximum Noise Levels at 50 Feet,[b] L_{max} (dBA)
Air Compressor	40	78
Backhoe	40	78
Breaker	20	90
Compactor	20	83
Concrete Mixer Truck	40	79
Crane	16	81
Excavator	40	81
Forklift	20	75
Generator	50	81
Grader	40	85
Dump/Haul Truck	40	76
Jackhammer	20	89
Paving Equipment	50	77

[a] *The usage factor is the estimated percentage of time during an 8-hour day that a piece of construction equipment is operating at full power.*

[b] *Construction equipment noise levels are based on the FHWA RCNM.*

Source: FHWA Roadway Construction Noise Model User's Guide, Table 1, 2006

Construction would start at the future fuel station, with demolition of the existing buildings at the future fuel station location, follow by grading/excavation, building construction, and site civil works; and followed by demolition of the existing station, site civil works and landscaping. As indicated above, temporary construction noise barrier will be provided at the Project construction areas, as specified by the Project Design Feature PDF-1, to reduce the construction-related noise to the off-site sensitive receptors. Table 8 (on page 23) provides the estimated, unmitigated construction noise levels at the off-site noise sensitive receptors by construction phase. To present a conservative impact analysis, the estimated noise levels were calculated with all pieces of construction equipment assumed to be operating simultaneously and located at the construction area nearest to the affected receptors. As indicated in Table 8, the estimated construction noise levels would be below the Project daytime significance

[13] *Pursuant to the FHWA Roadway Construction Noise Model User's Guide, 2005, the usage factor is the percentage of time during a construction noise operation that a piece of construction is operating at full power.*

[14] *Construction noise levels are calculated in terms of hourly L_{eq} consistent with the City's exterior noise limits.*

Table 8. On-Site Construction Noise Impacts

Receptor Location	Ambient Noise Levels, dBA (L_{eq})	Estimated Construction Noise Levels by Phase,[a] dBA (L_{eq})								Significance Threshold,[b] dBA (L_{eq})	Sig. Impacts?
		Demo Existing Buildings	Grading/ Excavation and Utilities for New Station	Building New Station	Demo Curbs Planters at New Station	Civil Put-Back Curbs Planters at New Station	Demo of Existing Station	Civil Put-back at Existing Station	Landscaping at Existing Station		
R1	55.9	56.4	59.9	56.2	59.0	58.3	39.5	36.1	28.8	60.9	No
R2	56.0	46.7	48.2	46.1	46.2	45.4	53.3	49.9	43.3	61.0	No
R3	53.4	45.1	46.6	43.9	44.6	43.9	57.5	54.1	47.7	58.4	No
R4	71.3	74.9	75.6	71.9	73.9	73.1	72.2	68.7	62.9	76.3	No
R5	52.6	54.4	57.4	53.9	55.5	54.7	47.5	44.0	37.2	57.6	No

[a] *Estimated noise levels include the noise reduction provided by the temporary construction noise barriers, as specified by the Project Design Feature PDF-1.*

[b] *Significance thresholds are equivalent to the measured ambient noise levels plus 5 dBA.*

Source: AES, 2021.

threshold at all off-site noise receptors.

The Project would also include the use of two generators during the construction phase. One 75 KVA generator would be used for the construction activities and one 80 KVA generator would be used for the fuel facility operation. The generator for the construction would be used during the daytime construction hours and the generator for the fuel facility operation would be used 24 hours per day. The generator would generate a noise level of 72 dBA at 23 feet distance. Table 9 (below) provides the estimated generator noise levels at the off-site noise sensitive receptors. As indicated in Table 9, the estimated generator noise levels would be below the Project daytime and nighttime significance threshold at all off-site noise receptors. As such, construction noise impacts would be less than significant; and, therefore, no mitigation measure is required.

In addition, the City's Stormwater Project could have concurrent construction with the Project. Noise from construction is typically localized and has the potential to affect noise-sensitive uses near the construction site. As specified by the Project Design Feature PDF-3 above, the Project would avoid concurrent construction activities with the City's Stormwater Project, which would avoid potential cumulative noise impacts. As such, potential cumulative construction noise impacts would be less than significant; and, therefore, no mitigation measure is required.

Table 9. Generator Noise Levels during Construction

Receptor Location	Ambient Noise Levels, dBA (L_{eq})		Estimated Generator Noise Levels,[a] dBA (L_{eq})		Significance Threshold,[b] dBA (L_{eq})		Sig. Impacts?
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	
R1	55.9	45.3	53.1	42.2	60.9	50.3	No
R2	56.0	40.0	28.6	25.9	61.0	45.0	No
R3	53.4	46.9	37.8	35.4	58.4	51.9	No
R4	71.3	62.6	50.7	49.0	76.3	67.6	No
R5	52.6	45.7	42.4	38.8	57.6	50.7	No

[a] *Estimated noise levels include the noise reduction provided by the temporary construction noise barriers, as specified by the Project Design Feature PDF-1.*

[b] *Significance thresholds are equivalent to the measured ambient noise levels plus 5 dBA.*

Source: AES, 2024.

3.5 Construction Vibration Impacts

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that travel through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the

construction site often varies, depending on soil type, ground strata, and construction characteristics of the receptor buildings.

With regard to potential building damage, the Project would generate ground-borne construction vibration forces during building demolition and site excavation/grading activities when heavy construction equipment, such as large bulldozers, drill rigs, and loaded trucks, would be used. The FTA has published standard vibration velocity levels for various construction equipment operations. Table 10 (below) presents the typical vibration levels at a reference distance of 25 feet for construction equipment anticipated to be used during Project construction. Vibration impacts with regard to structures are evaluated at the nearest off-site buildings to the Project Site (north, south, east, and west), whereas the potential for human annoyance associated with construction-related vibration are evaluated at the five human annoyance vibration-sensitive receptor locations (receptor locations R1 through R5).

Table 10. Construction Equipment Vibration Levels

Equipment	Equipment vibration Levels at 25 feet, (PPV/VdB)
Large Bulldozer (e.g., excavators, graders)	0.089/87
Loaded Trucks (e.g., haul trucks)	0.076/86
Jackhammer	0.035/79
Small Bulldozer (e.g., backhoe)	0.003/58
Source: FTA, 2018	

Table 11 (on page 26) provides the estimated vibration levels (in terms of inch per second PPV) at the nearest off-site structures adjacent to the Project Site. To present a worst-case analysis, the estimated vibration levels were calculated with the construction equipment assumed to be operating at the closest distance to the nearest off-site building structures. As indicated in Table 11, the estimated vibration velocity levels from all construction equipment would be below the building damage significance criteria at all off-site building structures. As such, on-site vibration impacts, pursuant to the significance criteria for building damage, during construction of the Project would be less than significant.

Table 11. Construction Vibration Impacts – Building Damage

Nearest Off-Site Building Structures[a]	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment,[b] inch/second (PPV)				Significance Threshold, inch/second (PPV)	Sig. Impacts?
	Large Bulldozer[d]	Loaded Trucks[d]	Jack-hammer[e]	Small Bulldozer[f]		
Residential buildings to the north, along Zanja Street	0.001	0.001	<0.001	<0.001	0.20[c]	No
Commercial buildings to the south, along Washington Boulevard	0.011	0.010	0.004	<0.001	0.20[c]	No
Residential buildings to the east, along Glencoe Avenue	0.002	0.002	0.001	<0.001	0.20[c]	No
Residential buildings to the west, along Walnut Avenue	0.017	0.015	0.007	0.001	0.20[c]	No

[a] *Represents off-site building structures located nearest to the Project Site to the north, south, east and west.*
[b] *Vibration levels calculated based on FTA reference vibration level at 25-foot distance.*
[c] *FTA criteria for non-engineered concrete and masonry buildings.*
Source: FTA, 2018; AES, 2021

Table 12 (below) presents the estimated vibration velocity levels (in terms of VdB) due to construction equipment at the off-site vibration sensitive receptors. To present a worst-case analysis, the estimated vibration levels were calculated with the construction equipment assumed to be operating at the closest distance to the nearest off-site sensitive receptors. As indicated in Table 12, the estimated vibration levels due to on-site construction equipment would be below the significance threshold for human annoyance at all off-site receptor locations. Therefore, on-site vibration impacts, pursuant to the significance criteria for human annoyance, during construction of the Project would be less than significant.

Table 12. Construction Vibration Impacts – Human Annoyance

Off-Site Receptor Location	Estimated Vibration Velocity Levels at the Nearest Off-Site Sensitive Receptors from the Project Construction Equipment,[a] VdB				Significance Threshold, VdB	Sig. Impacts?
	Large Bulldozer[c]	Loaded Trucks[c]	Jack-hammer[d]	Small Bulldozer[e]		
R1	73	72	65	44	80	No
R2	44	43	36	15	80	No
R3	54	53	46	25	80	No
R4	61	60	53	32	80	No
R5	48	47	40	19	80	No

[a] *Vibration levels calculated based on FTA reference vibration level at 25-foot distance.*
Source: FTA, 2018; AES, 2021.

3.6 Operation Impacts

Noise levels associated with the fuel station operation would include product dispensers, vehicle queuing, and product delivery trucks. Reference noise levels associated with the product dispensers, vehicle queueing, and product delivery trucks were measured at the existing Culver City Costco fuel station on May 19, 2021. Table 13 below presents the measured noise levels from the existing Costco fuel station operations. The measured noise levels are used reference noise levels for the future fuel station.

Table 13. Costco Fuel Station Measured Noise Levels

Fuel Station Equipment Noise Source	Measured Noise Levels,[1] dBA L_{eq}
Product Dispenser	65.7 dBA at 3 feet
Vehicle Queueing (with 24 vehicles in the queue)	59.6 dBA at 25 feet
Product Truck Delivery	71.6 dBA at 10 feet

[1] *Measured noise levels at the existing Culver City Costco Fuel Station, on 5/19/2021*
Source: AES, 2021

3.6.1 Product Dispensers and Vehicle Queueing

The gas station will be located at the southwest corner of the Project Site and will include fifteen (15) product dispensers. In addition, the vehicle queue area will allow for up to 16 vehicles in queue. It should be noted that the new fuel facility will provide an additional seven (7) product dispensers beyond the existing eight (8) product dispensers to expedite the processing of vehicles during peak times. This increase in dispensers will provide a reduction in peak period queues and wait times as more dispensers are available to process queues. Queues are anticipated to reduce from the existing peak queue of 24 vehicles (as noted in Table 12) to 16 vehicles. Noise levels from the product dispensers and vehicles queueing to the off-site noise sensitive receptors were calculated based on the measured noise levels at the existing fuel station, as described above. The noise analysis assumed all fifteen (15) product dispensers would be operating at the same time and the vehicle queuing area would be filled with 16 vehicles to represent a worst-case scenario (a highly conservative noise scenario). Table 14 (on page 28) presents the estimated noise levels associated with the fuel station product dispensers and vehicle queueing at the off-site receptor locations. As shown on Table 14, the estimated noise levels from the product dispensers and vehicle queueing range from 13.5 dBA (L_{eq}) at receptor R2 to 43.6 dBA (L_{eq}) at receptor location R1, which would be below the existing ambient noise levels. As such, the estimated noise levels at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) above ambient noise levels. Therefore, noise impacts from product dispensers and vehicle queueing would be less than significant; and, therefore, no mitigation measure is required.

Table 14. Product Dispensers and Vehicle Queueing Noise Levels

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Project Product Dispensers and Vehicle Queueing,[a] dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[b]	Exceed over Significance Threshold	Significant Impact?
R1	45.3	43.6	47.5	50.3	0.0	No
R2	40.0	13.5	40.0	45.0	0.0	No
R3	46.9	27.5	46.9	51.9	0.0	No
R4	62.6	41.4	62.6	67.6	0.0	No
R5	45.7	30.7	45.8	50.7	0.0	No

Notes:
[a] *Noise levels were calculated based on measured noise levels at the existing Culver City Costco fuel station.*
[b] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower plus 5 dBA.*
Source: AES, 2021

3.6.2 Product Delivery Trucks

As described above, product deliveries would occur during the nighttime hours between 10:00 p.m. and 6:00 p.m. with up to eight (8) deliveries per day, evenly distributed with one (1) product delivery per hour. The delivery truck would enter the fuel station from the southwestern entrance (along Washington Boulevard) and exit through the same entrance. Table 15 (on page 29) presents the estimated noise levels associated with the delivery trucks at the off-site noise sensitive receptors. As indicated in Table 15, the estimated noise levels from the product delivery truck operation range from 30.3 dBA (L_{eq}) at receptor R2 to 52.5 dBA (L_{eq}) at receptor location R4, which would be consistent with the existing ambient noise levels. As such, the estimated noise levels increase at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) increase over the ambient noise levels. Therefore, noise impacts from product delivery truck would be less than significant; and, therefore, no mitigation measure is required.

Table 15. Product Delivery Truck Noise Levels

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Project Product Delivery Truck,[a] dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[b]	Exceed over Significance Threshold	Significant Impact?
R1	45.3	48.2	50.0	50.3	0.0	No
R2	40.0	30.3	40.4	45.0	0.0	No
R3	46.9	37.0	47.3	51.9	0.0	No
R4	62.6	52.5	63.0	67.6	0.0	No
R5	45.7	38.2	46.4	50.7	0.0	No

Notes:
[a] *Noise levels were calculated based on measured noise levels at the existing Culver City Costco fuel station.*
[b] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower plus 5 dBA.*
Source: AES, 2021

As presented above, the estimated noise levels associated with product delivery trucks would be below the City's nighttime noise limit. Nevertheless, a noise analysis is carried out to address the potential sleep disturbance using the Sound Exposure Level (SEL). It should be noted that the SEL analysis with respect to potential sleep disturbance is mainly applicable to aviation related noises. Currently, there are no noise standard, or limit, to address traffic noise impacts on sleep (sleep disturbance), using SEL noise descriptor. Therefore, the recommended SEL noise limit from the LAX South Airfield Improvement Project EIR (LAX EIR) was used to evaluate potential sleep disturbance for the Project, which specified a maximum 81 dBA SEL at the interior of the residence.[15] Per the LAX EIR, buildings with window open would provide approximately 13 dBA exterior/interior noise reduction. Therefore, based on the interior noise limit of 81 dBA SEL and typical noise reduction of building with window open of 13 dBA, the maximum exterior noise limit would be 94 dBA SEL, threshold for the sleep disturbance to occur. The estimated SEL due to a product delivery truck would range from 65.9 dBA SEL at the exterior of receptor R2 (residence to the north) to 88.1 dBA SEL at the exterior of receptor R4 (motel to the south). The estimated SEL at the exterior of the nearest residence (receptor R1) would be 83.8 dBA SEL. As analyzed, the estimated SEL levels at all off-site sensitive receptor would be well below the 94 dBA SEL exterior noise limits. In addition, the estimated SEL at the interior of the residence, with the window opens (worst-case

[15] LAX Project EIR, although the *Berkeley Jets* case ruling directed that the significance of single event noise effects be addressed in an EIR, there was no established basis for defining or assessing the significance of single event aircraft noise, and the Court of Appeal did not set forth any standards of significance in the evaluation of such events.

noise scenario) would be approximately 52.9 to 75.1 dBA SEL, which would be below the 81 dBA SEL interior noise limits.

3.6.3 Temporary Generator

As described above, a temporary 80 KVA generator would be used for the new fuel facility operation. The temporary generator for the new fuel facility operation would be used 24 hours per day, on a temporary basis. Table 16 (below) provides the estimated generator noise levels at the off-site noise sensitive receptors. As indicated in Table 16, the estimated generator noise levels would be below the Project significance threshold at all off-site noise receptors. As such, noise impacts associated with the temporary use of the generator would be less than significant; and, therefore, no mitigation measure is required.

Table 16. Temporary Generator Noise Levels

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Temporary Generator, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceed over Significance Threshold	Significant Impact?
R1	45.3	42.2	47.0	50.3	0.0	No
R2	40.0	25.9	40.2	45.0	0.0	No
R3	46.9	35.4	47.2	51.9	0.0	No
R4	62.6	49.0	62.8	67.6	0.0	No
R5	45.7	38.8	46.5	50.7	0.0	No

Notes:
[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower plus 5 dBA.*
Source: AES, 2024

3.6.4 Composite Operational Noise Levels

An evaluation of composite operational noise levels, including all Project related noise sources plus existing ambient noise levels, was conducted to identify the potential Project-related noise level increase that may occur at the noise-sensitive receptor locations. Noise sources associated with the Project would include product dispensers, vehicle queueing, and product delivery trucks. Table 17 (on page 31) presents the estimated noise from Project-related noise sources in terms of CNEL. As indicated in Table 17, the Project would result in a maximum increase of 0.1 dBA CNEL at receptor R2 to 2.4 dBA CNEL at receptor R1. The increases in noise levels due to Project operations at off-site receptors R1, R2, R3 and R5 would be below the 5 dBA CNEL significance threshold, as the estimated noise levels would be below 65 dBA CNEL. The estimated noise level increase at off-site receptor R4 would be below the 3 dBA CNEL significance threshold for noise level greater than 65 dBA CNEL. Therefore, the

composite noise level impacts due to Project operation would be less than significant; and, therefore, no mitigation measure is required.

Table 17. Composite Operational Noise Impacts

Receptor Location	Calculated Project-Related Noise Levels, CNEL (dBA)			Project Composite Noise Levels, CNEL (dBA)	Ambient Noise Levels,[a] CNEL (dBA)	Ambient Plus Project Composite Noise Levels, CNEL (dBA)	Increase in Noise Levels Due to Project, CNEL (dBA)	Significance Threshold[b]	Significant Impact?
	Product Dispensers and Vehicle Queueing	Product Delivery Trucks	Temp. Generator						
R1	46.9	53.4	48.8	55.4	56.8	59.2	2.4	61.8	No
R2	16.8	35.5	32.6	37.4	56.0	56.1	0.1	61.0	No
R3	30.8	42.2	42.0	45.3	55.8	56.2	0.4	60.8	No
R4	44.7	57.7	55.7	60.0	72.8	73.0	0.2	75.8	No
R5	34.0	43.4	45.4	47.7	54.8	55.6	0.8	59.8	No

Notes:

[a] *Ambient in CNEL levels are estimated based on the short-term ambient noise measurements based on FTA procedures.*

[b] *Significance threshold is equal to the existing ambient noise levels plus 5 dBA (where the existing ambient is less than 65 dBA CNEL) or plus 3 dBA (where the existing ambient noise level is 65 dBA CNEL or greater).*

Source: AES, 2024

Appendix A

Ambient Noise Measurements

AES
ACOUSTICAL ENGINEERING SERVICES

Location: R1
Date: 5/19/2021

Time	Leq	Lmax
9:31:01 AM	54.4	57.4
9:31:11 AM	59.2	63.9
9:31:21 AM	51.7	52.8
9:31:31 AM	52.2	53.3
9:31:41 AM	56.4	58.5
9:31:51 AM	56.7	59
9:32:01 AM	51.1	53.2
9:32:11 AM	50.9	53.5
9:32:21 AM	53.9	55.4
9:32:31 AM	55.3	57.8
9:32:41 AM	56.3	57.7
9:32:51 AM	53.8	56.9
9:33:01 AM	55.6	62
9:33:11 AM	59.3	62.7
9:33:21 AM	55	57.4
9:33:31 AM	52.7	54.6
9:33:41 AM	54.5	57.8
9:33:51 AM	51.7	53
9:34:01 AM	51	51.8
9:34:11 AM	50.9	52.6
9:34:21 AM	49.7	50.8
9:34:31 AM	51.1	54.6
9:34:41 AM	60.6	65.4
9:34:51 AM	56.9	62.8
9:35:01 AM	54.8	57.3
9:35:11 AM	55.3	57
9:35:21 AM	53.6	55.5
9:35:31 AM	53.4	54.5
9:35:41 AM	55.2	59.2
9:35:51 AM	54.7	56.7
9:36:01 AM	52.3	53.3
9:36:11 AM	62	66.7
9:36:21 AM	51	53.8
9:36:31 AM	53.1	56.3
9:36:41 AM	54.6	57.2
9:36:51 AM	51.5	52.9
9:37:01 AM	49.9	51.1
9:37:11 AM	49.6	50.8
9:37:21 AM	51.5	53.3
9:37:31 AM	54.8	56.5
9:37:41 AM	57.6	59.3
9:37:51 AM	55.3	57

9:38:01 AM	52.5	55.3
9:38:11 AM	57.3	59.9
9:38:21 AM	54.8	59.3
9:38:31 AM	53	58.1
9:38:41 AM	60.9	65.4
9:38:51 AM	50.2	51
9:39:01 AM	51.1	53.5
9:39:11 AM	51.1	52.6
9:39:21 AM	51.3	52.7
9:39:31 AM	49.5	50.3
9:39:41 AM	51.9	55.2
9:39:51 AM	55	56.8
9:40:01 AM	52.7	55.6
9:40:11 AM	52.2	54.7
9:40:21 AM	50.4	51.6
9:40:31 AM	52.2	52.9
9:40:41 AM	52.4	53.6
9:40:51 AM	50.9	52.6
9:41:01 AM	52.6	54.3
9:41:11 AM	61	66.4
9:41:21 AM	54.4	61.4
9:41:31 AM	50.9	52.6
9:41:41 AM	49.7	50.6
9:41:51 AM	53.4	55.2
9:42:01 AM	56.1	57.2
9:42:11 AM	61.4	67.9
9:42:21 AM	55.1	61.9
9:42:31 AM	52.8	55.4
9:42:41 AM	51.8	52.6
9:42:51 AM	53.6	55.2
9:43:01 AM	52	54.2
9:43:11 AM	60.2	63.7
9:43:21 AM	52.4	55.2
9:43:31 AM	51.6	52.5
9:43:41 AM	53.7	55.8
9:43:51 AM	55.8	61.6
9:44:01 AM	63	67.9
9:44:11 AM	63.3	69.6
9:44:21 AM	63.4	69.2
9:44:31 AM	50.8	53.6
9:44:41 AM	50	51.3
9:44:51 AM	53.1	54.1
9:45:01 AM	62.2	66.6
9:45:11 AM	59.3	65.2
9:45:21 AM	50.9	52.7
9:45:31 AM	52.9	55.2

9:45:41 AM	52.5	53.8
9:45:51 AM	52.4	54
	55.9	

Time	Leq	Lmax
1:23:31 AM	49	50.7
1:23:41 AM	55.2	58.7
1:23:51 AM	47.5	51.1
1:24:01 AM	42.1	43.4
1:24:11 AM	40.6	41.4
1:24:21 AM	42.3	45.5
1:24:31 AM	41.1	43.1
1:24:41 AM	39.9	40.6
1:24:51 AM	43.5	46.9
1:25:01 AM	44.3	47.4
1:25:11 AM	50	52.9
1:25:21 AM	46.9	51
1:25:31 AM	44.2	48.2
1:25:41 AM	47.3	49.8
1:25:51 AM	44.8	48.1
1:26:01 AM	49.9	54.9
1:26:11 AM	41.9	44
1:26:21 AM	42	45.1
1:26:31 AM	39.4	39.8
1:26:41 AM	38.5	39.2
1:26:51 AM	42.3	45
1:27:01 AM	40.4	43.6
1:27:11 AM	42.6	45.9
1:27:21 AM	39.1	42.5
1:27:31 AM	38	38.6
1:27:41 AM	38.7	39
1:27:51 AM	41.2	43.4
1:28:01 AM	39.9	42.8
1:28:11 AM	44.8	46.3
1:28:21 AM	45.2	46.8
1:28:31 AM	43.9	46.5
1:28:41 AM	39.7	41.9
1:28:51 AM	46	50
1:29:01 AM	41.6	42.3
1:29:11 AM	45.2	47.4
1:29:21 AM	41.9	43.6
1:29:31 AM	40.3	41.8
1:29:41 AM	44.1	46.9
1:29:51 AM	44.1	46.8
1:30:01 AM	39.2	39.7
1:30:11 AM	40.2	43.9

1:30:21 AM	41	44.4
1:30:31 AM	38	38.4
1:30:41 AM	38.8	39.9
1:30:51 AM	41.1	43
1:31:01 AM	41.1	43.2
1:31:11 AM	38.9	39.1
1:31:21 AM	42.1	45.6
1:31:31 AM	41.5	44.3
1:31:41 AM	39.3	39.9
1:31:51 AM	39.8	40.7
1:32:01 AM	43.2	47.1
1:32:11 AM	41.7	43.4
1:32:21 AM	40.3	42.9
1:32:31 AM	39.5	40.3
1:32:41 AM	41	42.2
1:32:51 AM	38.6	39.3
1:33:01 AM	38.9	41.1
1:33:11 AM	45.6	50.1
1:33:21 AM	41.7	43.3
1:33:31 AM	42.2	45.2
1:33:41 AM	43.3	46.9
1:33:51 AM	46.2	49.8
1:34:01 AM	51.6	56.7
1:34:11 AM	48.2	54.5
1:34:21 AM	43	44.5
1:34:31 AM	45.7	51.8
1:34:41 AM	49.3	52.7
1:34:51 AM	42.8	45.2
1:35:01 AM	45.8	50.8
1:35:11 AM	40.9	42.7
1:35:21 AM	41	43
1:35:31 AM	40	41.2
1:35:41 AM	41.7	44
1:35:51 AM	45.3	47.8
1:36:01 AM	42.1	44
1:36:11 AM	43.5	45.1
1:36:21 AM	44.6	47.5
1:36:31 AM	40.2	41.1
1:36:41 AM	41.9	44
1:36:51 AM	47.7	49.6
1:37:01 AM	57.1	60.9
1:37:11 AM	48.3	54
1:37:21 AM	47.5	53.3
1:37:31 AM	43.6	48.2
1:37:41 AM	38.7	39.3
1:37:51 AM	38.9	40.9

1:38:01 AM	42	44.4
1:38:11 AM	43.9	45.7
1:38:21 AM	43.5	47.4
	45.3	

AES
Acoustical Engineering Services

Location: R2
Date: 5/19/2021

Time	Leq	Lmax
10:32:43 AM	51.7	55
10:32:53 AM	49.3	50.8
10:33:03 AM	50.5	52.8
10:33:13 AM	60.2	65.6
10:33:23 AM	59.2	67.2
10:33:33 AM	60.2	67.2
10:33:43 AM	52.9	59.6
10:33:53 AM	48.8	49.1
10:34:03 AM	48	49.1
10:34:13 AM	47.2	48.4
10:34:23 AM	49.2	51.9
10:34:33 AM	50.1	54.5
10:34:43 AM	56.9	60.9
10:34:53 AM	51.4	53.7
10:35:03 AM	50.7	52.1
10:35:13 AM	50.8	53.5
10:35:23 AM	50.7	52.3
10:35:33 AM	53.3	55.9
10:35:43 AM	58.5	62.7
10:35:53 AM	54.7	56.8
10:36:03 AM	50.9	51.7
10:36:13 AM	50	51.8
10:36:23 AM	54.6	59
10:36:33 AM	48.2	49.8
10:36:43 AM	47.6	48.4
10:36:53 AM	51.1	54.9
10:37:03 AM	58.8	63.8
10:37:13 AM	47.1	49.3
10:37:23 AM	47.8	49.9
10:37:33 AM	49.2	51.1
10:37:43 AM	58.4	65.8
10:37:53 AM	61.2	68.1
10:38:03 AM	64.5	71.1
10:38:13 AM	59.8	63.8
10:38:23 AM	58.8	65.7
10:38:33 AM	52.5	57.6
10:38:43 AM	53.7	60.2
10:38:53 AM	55	57.6
10:39:03 AM	52.8	57.1
10:39:13 AM	49.2	52.9
10:39:23 AM	47.6	49.1
10:39:33 AM	51.1	52.5

10:39:43 AM	51.2	53.5
10:39:53 AM	51.2	53
10:40:03 AM	50.6	52.2
10:40:13 AM	50.7	52.6
10:40:23 AM	57.2	60.3
10:40:33 AM	57.4	60.4
10:40:43 AM	59.8	64.9
10:40:53 AM	51.7	52.8
10:41:03 AM	49.2	50.7
10:41:13 AM	60.9	67.2
10:41:23 AM	55.6	62.6
10:41:33 AM	59.8	64.3
10:41:43 AM	53.8	55.3
10:41:53 AM	57.9	59.3
10:42:03 AM	58	60
10:42:13 AM	55.6	57
10:42:23 AM	57.1	63
10:42:33 AM	56.4	63
10:42:43 AM	51	52.9
10:42:53 AM	47.1	48
10:43:03 AM	47.2	48.4
10:43:13 AM	49.1	52.3
10:43:23 AM	59.5	63.3
10:43:33 AM	63	69.1
10:43:43 AM	54.7	58.9
10:43:53 AM	55.5	58.1
10:44:03 AM	54.6	57.2
10:44:13 AM	56.1	65.1
10:44:23 AM	60.6	67.1
10:44:33 AM	50.7	52.5
10:44:43 AM	50.8	51.7
10:44:53 AM	53	53.9
10:45:03 AM	50.3	52.4
10:45:13 AM	49.7	52.3
10:45:23 AM	57.9	62.8
10:45:33 AM	50.7	52.8
10:45:43 AM	53.3	55
10:45:53 AM	52	55.1
10:46:03 AM	53.3	56.9
10:46:13 AM	57.5	62.8
10:46:23 AM	54.5	59.2
10:46:33 AM	51.7	55.4
10:46:43 AM	59.9	65.1
10:46:53 AM	51.7	56.2
10:47:03 AM	52.6	54
10:47:13 AM	54.4	56.9

10:47:23 AM	51.7	53.7
10:47:33 AM	62.1	67.9
	56	

Time	Leq	Lmax
12:44:36 AM	37.9	40.9
12:44:46 AM	38.6	40.5
12:44:56 AM	42.2	46.4
12:45:06 AM	37.7	38.9
12:45:16 AM	37.1	38.3
12:45:26 AM	38.6	41.8
12:45:36 AM	39.4	41.9
12:45:46 AM	37.5	38.2
12:45:56 AM	38.1	39.7
12:46:06 AM	39	40.3
12:46:16 AM	38.2	39.4
12:46:26 AM	37.4	38.3
12:46:36 AM	36.6	36.9
12:46:46 AM	37.2	39.5
12:46:56 AM	36.6	37.2
12:47:06 AM	36.1	36.9
12:47:16 AM	36.7	37.3
12:47:26 AM	37.9	38.9
12:47:36 AM	36.9	37.7
12:47:46 AM	36.4	36.9
12:47:56 AM	36.1	37.3
12:48:06 AM	36.2	38.5
12:48:16 AM	36	36.7
12:48:26 AM	36.6	37.4
12:48:36 AM	36.8	37.7
12:48:46 AM	37	37.6
12:48:56 AM	37	37.6
12:49:06 AM	36.5	36.8
12:49:16 AM	36.9	37.5
12:49:26 AM	37.6	38.8
12:49:36 AM	37.1	37.7
12:49:46 AM	36.3	37.2
12:49:56 AM	38.5	41.8
12:50:06 AM	37.5	38.2
12:50:16 AM	36.8	37.3
12:50:26 AM	36.3	36.6
12:50:36 AM	36.7	37.1
12:50:46 AM	36.8	37.1
12:50:56 AM	37.1	37.8
12:51:06 AM	36.8	37.4
12:51:16 AM	37.4	37.9

12:51:26 AM	37.2	38.2
12:51:36 AM	37.1	38.2
12:51:46 AM	36.9	38.3
12:51:56 AM	37.7	38.2
12:52:06 AM	36.8	37.2
12:52:16 AM	36.6	37.1
12:52:26 AM	36.4	37.2
12:52:36 AM	38.2	40.5
12:52:46 AM	40.6	41.6
12:52:56 AM	41.5	45
12:53:06 AM	45	46.9
12:53:16 AM	47.3	49
12:53:26 AM	47.5	48.5
12:53:36 AM	46.7	47.7
12:53:46 AM	42.9	44.8
12:53:56 AM	40.7	42.4
12:54:06 AM	39.3	39.8
12:54:16 AM	38.5	39
12:54:26 AM	38	38.4
12:54:36 AM	37.7	38.7
12:54:46 AM	37.1	37.8
12:54:56 AM	37.4	37.9
12:55:06 AM	37.3	37.9
12:55:16 AM	36.8	37.3
12:55:26 AM	36.8	37.1
12:55:36 AM	37.3	37.9
12:55:46 AM	37.9	39.9
12:55:56 AM	39.1	39.9
12:56:06 AM	38.1	40.1
12:56:16 AM	37.6	38.2
12:56:26 AM	39.1	40.4
12:56:36 AM	37.9	38.6
12:56:46 AM	38.4	40.9
12:56:56 AM	39.7	41.5
12:57:06 AM	38.5	39.8
12:57:16 AM	37.6	38.6
12:57:26 AM	38.4	39.2
12:57:36 AM	37.7	38.5
12:57:46 AM	38.9	40.4
12:57:56 AM	41.7	44.6
12:58:06 AM	38.2	39.3
12:58:16 AM	38.9	40.6
12:58:26 AM	41.4	42.5
12:58:36 AM	38.4	40
12:58:46 AM	40.7	44.8
12:58:56 AM	43.5	45.2

12:59:06 AM	44.1	46.4
12:59:16 AM	47.9	50.7
12:59:26 AM	48.3	50.9
	40.0	

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City Project
Location: R3
Date: 5/19/2021

Time	Leq	Lmax
10:52:08 AM	55.4	59.1
10:52:18 AM	52.9	56.4
10:52:28 AM	50.9	52.9
10:52:38 AM	50.3	51.3
10:52:48 AM	51.8	54.6
10:52:58 AM	52	54.9
10:53:08 AM	51.7	53.1
10:53:18 AM	51.4	52.2
10:53:28 AM	50.2	50.8
10:53:38 AM	51.8	54.1
10:53:48 AM	52	53.4
10:53:58 AM	51.8	53.1
10:54:08 AM	52.9	55.3
10:54:18 AM	52.1	54.4
10:54:28 AM	58.7	67.8
10:54:38 AM	58.2	63.4
10:54:48 AM	58.5	62.3
10:54:58 AM	56.7	60.3
10:55:08 AM	58.1	63.9
10:55:18 AM	61.8	66.3
10:55:28 AM	53.7	54.9
10:55:38 AM	56.4	58.3
10:55:48 AM	54.9	56.3
10:55:58 AM	54.6	56.3
10:56:08 AM	54.4	58.1
10:56:18 AM	50.7	51.8
10:56:28 AM	49.7	51.8
10:56:38 AM	51.1	54.4
10:56:48 AM	49	50.8
10:56:58 AM	54.7	57.9
10:57:08 AM	48.6	51.9
10:57:18 AM	50.9	52.5
10:57:28 AM	48.9	53
10:57:38 AM	59.5	63.4
10:57:48 AM	54.3	60.7
10:57:58 AM	49.8	53.3
10:58:08 AM	46.2	47.2
10:58:18 AM	45.6	46.2
10:58:28 AM	45.9	46.9
10:58:38 AM	46.2	46.8
10:58:48 AM	47.3	48.1

10:58:58 AM	48.4	51
10:59:08 AM	55.9	58.6
10:59:18 AM	50.5	51.6
10:59:28 AM	51	51.9
10:59:38 AM	58.2	62.2
10:59:48 AM	50.5	53.8
10:59:58 AM	49.9	51.9
11:00:08 AM	53.5	56.1
11:00:18 AM	55.7	58.8
11:00:28 AM	51.7	54.4
11:00:38 AM	54.8	58.4
11:00:48 AM	48.4	50.2
11:00:58 AM	46.8	47.7
11:01:08 AM	46.7	50
11:01:18 AM	52.8	54.8
11:01:28 AM	49.4	50.3
11:01:38 AM	53.7	59.5
11:01:48 AM	55.3	59.7
11:01:58 AM	49	51
11:02:08 AM	51.2	56.4
11:02:18 AM	57.1	61.3
11:02:28 AM	48.2	49.1
11:02:38 AM	50.1	51.6
11:02:48 AM	50.2	52
11:02:58 AM	50.8	51.5
11:03:08 AM	52.4	54
11:03:18 AM	51.9	52.8
11:03:28 AM	50.4	51.2
11:03:38 AM	52.6	54.8
11:03:48 AM	52.6	54.4
11:03:58 AM	50.9	53.6
11:04:08 AM	55.2	58.9
11:04:18 AM	49.5	51.7
11:04:28 AM	57.3	64.1
11:04:38 AM	53.6	58.2
11:04:48 AM	54.1	59.8
11:04:58 AM	53.2	59.6
11:05:08 AM	51.7	54.9
11:05:18 AM	48.8	50.7
11:05:28 AM	48.8	49.8
11:05:38 AM	50.1	50.5
11:05:48 AM	48.9	50.1
11:05:58 AM	47.8	48.6
11:06:08 AM	47	48
11:06:18 AM	46.2	47.2
11:06:28 AM	47.3	52

11:06:38 AM	53	58.4
11:06:48 AM	56.5	61.8
11:06:58 AM	54.5	61.2
	53.4	

Time	Leq	Lmax
12:24:55 AM	38.7	39.8
12:25:05 AM	40.2	42.7
12:25:15 AM	43.8	49
12:25:25 AM	43.3	47.6
12:25:35 AM	42.8	46.6
12:25:45 AM	45.6	50
12:25:55 AM	49.6	51.8
12:26:05 AM	53.1	54.8
12:26:15 AM	53	54.3
12:26:25 AM	52.4	53.9
12:26:35 AM	49.6	51
12:26:45 AM	49.7	52.5
12:26:55 AM	45.1	48.3
12:27:05 AM	43.9	45.1
12:27:15 AM	47.2	50
12:27:25 AM	47.8	50.1
12:27:35 AM	47.2	49.5
12:27:45 AM	48.6	53.1
12:27:55 AM	59.8	64.1
12:28:05 AM	45.7	48.6
12:28:15 AM	43.1	46.1
12:28:25 AM	42	42.6
12:28:35 AM	41.3	42
12:28:45 AM	41.4	42.8
12:28:55 AM	50.1	55.2
12:29:05 AM	44.1	48.8
12:29:15 AM	38.2	39.4
12:29:25 AM	39.7	43
12:29:35 AM	44.5	46.3
12:29:45 AM	43.3	47.5
12:29:55 AM	47	49.2
12:30:05 AM	39.7	41.8
12:30:15 AM	41.8	45.3
12:30:25 AM	37.1	37.8
12:30:35 AM	38.5	39.3
12:30:45 AM	45.4	51.1
12:30:55 AM	39.2	42.5
12:31:05 AM	39.2	40.5
12:31:15 AM	44.2	47.4
12:31:25 AM	45.6	49.4

12:31:35 AM	47.2	50.9
12:31:45 AM	47.9	52.5
12:31:55 AM	41.6	47.3
12:32:05 AM	41	44.8
12:32:15 AM	39.2	40.9
12:32:25 AM	40.8	44.6
12:32:35 AM	38.2	39.4
12:32:45 AM	38.8	39.6
12:32:55 AM	45.3	49.4
12:33:05 AM	42.5	43.6
12:33:15 AM	41.6	44
12:33:25 AM	39.3	40.1
12:33:35 AM	39.6	40.9
12:33:45 AM	43.2	46.2
12:33:55 AM	43	45.4
12:34:05 AM	42.7	45.4
12:34:15 AM	44.6	48.3
12:34:25 AM	38.7	40.5
12:34:35 AM	47.2	52.1
12:34:45 AM	43.6	48.5
12:34:55 AM	54.2	58.5
12:35:05 AM	48.5	55.9
12:35:15 AM	41.5	44.6
12:35:25 AM	44.5	47.4
12:35:35 AM	37.6	39.6
12:35:45 AM	42.9	48.6
12:35:55 AM	39.8	43.3
12:36:05 AM	41.4	45.9
12:36:15 AM	39.8	41.4
12:36:25 AM	43	48.4
12:36:35 AM	46.8	52.1
12:36:45 AM	43	50.4
12:36:55 AM	46.3	51.3
12:37:05 AM	39.7	41
12:37:15 AM	40.6	41.6
12:37:25 AM	39	40.5
12:37:35 AM	38.8	39.7
12:37:45 AM	40	44
12:37:55 AM	45.1	49.6
12:38:05 AM	38.8	40.8
12:38:15 AM	42.9	46.1
12:38:25 AM	38.4	39
12:38:35 AM	37	37.9
12:38:45 AM	39.4	42.7
12:38:55 AM	39.6	41.1
12:39:05 AM	42.7	45.1

12:39:15 AM	47.6	52.9
12:39:25 AM	43.9	47.2
12:39:35 AM	43.1	46.7
12:39:45 AM	56.6	60.1
	46.9	

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City Project
Location: R4
Date: 5/19/2021

Time	Leq	Lmax
10:11:43 AM	68	72.2
10:11:53 AM	72.7	76.8
10:12:03 AM	73.6	77.2
10:12:13 AM	71	73.2
10:12:23 AM	65.5	67.4
10:12:33 AM	66.3	71
10:12:43 AM	69.6	71.6
10:12:53 AM	65.1	67.9
10:13:03 AM	65.9	70.5
10:13:13 AM	67	72.2
10:13:23 AM	73.4	77.2
10:13:33 AM	72.4	75.4
10:13:43 AM	67.6	72.7
10:13:53 AM	67	69.5
10:14:03 AM	69.7	71.1
10:14:13 AM	68.4	72
10:14:23 AM	67.6	74.7
10:14:33 AM	61.5	63.9
10:14:43 AM	65.8	69.8
10:14:53 AM	72.8	77.3
10:15:03 AM	74.7	76.5
10:15:13 AM	74	75.5
10:15:23 AM	73.3	76.1
10:15:33 AM	71.1	73.3
10:15:43 AM	67.7	70.4
10:15:53 AM	69.4	73.7
10:16:03 AM	65	67.3
10:16:13 AM	62.3	65.8
10:16:23 AM	61.5	65.6
10:16:33 AM	66.2	69.6
10:16:43 AM	67.1	72.5
10:16:53 AM	67.2	70.5
10:17:03 AM	71.1	72.2
10:17:13 AM	76.8	81.8
10:17:23 AM	78.3	79.5
10:17:33 AM	77.7	79.6
10:17:43 AM	72.5	77.6
10:17:53 AM	61.9	65.2
10:18:03 AM	68	70.7
10:18:13 AM	69.9	73.3
10:18:23 AM	64.7	69.7

10:18:33 AM	64.9	69.3
10:18:43 AM	58.4	59.1
10:18:53 AM	64.8	72.2
10:19:03 AM	72.1	73.6
10:19:13 AM	69.2	71.5
10:19:23 AM	71.3	78.8
10:19:33 AM	76.3	79.1
10:19:43 AM	77.4	81.1
10:19:53 AM	74.1	78.8
10:20:03 AM	69.4	72.2
10:20:13 AM	71.8	76.4
10:20:23 AM	64.1	67.7
10:20:33 AM	69.3	74.6
10:20:43 AM	69.4	76.4
10:20:53 AM	71.2	76.3
10:21:03 AM	64.1	67.9
10:21:13 AM	68.6	71.6
10:21:23 AM	69.7	71.5
10:21:33 AM	75.5	79.6
10:21:43 AM	73.3	76.9
10:21:53 AM	68.4	70.3
10:22:03 AM	71.1	76
10:22:13 AM	65.4	68.1
10:22:23 AM	66.7	69.2
10:22:33 AM	66.7	69
10:22:43 AM	58.8	60.4
10:22:53 AM	62.9	69.4
10:23:03 AM	70.8	72.2
10:23:13 AM	71.2	74.7
10:23:23 AM	80.6	87.1
10:23:33 AM	70.5	73.2
10:23:43 AM	74.1	75.6
10:23:53 AM	74.4	76
10:24:03 AM	73.5	75.2
10:24:13 AM	71.1	73.8
10:24:23 AM	66.9	69.6
10:24:33 AM	63.1	63.8
10:24:43 AM	64.8	69.7
10:24:53 AM	66.1	71.4
10:25:03 AM	69.6	73.5
10:25:13 AM	65.7	67.7
10:25:23 AM	69.4	73.2
10:25:33 AM	70.7	72.5
10:25:43 AM	72	75.4
10:25:53 AM	69	71.6
10:26:03 AM	66.7	70.6

10:26:13 AM	66.7	71
10:26:23 AM	62.6	64.6
10:26:33 AM	66.8	70.2
	71.3	

Time	Leq	Lmax
1:43:11 AM	66.7	70.7
1:43:21 AM	60.9	66.1
1:43:31 AM	47.4	50.7
1:43:41 AM	56.6	64.2
1:43:51 AM	66.1	71
1:44:01 AM	51	54.6
1:44:11 AM	48	50.5
1:44:21 AM	48.7	50.2
1:44:31 AM	51.6	54.7
1:44:41 AM	49.9	52.9
1:44:51 AM	47.2	49.1
1:45:01 AM	44.9	46.5
1:45:11 AM	44.8	47.1
1:45:21 AM	43.1	43.9
1:45:31 AM	43.1	43.4
1:45:41 AM	43.2	43.5
1:45:51 AM	43.8	44.1
1:46:01 AM	44.1	45.8
1:46:11 AM	44	44.9
1:46:21 AM	43.6	44.2
1:46:31 AM	45.2	46.5
1:46:41 AM	43.8	44.3
1:46:51 AM	43.1	43.4
1:47:01 AM	43	43.7
1:47:11 AM	43	43.2
1:47:21 AM	44.4	46
1:47:31 AM	43.2	43.5
1:47:41 AM	43.8	44.4
1:47:51 AM	43.4	44.2
1:48:01 AM	48.4	52.6
1:48:11 AM	67.1	72.2
1:48:21 AM	67.9	73.1
1:48:31 AM	49.5	53
1:48:41 AM	45.2	46.8
1:48:51 AM	43.5	43.7
1:49:01 AM	43.6	43.9
1:49:11 AM	43.7	44.3
1:49:21 AM	43.1	43.6
1:49:31 AM	43	43.5
1:49:41 AM	42.8	43

1:49:51 AM	44.4	47.4
1:50:01 AM	51.4	54.2
1:50:11 AM	47	49.6
1:50:21 AM	45.3	48.7
1:50:31 AM	45.9	48.7
1:50:41 AM	66.7	71.7
1:50:51 AM	56.7	64.7
1:51:01 AM	53.7	58.8
1:51:11 AM	55.8	59.2
1:51:21 AM	51.2	52.4
1:51:31 AM	52.1	53.5
1:51:41 AM	50.2	50.9
1:51:51 AM	48.8	49.9
1:52:01 AM	46.5	47.4
1:52:11 AM	46.3	47
1:52:21 AM	49.2	55.9
1:52:31 AM	52.7	57
1:52:41 AM	50.8	56.4
1:52:51 AM	66.1	69.3
1:53:01 AM	57.6	63.4
1:53:11 AM	45.8	46.2
1:53:21 AM	44.9	45.5
1:53:31 AM	55.6	58.4
1:53:41 AM	63.7	70.6
1:53:51 AM	80.3	86.2
1:54:01 AM	60.3	67.4
1:54:11 AM	49.6	54.2
1:54:21 AM	46	47.9
1:54:31 AM	44.1	45.1
1:54:41 AM	43.4	44.9
1:54:51 AM	43.7	44.9
1:55:01 AM	44.2	44.9
1:55:11 AM	43.9	44.3
1:55:21 AM	48.2	50.6
1:55:31 AM	51.8	54.1
1:55:41 AM	47.4	50.4
1:55:51 AM	44.4	46.1
1:56:01 AM	46.7	51.2
1:56:11 AM	61.4	65
1:56:21 AM	64.8	70.9
1:56:31 AM	66.1	70.9
1:56:41 AM	51.3	55.2
1:56:51 AM	56.9	64.2
1:57:01 AM	59.9	65
1:57:11 AM	68.9	74
1:57:21 AM	52.7	54.9

1:57:31 AM	47.3	49.5
1:57:41 AM	46	46.8
1:57:51 AM	43.9	45.3
1:58:01 AM	44.4	47.6
	62.6	

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City Project
Location: R5
Date: 5/19/2021

Time	Leq	Lmax
9:51:54 AM	58.3	62.4
9:52:04 AM	59	62.4
9:52:14 AM	49.6	51.7
9:52:24 AM	49.7	50.2
9:52:34 AM	52.1	53.8
9:52:44 AM	55.3	59
9:52:54 AM	48.1	49.5
9:53:04 AM	49	51.2
9:53:14 AM	51.3	53.2
9:53:24 AM	52.1	53.1
9:53:34 AM	50.8	55.2
9:53:44 AM	51.4	55.3
9:53:54 AM	51.6	55.6
9:54:04 AM	52.2	53.4
9:54:14 AM	52.7	53.8
9:54:24 AM	51.9	53.1
9:54:34 AM	51.3	52.1
9:54:44 AM	49.5	50.3
9:54:54 AM	48.7	49.6
9:55:04 AM	48.9	50.5
9:55:14 AM	47.5	48.8
9:55:24 AM	47	47.5
9:55:34 AM	48.7	49.9
9:55:44 AM	50.7	53
9:55:54 AM	50.5	52.7
9:56:04 AM	50.6	51.9
9:56:14 AM	49	50.6
9:56:24 AM	48	48.5
9:56:34 AM	52.8	56.6
9:56:44 AM	54.5	57.1
9:56:54 AM	56	57.9
9:57:04 AM	51.8	55.4
9:57:14 AM	51.4	52.5
9:57:24 AM	50.4	51.7
9:57:34 AM	50.9	52.4
9:57:44 AM	56.1	63.4
9:57:54 AM	49.8	52.8
9:58:04 AM	48.4	51.3
9:58:14 AM	49.3	50.3
9:58:24 AM	50	53
9:58:34 AM	58.7	62

9:58:44 AM	52.4	55.1
9:58:54 AM	48.6	49.8
9:59:04 AM	47.2	49
9:59:14 AM	49.1	50
9:59:24 AM	48.9	49.8
9:59:34 AM	48.5	51.1
9:59:44 AM	51.9	58.4
9:59:54 AM	47.4	49.8
10:00:04 AM	46	47.6
10:00:14 AM	46.8	48.8
10:00:24 AM	46.5	47.2
10:00:34 AM	48.3	51.6
10:00:44 AM	55.1	62.4
10:00:54 AM	49.4	52.7
10:01:04 AM	49	52.6
10:01:14 AM	49.9	52
10:01:24 AM	51.3	53.4
10:01:34 AM	53.7	56.6
10:01:44 AM	54.4	56.9
10:01:54 AM	54.7	58.3
10:02:04 AM	53.5	54.5
10:02:14 AM	49.7	50.5
10:02:24 AM	49.4	50.3
10:02:34 AM	47.1	48.5
10:02:44 AM	46.8	48
10:02:54 AM	48.8	54
10:03:04 AM	59.3	64.6
10:03:14 AM	58.5	60.6
10:03:24 AM	53.4	57.9
10:03:34 AM	57	63.2
10:03:44 AM	50.8	53.8
10:03:54 AM	51.6	52.6
10:04:04 AM	50.9	53.2
10:04:14 AM	58.5	61.8
10:04:24 AM	59.5	67.8
10:04:34 AM	46.9	48.3
10:04:44 AM	47.2	49.3
10:04:54 AM	52	55.4
10:05:04 AM	52.7	56
10:05:14 AM	50.3	53.1
10:05:24 AM	49	52
10:05:34 AM	47.8	49.2
10:05:44 AM	49.7	51.2
10:05:54 AM	47.8	48.7
10:06:04 AM	50.4	54.6
10:06:14 AM	49.4	50.9

10:06:24 AM	51.2	53.7
10:06:34 AM	51.4	52.6
10:06:44 AM	51.5	52.8
	52.6	

Time	Leq	Lmax
1:05:26 AM	38.8	40
1:05:36 AM	38.7	39.3
1:05:46 AM	39.7	40.6
1:05:56 AM	42.2	44.1
1:06:06 AM	39.8	40.7
1:06:16 AM	43	46.2
1:06:26 AM	39.4	40.2
1:06:36 AM	41.3	44.2
1:06:46 AM	38.9	39.6
1:06:56 AM	38.7	39.9
1:07:06 AM	40.9	42.5
1:07:16 AM	40.9	42.4
1:07:26 AM	42.1	45.1
1:07:36 AM	38.3	39.2
1:07:46 AM	38.1	38.5
1:07:56 AM	38.9	40.1
1:08:06 AM	39.4	40.5
1:08:16 AM	38.9	39.5
1:08:26 AM	38.9	39.8
1:08:36 AM	38.8	39.6
1:08:46 AM	42.3	47.2
1:08:56 AM	43.2	44.8
1:09:06 AM	39.8	41
1:09:16 AM	41.3	43.6
1:09:26 AM	39.9	41
1:09:36 AM	39.4	40.7
1:09:46 AM	38.2	39.1
1:09:56 AM	38.2	38.7
1:10:06 AM	42.2	45.4
1:10:16 AM	47.1	52.3
1:10:26 AM	41	44.1
1:10:36 AM	38.7	39.2
1:10:46 AM	39.5	40.4
1:10:56 AM	41.9	45.3
1:11:06 AM	43.6	46.7
1:11:16 AM	54.6	60.4
1:11:26 AM	48.6	53.8
1:11:36 AM	41.3	42.5
1:11:46 AM	44	46.2
1:11:56 AM	47.4	49.4

1:12:06 AM	55.5	58.5
1:12:16 AM	54.7	57.7
1:12:26 AM	53	57
1:12:36 AM	43.1	45.3
1:12:46 AM	41.8	43.5
1:12:56 AM	45.3	48.1
1:13:06 AM	47.5	52
1:13:16 AM	54.4	58.7
1:13:26 AM	51.3	54.2
1:13:36 AM	46	46.7
1:13:46 AM	44	45.8
1:13:56 AM	42.7	45.9
1:14:06 AM	41.2	41.6
1:14:16 AM	40.6	41.4
1:14:26 AM	40.5	41
1:14:36 AM	42.1	44.4
1:14:46 AM	40.7	43.2
1:14:56 AM	43.5	45.5
1:15:06 AM	41.2	42.3
1:15:16 AM	40	40.7
1:15:26 AM	40.4	40.9
1:15:36 AM	41.1	42.2
1:15:46 AM	40	40.3
1:15:56 AM	40.3	41.4
1:16:06 AM	41.4	42
1:16:16 AM	42.6	46.6
1:16:26 AM	56.9	61.3
1:16:36 AM	44.1	50.8
1:16:46 AM	41.8	43.1
1:16:56 AM	41.2	42.3
1:17:06 AM	41.8	44.2
1:17:16 AM	41.8	44.5
1:17:26 AM	38.4	39.6
1:17:36 AM	40	42.7
1:17:46 AM	38.6	39.7
1:17:56 AM	37.5	38
1:18:06 AM	38.7	39.2
1:18:16 AM	39.1	39.9
1:18:26 AM	42.2	44.5
1:18:36 AM	41	43
1:18:46 AM	40	42.6
1:18:56 AM	44.3	47.1
1:19:06 AM	39.4	43.8
1:19:16 AM	37.9	38.3
1:19:26 AM	38.4	38.9
1:19:36 AM	39.2	39.8

1:19:46 AM	41.2	44.1
1:19:56 AM	43.7	45.6
1:20:06 AM	40.2	41.2
1:20:16 AM	41.8	44.9
	45.7	

Appendix B

Construction Noise Calculations Worksheets

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo of existing buildings***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	130	0
Breakers	1	90	20%	155	0
Jackhammers	1	89	20%	180	0
Backhoes	1	78	40%	180	0
Haul Off Trucks	1	76	40%	205	0

5

Receptor: ***R1***

Results:

1-hour Leq: 76.4

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Grading/Excavation and Utilities for New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	75	0
Excavator	1	81	40%	100	0
Generators	1	81	50%	125	0
Grader	1	85	40%	125	0
Breakers	1	90	20%	150	0
Jackhammers	1	89	20%	150	0
Compactor	1	83	20%	175	0
Haul Off Trucks	1	76	40%	175	0
	8				

Receptor: ***R1***

Results:

1-hour Leq: 79.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Building New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	100	0
Backhoes	1	78	40%	125	0
Crane	1	81	16%	150	0
Air-compressors	1	78	40%	150	0
Compactor	1	83	20%	175	0
Concrete Truck	1	79	40%	175	0
Paving Truck	1	77	50%	200	0
Hammers	1	85	50%	200	0
	8				

Receptor: ***R1***

Results:

1-hour Leq: **76.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo curbs planters at New Station or new entrance/round-al***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	75	0
Backhoes	1	78	40%	100	0
Jackhammers	1	89	20%	125	0
Haul Off Trucks	1	76	40%	125	0
Hammers	1	85	50%	150	0

5

Receptor: ***R1***

Results:

1-hour Leq: **79.0**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Civil put-back curb planters at New Station or new entrance/round-about***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	75	0
Backhoes	1	78	40%	100	0
Compactor	1	83	20%	125	0
Concrete Truck	1	79	40%	125	0
Paving Truck	1	77	50%	150	0
Hammers	1	85	50%	150	0
Work Truck	1	75	40%	175	0

7

Receptor: ***R1***

Results:

1-hour Leq: **78.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Demo of Existing Station

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Crane	1	81	16%	680	5
Excavator	1	81	40%	680	5
Breakers	1	90	20%	705	5
Jackhammers	1	89	20%	705	5
Generators	1	81	50%	730	5
Backhoes	1	78	40%	730	5
Haul Off Trucks	1	76	40%	755	5
Bobcats	1	78	40%	755	5
Work Truck	1	75	40%	780	5
	9				

Receptor: ***R1***

Results:

1-hour Leq: 59.5

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Civil put-back

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	680	5
Compactor	1	83	20%	680	5
Paving Truck	1	77	50%	705	5
Work Truck	1	75	40%	705	5
Hammers	1	85	50%	730	5
	5				

Receptor: ***R1***

Results:

1-hour Leq: 56.1

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Landscaping

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	630	5
Work Truck	1	75	40%	630	5

2

Receptor: ***R1***

Results:

1-hour Leq: 48.8

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Daytime***
(Generators for Construction & Fuel Station Operation)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Construction	1	65.3	100%	67	10
Generator - Operation	1	65.3	100%	227	10

2

Receptor: ***R1***

Results:

1-hour Leq: **53.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Nighttime (Generator for Fuel Station Operation)***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Operation	1	65.3	100%	227	10

1

Receptor: ***R1***

Results:

1-hour Leq: **42.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo of existing buildings***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	865	15
Breakers	1	90	20%	865	15
Jackhammers	1	89	20%	890	15
Backhoes	1	78	40%	890	15
Haul Off Trucks	1	76	40%	915	15

5

Receptor: ***R2***

Results:

1-hour Leq: **46.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Grading/Excavation and Utilities for New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	865	15
Excavator	1	81	40%	865	15
Generators	1	81	50%	890	15
Grader	1	85	40%	890	15
Breakers	1	90	20%	915	15
Jackhammers	1	89	20%	915	15
Compactor	1	83	20%	940	15
Haul Off Trucks	1	76	40%	940	15
	8				

Receptor: ***R2***

Results:

1-hour Leq: **48.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Building New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	825	15
Backhoes	1	78	40%	825	15
Crane	1	81	16%	850	15
Air-compressors	1	78	40%	850	15
Compactor	1	83	20%	875	15
Concrete Truck	1	79	40%	875	15
Paving Truck	1	77	50%	900	15
Hammers	1	85	50%	900	15
	8				

Receptor: ***R2***

Results:

1-hour Leq: **46.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo curbs planters at New Station or new entrance/round-al***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	865	15
Backhoes	1	78	40%	865	15
Jackhammers	1	89	20%	890	15
Haul Off Trucks	1	76	40%	890	15
Hammers	1	85	50%	915	15

5

Receptor: ***R2***

Results:

1-hour Leq: **46.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Civil put-back curb planters at New Station or new entrance/round-about***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	865	15
Backhoes	1	78	40%	865	15
Compactor	1	83	20%	890	15
Concrete Truck	1	79	40%	890	15
Paving Truck	1	77	50%	915	15
Hammers	1	85	50%	915	15
Work Truck	1	75	40%	940	15

7

Receptor: ***R2***

Results:

1-hour Leq: **45.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Demo of Existing Station

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Crane	1	81	16%	785	10
Excavator	1	81	40%	785	10
Breakers	1	90	20%	810	10
Jackhammers	1	89	20%	810	10
Generators	1	81	50%	835	10
Backhoes	1	78	40%	835	10
Haul Off Trucks	1	76	40%	860	10
Bobcats	1	78	40%	860	10
Work Truck	1	75	40%	885	10

9

Receptor: ***R2***

Results:

1-hour Leq: **53.3**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Civil put-back

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	785	10
Compactor	1	83	20%	785	10
Paving Truck	1	77	50%	810	10
Work Truck	1	75	40%	810	10
Hammers	1	85	50%	835	10
	5				

Receptor: ***R2***

Results:

1-hour Leq: 49.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Landscaping

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	665	10
Work Truck	1	75	40%	665	10

2

Receptor: ***R2***

Results:

1-hour Leq: 43.3

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Daytime***
(Generators for Construction & Fuel Station Operation)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Construction	1	65.3	100%	888	15
Generator - Operation	1	65.3	100%	846	15

2

Receptor: ***R2***

Results:

1-hour Leq: **28.6**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Nighttime (Generator for Fuel Station Operation)***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Operation	1	65.3	100%	846	15

1

Receptor: ***R2***

Results:

1-hour Leq: **25.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo of existing buildings***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	820	5
Breakers	1	90	20%	820	5
Jackhammers	1	89	20%	845	5
Backhoes	1	78	40%	845	5
Haul Off Trucks	1	76	40%	870	5
	5				

Receptor: ***R3***

Results:

1-hour Leq: **57.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Grading/Excavation and Utilities for New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	820	5
Excavator	1	81	40%	820	5
Generators	1	81	50%	845	5
Grader	1	85	40%	845	5
Breakers	1	90	20%	870	5
Jackhammers	1	89	20%	870	5
Compactor	1	83	20%	895	5
Haul Off Trucks	1	76	40%	895	5
	8				

Receptor: ***R3***

Results:

1-hour Leq: **58.6**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Building New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	845	5
Backhoes	1	78	40%	845	5
Crane	1	81	16%	870	5
Air-compressors	1	78	40%	870	5
Compactor	1	83	20%	895	5
Concrete Truck	1	79	40%	895	5
Paving Truck	1	77	50%	920	5
Hammers	1	85	50%	920	5
	8				

Receptor: ***R3***

Results:

1-hour Leq: **55.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo curbs planters at New Station or new entrance/round-al***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	820	5
Backhoes	1	78	40%	820	5
Jackhammers	1	89	20%	845	5
Haul Off Trucks	1	76	40%	845	5
Hammers	1	85	50%	870	5

5

Receptor: ***R3***

Results:

1-hour Leq: **56.6**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Civil put-back curb planters at New Station or new entrance/round-about***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	820	5
Backhoes	1	78	40%	820	5
Compactor	1	83	20%	845	5
Concrete Truck	1	79	40%	845	5
Paving Truck	1	77	50%	870	5
Hammers	1	85	50%	870	5
Work Truck	1	75	40%	895	5

7

Receptor: ***R3***

Results:

1-hour Leq: **55.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Demo of Existing Station

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Crane	1	81	16%	370	0
Excavator	1	81	40%	370	0
Breakers	1	90	20%	395	0
Jackhammers	1	89	20%	395	0
Generators	1	81	50%	420	0
Backhoes	1	78	40%	420	0
Haul Off Trucks	1	76	40%	445	0
Bobcats	1	78	40%	445	0
Work Truck	1	75	40%	470	0

9

Receptor: ***R3***

Results:

1-hour Leq: **69.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Civil put-back

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	370	0
Compactor	1	83	20%	370	0
Paving Truck	1	77	50%	395	0
Work Truck	1	75	40%	395	0
Hammers	1	85	50%	420	0

5

Receptor: ***R3***

Results:

1-hour Leq: **66.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Landscaping

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	320	0
Work Truck	1	75	40%	320	0
	2				

Receptor: ***R3***

Results:

1-hour Leq: **59.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Daytime***
(Generators for Construction & Fuel Station Operation)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Construction	1	65.3	100%	1026	5
Generator - Operation	1	65.3	100%	885	5

2

Receptor: ***R3***

Results:

1-hour Leq: **37.8**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Nighttime (Generator for Fuel Station Operation)***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Operation	1	65.3	100%	885	5

1

Receptor: ***R3***

Results:

1-hour Leq: **35.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo of existing buildings***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	180	0
Breakers	1	90	20%	180	0
Jackhammers	1	89	20%	205	0
Backhoes	1	78	40%	205	0
Haul Off Trucks	1	76	40%	230	0

5

Receptor: ***R4***

Results:

1-hour Leq: 74.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Grading/Excavation and Utilities for New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	180	0
Excavator	1	81	40%	180	0
Generators	1	81	50%	205	0
Grader	1	85	40%	205	0
Breakers	1	90	20%	230	0
Jackhammers	1	89	20%	230	0
Compactor	1	83	20%	255	0
Haul Off Trucks	1	76	40%	255	0

8

Receptor: ***R4***

Results:

1-hour Leq: **75.6**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Building New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	210	0
Backhoes	1	78	40%	210	0
Crane	1	81	16%	235	0
Air-compressors	1	78	40%	235	0
Compactor	1	83	20%	260	0
Concrete Truck	1	79	40%	260	0
Paving Truck	1	77	50%	285	0
Hammers	1	85	50%	285	0
	8				

Receptor: ***R4***

Results:

1-hour Leq: **71.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo curbs planters at New Station or new entrance/round-al***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	180	0
Backhoes	1	78	40%	180	0
Jackhammers	1	89	20%	205	0
Haul Off Trucks	1	76	40%	205	0
Hammers	1	85	50%	230	0

5

Receptor: ***R4***

Results:

1-hour Leq: **73.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Civil put-back curb planters at New Station or new entrance/round-about***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	180	0
Backhoes	1	78	40%	180	0
Compactor	1	83	20%	205	0
Concrete Truck	1	79	40%	205	0
Paving Truck	1	77	50%	230	0
Hammers	1	85	50%	230	0
Work Truck	1	75	40%	255	0

7

Receptor: ***R4***

Results:

1-hour Leq: **73.1**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Demo of Existing Station

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Crane	1	81	16%	265	0
Excavator	1	81	40%	265	0
Breakers	1	90	20%	290	0
Jackhammers	1	89	20%	290	0
Generators	1	81	50%	315	0
Backhoes	1	78	40%	315	0
Haul Off Trucks	1	76	40%	340	0
Bobcats	1	78	40%	340	0
Work Truck	1	75	40%	365	0

9

Receptor: ***R4***

Results:

1-hour Leq: **72.2**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Civil put-back

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	265	0
Compactor	1	83	20%	265	0
Paving Truck	1	77	50%	290	0
Work Truck	1	75	40%	290	0
Hammers	1	85	50%	315	0

5

Receptor: ***R4***

Results:

1-hour Leq: **68.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Landscaping

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	220	0
Work Truck	1	75	40%	220	0
	2				

Receptor: ***R4***

Results:

1-hour Leq: 62.9

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Daytime***
(Generators for Construction & Fuel Station Operation)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Construction	1	65.3	100%	477	0
Generator - Operation	1	65.3	100%	327	0

2

Receptor: ***R4***

Results:

1-hour Leq: **50.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Nighttime (Generator for Fuel Station Operation)***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Operation	1	65.3	100%	327	0
	1				

Receptor: ***R4***

Results:

1-hour Leq: 49.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo of existing buildings***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Excavator	1	81	40%	630	5
Breakers	1	90	20%	630	5
Jackhammers	1	89	20%	655	5
Backhoes	1	78	40%	655	5
Haul Off Trucks	1	76	40%	680	5

5

Receptor: ***R5***

Results:

1-hour Leq: **59.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Grading/Excavation and Utilities for New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	515	5
Excavator	1	81	40%	515	5
Generators	1	81	50%	540	5
Grader	1	85	40%	540	5
Breakers	1	90	20%	565	5
Jackhammers	1	89	20%	565	5
Compactor	1	83	20%	590	5
Haul Off Trucks	1	76	40%	590	5
	8				

Receptor: ***R5***

Results:

1-hour Leq: **62.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Building New Station***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	585	5
Backhoes	1	78	40%	585	5
Crane	1	81	16%	610	5
Air-compressors	1	78	40%	610	5
Compactor	1	83	20%	635	5
Concrete Truck	1	79	40%	635	5
Paving Truck	1	77	50%	660	5
Hammers	1	85	50%	660	5
	8				

Receptor: ***R5***

Results:

1-hour Leq: **58.9**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Demo curbs planters at New Station or new entrance/round-al***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	515	5
Backhoes	1	78	40%	515	5
Jackhammers	1	89	20%	540	5
Haul Off Trucks	1	76	40%	540	5
Hammers	1	85	50%	565	5

5

Receptor: ***R5***

Results:

1-hour Leq: **60.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Civil put-back curb planters at New Station or new entrance/round-about***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generators	1	81	50%	515	5
Backhoes	1	78	40%	515	5
Compactor	1	83	20%	540	5
Concrete Truck	1	79	40%	540	5
Paving Truck	1	77	50%	565	5
Hammers	1	85	50%	565	5
Work Truck	1	75	40%	590	5
	7				

Receptor: ***R5***

Results:

1-hour Leq: **59.7**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Demo of Existing Station

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Crane	1	81	16%	870	10
Excavator	1	81	40%	870	10
Breakers	1	90	20%	895	10
Jackhammers	1	89	20%	895	10
Generators	1	81	50%	920	10
Backhoes	1	78	40%	920	10
Haul Off Trucks	1	76	40%	945	10
Bobcats	1	78	40%	945	10
Work Truck	1	75	40%	970	10

9

Receptor: ***R5***

Results:

1-hour Leq: **52.5**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Civil put-back

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	870	10
Compactor	1	83	20%	870	10
Paving Truck	1	77	50%	895	10
Work Truck	1	75	40%	895	10
Hammers	1	85	50%	920	10

5

Receptor: ***R5***

Results:

1-hour Leq: 49.0

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: Landscaping

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Backhoes	1	78	40%	760	10
Work Truck	1	75	40%	760	10
	2				

Receptor: ***R5***

Results:

1-hour Leq: 42.2

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Daytime***
(Generators for Construction & Fuel Station Operation)

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Construction	1	65.3	100%	525	5
Generator - Operation	1	65.3	100%	598	5

2

Receptor: ***R5***

Results:

1-hour Leq: **42.4**

Source for Ref. Noise Levels: FHWA RCNM, 2006

AES
ACOUSTICAL ENGINEERING SERVICES

Project: Costco Culver City - Fuel Station Relocation Project

Construction Phase: ***Temporary Generators - Nighttime (Generator for Fuel Station Operation)***

Equipment

Description	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance to Receptor, ft	Estimated Noise Shielding, dBA
Generator - Operation	1	65.3	100%	598	5

1

Receptor: ***R5***

Results:

1-hour Leq: **38.8**

Source for Ref. Noise Levels: FHWA RCNM, 2006

Project: Costco Culver City Project

Construction Vibration Impacts

Reference Levels at 25 feet are based on FTA, 2006 (Transit Noise and Vibration Impact Assessment)
Calculations using FTA procedure with n= **1.5** (for receptors 25 feet or greater)
n= **1.1** (for receptors less than 25 feet, per Caltrans procedure)

ON-SITE CONSTRUCTION ACTIVITIES

Table 1: Construction Equipment Vibration Levels (PPV) - Building Damage

Equipment	Reference Vibration Levels at 25 ft., PPV	Estimated Vibration Levels at nearest off-site building structures, distance in feet, PPV							
		Single-story Residential Buildings to the North		Single-Story Commercial Building to the South		Residential Building to the East		Single-story Residential Buildings to the West	
		Distance	Level	Distance	Level	Distance	Level	Distance	Level
Large Bulldozer	0.089	640	0.001	100	0.011	300	0.002	75	0.017
Loaded Trucks	0.076	640	0.001	100	0.010	300	0.002	75	0.015
Jackhammer	0.035	640	0.000	100	0.0044	300	0.001	75	0.007
Small bulldozer	0.003	640	0.000	100	0.000	300	0.0001	75	0.001

Table 2a: Construction Equipment Vibration Levels (VdB) - Human Annoyance

Equipment	Reference Vibration Levels at 25 ft., VdB	Estimated Vibration Levels at Off-Site Receptors (at note distance in feet), VdB							
		R1		R2		R3		R4	
		Distance	Level	Distance	Level	Distance	Level	Distance	Level
Large Bulldozer	87	75	72.7	665	44.3	320	53.8	180	61.3
Loaded Trucks	86	75	71.7	665	43.3	320	52.8	180	60.3
Jackhammer	79	75	64.7	665	36.3	320	45.8	180	53.3
Small bulldozer	58	75	43.7	665	15.3	320	24.8	180	32.3

Table 2b: Construction Equipment Vibration Levels (VdB) - Human Annoyance

Equipment	Reference Vibration Levels at 25 ft., VdB	Estimated Vibration Levels at Off-Site Receptors (at note distance in feet), VdB							
		R5							
		Distance	Level	Distance	Level	Distance	Level	Distance	Level
Large Bulldozer	87	515	48						
Loaded Trucks	86	515	47						
Jackhammer	79	515	40						
Small bulldozer	58	515	19						

Appendix C

Operation Noise Calculations Worksheets

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Project Composite Noise Calculations (CNEL)

Project: Costo Fuel Station Relocation Project

Receptor	Ambient	Product Dispenser & Vehicle Queueing	Product Delivery Truck	Temporary Generator	Project Composite	Ambient + Project	Increase
R1	56.8	46.9	53.4	48.8	55.4	59.2	2.4
R2	56.0	16.8	35.5	32.6	37.4	56.1	0.1
R3	55.8	30.8	42.2	42.0	45.3	56.2	0.4
R4	72.8	44.7	57.7	55.7	60.0	73.0	0.2
R5	54.8	34.0	43.4	45.4	47.7	55.6	0.8

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Product Dispenser and Vehicle Queueing Noise Calculations

Project: Costo Fuel Station Relocation Project

	Estimated Noise Levels, Leq from SOUNDPLAN		Hours of Operations Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	12	3	3
R1	43.6	46.9	43.6	43.6	38.8
R2	13.5	16.8	13.5	13.5	8.7
R3	27.5	30.8	27.5	27.5	22.7
R4	41.4	44.7	41.4	41.4	36.6
R5	30.7	34.0	30.7	30.7	25.9

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	56.8	57.2	0.4	45.3	47.5	2.2
R2	56.0	56.0	0.0	40.0	40.0	0.0
R3	55.8	55.8	0.0	46.9	46.9	0.0
R4	72.8	72.8	0.0	62.6	62.6	0.0
R5	54.8	54.8	0.0	45.7	45.8	0.1

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Product Delivery Truck Noise Calculations

Project: Costo Fuel Station Relocation Project

	Estimated Noise Levels, Leq from SOUNDPLAN		Hours of Operations Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	0	0	8
R1	48.2	53.4	0.0	0.0	47.7
R2	30.3	35.5	0.0	0.0	29.8
R3	37.0	42.2	0.0	0.0	36.5
R4	52.5	57.7	0.0	0.0	52.0
R5	38.2	43.4	0.0	0.0	37.7

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	56.8	58.4	1.6	45.3	50.0	4.7
R2	56.0	56.0	0.0	40.0	40.4	0.4
R3	55.8	56.0	0.2	46.9	47.3	0.4
R4	72.8	72.9	0.1	62.6	63.0	0.4
R5	54.8	55.1	0.3	45.7	46.4	0.7

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Product Delivery Trucks Noise Calculations - SEL Analysis

Project: Costo Fuel Station Relocation Project

Receptor	Estimated Noise Levels, Hourly Leq (One Truck Passby) from SOUNDPLAN	Calculated SEL (One Truck Passby), dBA	SEL Limit for Sleep Disturbance, dBA
R1	48.2	83.8	94
R2	30.3	65.9	94
R3	37.0	72.6	94
R4	52.5	88.1	94

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Temporary Generator Noise Calculations

Project: Costo Fuel Station Relocation Project

	Estimated Noise Levels, Leq from Const. Spreadsheet		Hours of Operations Ld (7am to 7pm)	Le (7pm to 10pm)	Ln (10pm to 7am)
Receptor	Leq	CNEL	12	3	9
R1	42.2	48.8	42.2	42.2	42.2
R2	25.9	32.6	25.9	25.9	25.9
R3	35.4	42.0	35.4	35.4	35.4
R4	49.0	55.7	49.0	49.0	49.0
R5	38.8	45.4	38.8	38.8	38.8

Receptor	Ambient CNEL	Ambient + Project (CNEL)	Increase (CNEL)	ambient (Leq)	Ambient + Project (Leq)	Increase (Leq)
R1	56.8	57.4	0.6	45.3	47.0	1.7
R2	56.0	56.0	0.0	40.0	40.2	0.2
R3	55.8	56.0	0.2	46.9	47.2	0.3
R4	72.8	72.9	0.1	62.6	62.8	0.2
R5	54.8	55.3	0.5	45.7	46.5	0.8

Costco Culver City Fuel Relocation
Source Levels in dB(A) - Future Delivery

Name	Source type	Lw dB(A)	
Future Delivery (Hookup Hose)	Point	89.3	

Costco Culver City Fuel Relocation
Emission calculation road - Future Delivery

Road	MSVges Day Veh/h	MSVges Evening Veh/h	MSVges Night Veh/h	Gradient %
Future Delivery - Entering Site	1.00	1.00	1.00	0.0
Future Delivery - Leaving the Site	1.00	1.00	1.00	0.0

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 48.2 dB(A)			
Future Delivery - Entering Site	Road	44.1	
Future Delivery - Leaving the Site	Road	44.4	
Future Delivery (Hookup Hose)	Point	41.3	
Receiver R2 Leq,d 30.3 dB(A)			
Future Delivery - Entering Site	Road	28.3	
Future Delivery - Leaving the Site	Road	25.8	
Future Delivery (Hookup Hose)	Point	12.2	
Receiver R3 Leq,d 37.0 dB(A)			
Future Delivery - Entering Site	Road	35.2	
Future Delivery - Leaving the Site	Road	31.0	
Future Delivery (Hookup Hose)	Point	26.6	
Receiver R4 Leq,d 52.5 dB(A)			
Future Delivery - Entering Site	Road	51.6	
Future Delivery - Leaving the Site	Road	45.1	
Future Delivery (Hookup Hose)	Point	35.5	
Receiver R5 Leq,d 38.2 dB(A)			
Future Delivery - Entering Site	Road	33.6	
Future Delivery - Leaving the Site	Road	34.8	
Future Delivery (Hookup Hose)	Point	30.9	

Costco Culver City Fuel Relocation
Source Levels in dB(A) - Future Fuel Station

Name	Source type	Lw dB(A)	
Car Queueing Future Station	Area	83.5	
Future Product Dispenser 1	Point	75.9	
Future Product Dispenser 2	Point	75.9	
Future Product Dispenser 3	Point	75.9	
Future Product Dispenser 4	Point	75.9	
Future Product Dispenser 5	Point	75.9	
Future Product Dispenser 6	Point	75.9	
Future Product Dispenser 7	Point	75.9	
Future Product Dispenser 8	Point	75.9	
Future Product Dispenser 9	Point	75.9	
Future Product Dispenser 10	Point	75.9	
Future Product Dispenser 11	Point	75.9	
Future Product Dispenser 12	Point	75.9	
Future Product Dispenser 13	Point	75.9	
Future Product Dispenser 14	Point	75.9	
Future Product Dispenser 15	Point	75.9	

Costco Culver City Fuel Relocation
Contribution level - Future Fuel Station

Source	Source type	Leq,d dB(A)	
Receiver R1 Leq,d 43.6 dB(A)			
Car Queueing Future Station	Area	41.3	
Future Product Dispenser 1	Point	30.2	
Future Product Dispenser 2	Point	27.6	
Future Product Dispenser 3	Point	25.7	
Future Product Dispenser 4	Point	24.8	
Future Product Dispenser 5	Point	24.3	
Future Product Dispenser 6	Point	31.6	
Future Product Dispenser 7	Point	28.9	
Future Product Dispenser 8	Point	26.4	
Future Product Dispenser 9	Point	24.4	
Future Product Dispenser 10	Point	23.9	
Future Product Dispenser 11	Point	30.4	
Future Product Dispenser 12	Point	29.8	
Future Product Dispenser 13	Point	29.3	
Future Product Dispenser 14	Point	25.8	
Future Product Dispenser 15	Point	24.5	
Receiver R2 Leq,d 13.5 dB(A)			
Car Queueing Future Station	Area	8.5	
Future Product Dispenser 1	Point	0.2	
Future Product Dispenser 2	Point	0.2	
Future Product Dispenser 3	Point	0.3	
Future Product Dispenser 4	Point	0.3	
Future Product Dispenser 5	Point	0.4	
Future Product Dispenser 6	Point	0.0	
Future Product Dispenser 7	Point	0.1	
Future Product Dispenser 8	Point	0.1	
Future Product Dispenser 9	Point	0.2	
Future Product Dispenser 10	Point	0.2	
Future Product Dispenser 11	Point	-0.2	
Future Product Dispenser 12	Point	-0.1	
Future Product Dispenser 13	Point	-0.1	
Future Product Dispenser 14	Point	0.0	
Future Product Dispenser 15	Point	0.1	
Receiver R3 Leq,d 27.5 dB(A)			
Car Queueing Future Station	Area	21.3	
Future Product Dispenser 1	Point	14.0	
Future Product Dispenser 2	Point	14.3	
Future Product Dispenser 3	Point	14.5	
Future Product Dispenser 4	Point	14.8	

Source	Source type	Leq,d dB(A)	
Future Product Dispenser 5	Point	15.1	
Future Product Dispenser 6	Point	13.9	
Future Product Dispenser 7	Point	14.2	
Future Product Dispenser 8	Point	14.5	
Future Product Dispenser 9	Point	14.7	
Future Product Dispenser 10	Point	15.0	
Future Product Dispenser 11	Point	13.8	
Future Product Dispenser 12	Point	14.1	
Future Product Dispenser 13	Point	14.4	
Future Product Dispenser 14	Point	14.6	
Future Product Dispenser 15	Point	14.9	
Receiver R4 Leq,d 41.4 dB(A)			
Car Queueing Future Station	Area	34.3	
Future Product Dispenser 1	Point	27.3	
Future Product Dispenser 2	Point	27.8	
Future Product Dispenser 3	Point	28.2	
Future Product Dispenser 4	Point	28.7	
Future Product Dispenser 5	Point	29.2	
Future Product Dispenser 6	Point	27.6	
Future Product Dispenser 7	Point	28.1	
Future Product Dispenser 8	Point	28.7	
Future Product Dispenser 9	Point	29.2	
Future Product Dispenser 10	Point	29.7	
Future Product Dispenser 11	Point	27.9	
Future Product Dispenser 12	Point	28.5	
Future Product Dispenser 13	Point	29.0	
Future Product Dispenser 14	Point	29.6	
Future Product Dispenser 15	Point	30.4	
Receiver R5 Leq,d 30.7 dB(A)			
Car Queueing Future Station	Area	25.5	
Future Product Dispenser 1	Point	18.0	
Future Product Dispenser 2	Point	17.9	
Future Product Dispenser 3	Point	17.9	
Future Product Dispenser 4	Point	17.8	
Future Product Dispenser 5	Point	17.7	
Future Product Dispenser 6	Point	17.5	
Future Product Dispenser 7	Point	17.5	
Future Product Dispenser 8	Point	17.4	
Future Product Dispenser 9	Point	17.4	
Future Product Dispenser 10	Point	17.3	

Source	Source type	Leq,d dB(A)	
Future Product Dispenser 11	Point	17.1	
Future Product Dispenser 12	Point	17.0	
Future Product Dispenser 13	Point	17.0	
Future Product Dispenser 14	Point	16.9	
Future Product Dispenser 15	Point	16.9	

Attachment 3

Costco Culver City Project Air Quality/Health Risk
Technical Report prepared by Ramboll Americas Engineering Solutions, Inc. , dated May 2024

(Attached)

Prepared for
Costco Wholesale Corporation

Prepared by
Ramboll Americas Engineering Solutions, Inc.
Irvine, California

Project Number
1690022890

Date
May 2024

COSTCO CULVER CITY PROJECT AIR QUALITY/HEALTH RISK TECHNICAL REPORT

COSTCO

CULVER CITY, CALIFORNIA

RAMBOLL

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AB	Assembly Bill
ACC	Advanced Clean Cars
ADMRT	Air Dispersion Modeling and Risk Tool
AEI	annual emissions inventory
AERMOD	AMS/EPA Regulatory Model
AP-42	United States Environmental Protection Agency's Compilation of Air Pollutant Emission Factors
APCDs	Air Pollution Control Districts
AQ	air quality
AQAP	Air Quality Attainment Plan
AQMDs	Air Quality Management Districts
ATCM	Airborne Toxic Control Measure
AvgHP	Maximum rated average horsepower
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod®	California Emission Estimator Model®
CAFE	Corporate Average Fuel Economy
CAP	criteria air pollutant
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CF	Conversion Factor
CO	carbon monoxide
CO_2	carbon dioxide
CPF	cancer potency factor
cREL	chronic reference exposure level
CSA	container storage area
CUP	conditional use permit
CY	cubic yard
DPM	Diesel Particulate Matter
ED	Exposure Duration
EF	emission factor
EIR	Environmental Impact Report
EMFAC	EMission FACtors model
FAH	Fraction of time at Home (unitless)
FIP	Federal Implementation Plan
g/m^3	gram per cubic meter
GDF	gasoline dispensing facility
GHG	greenhouse gas
HARP2	Hotspots Analysis and Reporting Program
HI	hazard index
HIA	acute hazard index
HIC	chronic hazard index
HQ	hazard quotient

Acronym	Definition
HQi	Chronic hazard quotient for chemical i
HQs	hazard quotients
HRA	Health risk assessment
IFinh	Intake Factor for Inhalation (m^3/kg-day)
KSMO	Santa Monica Airport
LA	Los Angeles
LLC	Limited Liability Company
LOS	level of service
LST	localized significance threshold
m^3/L	cubic meter per liter
MCY	million cubic yards
MM	mitigation measure
MPDs	multi-product dispensers
MSW	municipal solid waste
MT	metric tonnes
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO	Nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
OFFROAD	Off-road Emissions Inventory Program model
Pb	Lead
PM	particulate matter
PM10	particulate matter less than 10 microns in diameter
PM2.5	particulate matter less than 2.5 microns in diameter
ppm	parts per million by volume
Ramboll	Ramboll US Consulting, Inc.
RCP	Regional Comprehensive Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SAFE	Safer Affordable Fuel-Efficient
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SOx	sulfur oxide
TACs	Toxic Air Contaminant
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle miles traveled
VOCs	Volatile Organic Compounds
ZEV	zero emission vehicle

1. INTRODUCTION

Ramboll Americas Engineering Solutions, Inc. (Ramboll) was retained to prepare an Air Quality (AQ) Technical Report for the proposed Costco Culver City Project (Project).

This technical report analyzes the Project's impacts on air quality from construction and operations, including an evaluation of health risk impacts. In particular, this report describes the existing setting of the Project site, describes the relevant regulatory settings, discusses the methodology used to evaluate air quality related to the Project, and evaluates potential impacts related to air quality that would be affected as a result of implementation of the Project.

1.1 Existing Conditions

The existing site is currently developed and designated by the General Plan as Commercial – Regional Center and zoning as Commercial Regional Retail. The location of the site is in Culver City, California. The Costco Warehouse is located at 13463 Washington Boulevard, Culver City, CA within a retail center. The existing Costco Gasoline facility will be re-located to the two (2) developed parcels in the southwest corner of the shopping center currently occupied by commercial buildings.

1.2 Project Description

The project includes a new, approximately 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three (3) 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. In addition, temporary noise barriers will be provided along the project's western property line, northern property line, and the existing fueling facility's eastern property line; the power construction equipment will contain noise shielding and muffling devices, consistent with manufacturers' standards; and a portion of the project construction activities will not occur concurrently with the City's Washington Boulevard Stormwater and Urban Runoff Project, as further described in the Noise Study, prepared by Acoustical Engineering Services, Inc., dated February 2023.

The existing fueling facility will be razed and removed from the site and the existing currently unoccupied commercial uses (consisting of retail buildings and a coffee shop with a total area of 6,890 square feet, and a Starbucks Coffee with an area of 1,590 square feet) will be demolished.[1] The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fueling facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state of the art facility to provide a more efficient fuel purchasing experience for Costco members.

[1] Under applicable case law (North County Advocates v. City of Carlsbad (2015) 241 Cal. App. 4th 94), these uses are considered to be part of the CEQA baseline even though the buildings are currently unoccupied. Therefore, consistent with CEQA, this analysis includes a trip credit for the removal of these uses from the Project site. Moreover, as the buildings were occupied when the historic traffic counts at local roadways were taken, not taking such a credit would overstate the Project's operational emissions.

2. ENVIRONMENTAL AND REGULATORY BACKGROUND

2.1 Criteria Air Pollutants

Criteria air pollutants (CAPs) are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive people from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants are discussed in the following paragraphs.

2.1.1 Ozone

O_3 is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases, and oxides of nitrogen (NO_x) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_X, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

2.1.2 Nitrogen Dioxide

Most NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. The primary sources of NO, the precursor to NO_2, include automobile exhaust and industrial sources. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere, causing reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis, and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

2.1.3 Carbon Monoxide

Carbon Monoxide (CO) is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when

surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions, where a layer of warm air sits atop cool air, are more frequent and can trap pollutants close to the ground. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

2.1.4 Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits placed on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

2.1.5 Particulate Matter

Particulate matter (PM) pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_X), NO_X, and VOCs. Inhalable or coarse particulate matter, or PM_{10}, is about one- seventh the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

2.1.6 Lead

Lead (Pb) in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline, the manufacturing of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead.

Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth.

2.1.7 Sulfates

Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

2.1.8 Vinyl Chloride

Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

2.1.9 Hydrogen Sulfide

Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

2.1.10 Visibility-Reducing Particles

Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the view shed of natural scenery, reduced airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above.

2.2 Non-Criteria Air Pollutants

2.2.1 Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, waste processing facilities and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC.

2.2.2 Diesel Particulate Matter

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. CARB classified "particulate emissions from diesel-fueled engines" (DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM.[1] To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000.

2.3 Regulatory Setting

2.3.1 Federal and State Ambient Air Quality Standards for Criteria Air Pollutants

The Federal Clean Air Act (CAA) requires the adoption of National Ambient Air Quality Standards (NAAQS), which are periodically updated, to protect the public health and welfare from the effects of air pollution. Current federal standards are set for SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Lead (Pb).[2]

The State of California also has established additional standards, known as the California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The current NAAQS and CAAQS are shown in **Table 2-1**.

Specific geographic areas are classified as either "attainment" or "non-attainment" areas for each pollutant based upon the comparison of measured data with the NAAQS and CAAQS. Those areas designated as "non-attainment" for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans developed to meet federal requirements are included in an overall program referred to as the State Implementation Plan (SIP). If the SIP is deemed acceptable, the United States Environmental Protection Agency (USEPA) will delegate responsibility for implementation pursuant to the SIP to the State and/or its air districts therein.

Whenever the USEPA revises or establishes a new NAAQS, the State and the USEPA have specific obligations to ensure that the NAAQS is met.[3] These are listed below:

- The USEPA must designate areas as meeting (attainment areas) or not meeting (non-attainment areas) the NAAQS within two years after its promulgation.
- States must submit "infrastructure SIPs" to show that they have the basic air quality management program components in place to implement the NAAQS within three years after its promulgation.

[1] CARB. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Available at: https://ww2.arb.ca.gov/sites/default/files/classic//diesel/documents/rrpfinal.pdf. Accessed: December 2022.

[2] NAAQS. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed: December 2022.

[3] USEPA. NAAQS Implementation Process. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-implementation-process. Accessed: December 2022.

- States must submit non-attainment area SIPs that outline the strategies and emission control measures that will improve air quality and make the area meet the NAAQS within 18 to 36 months after designation.

The steps involved in the SIP process are described below.[4]

- SIPs must be developed with public input and be formally adopted by the State and submitted to the USEPA by the Governor's designee (CARB in California).
- The USEPA reviews each SIP and proposes to approve or disapprove all or part it. The public is then provided with an opportunity to comment on the USEPA's proposed action. The USEPA considers public input before taking final action on a State's plan.
- If the USEPA approves all or part of a SIP, those control measures are enforceable in federal court. In the event a State fails to submit an approvable SIP or if the USEPA disapproves a SIP, the USEPA is required to develop a Federal Implementation Plan.

Table 2-2 summarizes the attainment status of Los Angeles County for the pollutants regulated by the NAAQS and CAAQS.[5] As seen in **Table 2-2**, Los Angeles County is currently in attainment (including where unclassified or maintenance) for: the federal 24-hour PM_{10} standard, the federal and State CO standards, the federal and State NO_2 standards, the federal and State SO_2 standards, and the State hydrogen sulfide, vinyl chloride, sulfates, and visibility-reducing particles standards. However, as also shown in **Table 2-2**, Los Angeles County is currently designated as nonattainment for the federal and State O_3 standards, the State PM_{10} standards, the federal and State $PM_{2.5}$ standards, and the federal lead standards.[6, 7, 8]

2.3.2 Federal Heavy-duty Engines and Vehicles Fuel Efficiency Standards

In 2010, President Obama issued a memorandum directing federal agencies to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and National Highway Traffic Safety Administration (NHTSA) proposed stringent, coordinated federal GHG and fuel economy standards for model year 2017–2025 light-duty vehicles. The proposed standards are projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

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[4] USEPA. State Implementation Plan Development Process. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-implementation-process. Accessed: December 2022.

[5] USEPA. Non-attainment Areas for Criteria Pollutants (Green Book). Available at: https://www.epa.gov/green-book. Accessed: December 2022.

[6] USEPA. Non-attainment Areas for Criteria Pollutants (Green Book). Available at: https://www.epa.gov/green-book. Accessed: December 2022.

[7] California standard attainment status based on CARB website. Available at: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed: December 2022.

[8] SCAQMD. 2016. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin. February. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=14. Accessed: December 2022.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles.

In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion metric tons (MT) and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.[9]

In August 2017, the USEPA asked for additional information and data relevant to assessing whether the GHG emissions standards for model years 2022-2025 remain appropriate. In early 2018, the USEPA Administrator announced that the midterm evaluation for the GHG emissions standards for cars and light-duty trucks for model years 2022-2025 was completed and stated his determination that the current standards should be revised in light of recent data. Subsequently, in April 2018, the USEPA and NHTSA proposed to amend certain existing Corporate Average Fuel Economy (CAFE) standards for passenger cars and light trucks and establish new standards, covering model years 2022-2025. Compared to maintaining the post-2020 standards now in place, the pending proposal would increase U.S. fuel consumption.[10] California and other states have announced their intent to challenge federal actions that would delay or eliminate GHG reductions. In April 2020, NHTSA and EPA amended the CAFE and GHG emissions standards for passenger cars and light trucks and established new less stringent standards, covering model years 2021 through 2026.

On September 27, 2019, the USEPA and NHTSA published the SAFE Rule (Part One).[11] The SAFE Rule (Part One) went into effect in November 2019, and revoked California's authority to set its own GHGs standards and set zero emission vehicle mandates in California. The SAFE Rule (Part One) freezes new zero emission vehicles (ZEV) sales at model year 2020 levels for year 2021 and beyond, and will likely result in a lower number of future ZEVs and a corresponding greater number of future gasoline internal combustion engine vehicles. In response to the USEPA's adoption of the SAFE Rule (Part One), CARB has issued guidance

[9] USEPA and NHTSA. 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles – Phase 2. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed: December 2022.

[10] NHTSA. 2018. Federal Register, Vol. 83, No. 72, Rules & Regulations, Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles. April 13. Available at: https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty. Accessed: December 2022.

[11] USEPA and NHTSA. 2019. Federal Register, Vol. 84, No. 188, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program. September 27. Available at: https://www.govinfo.gov/content/pkg/FR-2019-09-27/pdf/2019-20672.pdf. Accessed: December 2022.

regarding the adjustment of vehicle emissions factors to account for the rule's implications on criteria air pollutant and greenhouse gas emissions.[12,13]

The SAFE Rule is subject to ongoing litigation and on February 8, 2021 the D.C. Circuit Court of Appeals granted the Biden Administration's motion to stay litigation over Part 1 of the SAFE Rule. On April 22 and April 28, 2021, respectively, NHTSA and USEPA formally announced their intent to reconsider the Safe Rule (Part One).[14] In August 2021, EPA proposed to revise existing national greenhouse gas (GHG) emissions standards for passenger cars and light trucks for Model Years 2023- 2026 to make the standards more stringent. The NHTSA finalized the Corporate Average Fuel Economy Pre-emption rulemaking to withdraw its portions of the SAFE I Rule on December 21, 2021.[15]

On August 5, 2021, EPA announced plans to reduce greenhouse gas (GHG) emissions and other harmful air pollutants from heavy-duty trucks through a series of rulemakings over the next three years. The first rulemaking, to be finalized in 2022, will apply to heavy-duty vehicles starting in model year 2027, and will set new standards for criteria pollutants for the entire sector as well as targeted updates to the current GHG emissions standards.[16]

2.3.3 Federal Hazardous Air Pollutants Program

The 1977 CAA Amendments required the USEPA to identify National Emissions Standards for Hazardous Air Pollutants (NESHAPs) to protect the public health and welfare. Hazardous air pollutants include certain VOCs, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA Amendments, which expanded the control program for hazardous air pollutants, 189 substances and chemical families were identified as hazardous air pollutants.

2.3.4 California's Air Toxics Program

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and non-carcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) hazardous air pollutants.

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not reduce the

[12] CARB. 2019. EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One. November 20. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf. Accessed: December 2022.

[13] CARB. 2020. EMFAC Off-Model Adjustment Factors for Carbon Dioxide Emissions to Account for the SAFE Vehicles Rule Part One and the Final SAFE Rule. June 26. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf. Accessed: December 2022.

[14] USEPA. 2021. Federal Register, Vol. 86, No. 80, California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment. April 28. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/notice-reconsideration-previous-withdrawal-waiver. Accessed: December 2022.

[15] NHTSA. Available at: https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed: February 2022.

[16] USEPA. 2021. Clean Trucks Plan. https://www.epa.gov/regulations-emissions-vehicles-and-engines/clean-trucks-plan. Accessed: December 2022.

quantity of air toxics emissions. Instead, under AB 2588, TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The plan was anticipated to result in an 85% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There also are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

2.3.5 California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.3.6 California's Pavley Standards

AB 1493 ("the Pavley Standard" or AB 1493) required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 through 2016.

CARB's approach to passenger vehicles (cars and light trucks), under AB 1493, combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light-duty trucks used by customers, employees of and deliveries to the Project. While AB 1493 focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

2.3.7 California's Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars (ACC) program,[17] a new emissions-control program for model year 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions. While ACC focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants. At the time of this writing, CARB has adopted the Advanced Clean Cars II (ACC II) regulations which "seek to reduce criteria and greenhouse

[17] Advanced Clean Cars Program. Available at: https://ww2.arb.ca.gov/index.php/our-work/programs/advanced-clean-cars-program. Accessed: December 2022.

gas emissions from new light- and medium-duty vehicles beyond the 2025 model year and increase the number of zero emission vehicles (ZEV) for sale".[18]

2.3.8 California's Advanced Clean Trucks

In June 2020, CARB approved the Advanced Clean Trucks regulation, which has requirements for manufacturer ZEV sales and a one-time reporting requirement for large entities and fleets.[19] The Advanced Clean Truck Regulation is part of a holistic approach to accelerate a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines are required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. Large employers including retailers, manufacturers, brokers, and others are required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, are required to report about their existing fleet operations. This information helps to identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

2.3.9 California's Diesel Emissions Control Measures

CARB has adopted a number of Airborne Toxic Control Measures (ATCMs) to control diesel particulate emissions and emissions from in-use on- and off-road diesel-fueled vehicles. With the assistance of the Advisory Committee and its subcommittees, CARB developed and approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*[20] and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*.[21] Various control measures adopted by CARB to reduce diesel emissions are summarized below.

2.3.9.1 ATCM: Diesel-Fueled Commercial Motor Vehicle Idling

This ATCM applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. The measure limits idling of trucks to a maximum of 5 minutes, except when the vehicle is queuing.[22] While this ATCM focuses on the reduction of diesel particulate emissions as a toxic, this regulation would also help reduce criteria air pollutants.

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[18] Advanced Clean Cars II Program. Available at: https://ww2.arb.ca.gov/advanced-clean-cars-ii-meetings-workshops. Accessed: December 2022.

[19] CARB. 2020. Advanced Clean Trucks. Available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed: December 2022.

[20] CARB. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Available at: https://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed: December 2022.

[21] CARB. 2008. California's Diesel Risk Reduction Plan: Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. Available at: https://www.arb.ca.gov/diesel/documents/rmg.htm. Accessed: December 2022.

[22] 13 CCR 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Available at: https://govt.westlaw.com/calregs/Document/I6DACC2EF0D6441DDA5B788DFEDCD1A22?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default). Accessed: December 2022.

2.3.9.2 ATCM: Stationary Compression Ignition Engines

This ATCM establishes emission standards and fuel use requirements for new and in-use stationary engines used in prime and emergency back-up applications (non-agricultural) and for new stationary engines used in agricultural applications.[23] While this ATCM focuses on the reduction of diesel particulate emissions as a toxic, this regulation would also help reduce criteria air pollutants.

2.3.9.3 In-Use Off-Road Diesel-Fueled Fleets

These regulations reduce diesel PM and NO_x emissions from in-use, off-road heavy-duty diesel vehicles in California. Such vehicles typically are used in construction, mining, and industrial operations. The regulations, among other requirements, impose limits on idling; require all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; restrict the adding of older vehicles into fleets; and require fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (VDECS) (i.e., exhaust retrofits).

The requirements and compliance dates of the regulations vary by fleet size. Large fleets have compliance deadlines each year from 2014 through 2023, medium fleets each year from 2017 through 2023, and small fleets each year from 2019 through 2028.[24] At the time of writing, CARB is in the process of developing a regulation amendment. The target of the amendment aligns with the targets set out by the 2020 Mobile Source Strategy, which sets a goal of reducing statewide NOx emissions from the construction and earth moving sector by 7.5 tons/day by 2031.

2.3.9.4 Truck and Bus Regulation

The Truck and Bus Regulation (13 CCR 2025) requires diesel trucks and buses to be upgraded to reduce emissions; newer heavier trucks and buses must meet PM filter requirements; lighter and older heavier trucks must be replaced; and, by January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent to reduce PM and NOx emissions.

The regulation applies to nearly all privately- and federally-owned diesel-fueled trucks and buses, and to privately- and publicly-owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.

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[23] 17 CCR 93115: Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines. Available at: https://govt.westlaw.com/calregs/Document/I32577B50D60811DE88AEDDE29ED1DC0A?originationContext=Search+Result&listSource=Search&viewType=FullText&navigationPath=Search%2fv3%2fsearch%2fresults%2fnavigation%2fi0ad62d2e00000160511f23fc18257bb0%3fstartIndex%3d1%26Nav%3dREGULATION_PUBLICVIEW%26contextData%3d(sc.Default)&rank=1&list=REGULATION_PUBLICVIEW&transitionType=SearchItem&contextData=(sc.Search)&t_T1=17&t_T2=93115&t_S1=CA+ADC+s. Accessed: December 2022.

[24] 13 CCR 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets. Available at: https://govt.westlaw.com/calregs/Document/ID1C693E02DDD11E197D9B83B68A61150?originationContext=Search+Result&listSource=Search&viewType=FullText&navigationPath=Search%2fv3%2fsearch%2fresults%2fnavigation%2fi0ad62d2e000001605120fcc918257bd2%3fstartIndex%3d1%26Nav%3dREGULATION_PUBLICVIEW%26contextData%3d(sc.Default)&rank=1&list=REGULATION_PUBLICVIEW&transitionType=SearchItem&contextData=(sc.Search)&t_T1=13&t_T2=2449&t_S1=CA+ADC+s. Accessed: December 2022.

2.3.10 Local Regulations and Guidance

Air pollution often does not conform to city and/or county jurisdictional boundaries, and the State has been divided into air basins based on geographical and meteorological conditions. Air pollution within each air basin is regulated by the regional air pollution control districts/air quality management districts, in a manner that is consistent with and in furtherance of standards adopted by the USEPA and CARB. The Project site is located within the South Coast Air Basin (SCAB) and is subject to the guidelines and regulations of the South Coast Air Quality Management District (SCAQMD).

2.3.10.1 South Coast Air Quality Management District

While CARB is responsible for the regulation of mobile emission sources within the state, local Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) are responsible for enforcing standards and regulating stationary sources. The Project is located within the SCAB and is subject to the guidelines and regulations of the SCAQMD.

The SCAQMD was created by the 1977 Lewis-Presley Act, which merged four county air pollution control bodies (i.e., Los Angeles, Orange, and Riverside Counties, and the non-desert portion of San Bernardino County) into one regional district for the SCAB. In the SCAB, the SCAQMD is the agency responsible for protecting public health and welfare through the administration of federal and State air quality laws, regulations, and policies. Included in the SCAQMD's tasks are the monitoring of air pollution, the preparation of the Air Quality Management Plan (AQMP) for the SCAB, and the promulgation of rules and regulations. The AQMP includes strategies and tactics to be used to attain the NAAQS and CAAQS standards in SCAB, whereas the rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

For the Project area, the Southern California Association of Governments (SCAG) is the federally-designated Metropolitan Planning Organization and the state-designated transportation planning agency for six counties: Riverside, San Bernardino, Los Angeles, Ventura, Imperial, and Orange Counties.

The SCAQMD and SCAG are jointly responsible for preparing the AQMP for the SCAB. In particular, the 2016 AQMP is based on demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2016 Regional Transportation Plan (RTP), which forms part of SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Thus, consistency with the planning assumptions contained within the RTP/SCS demonstrates consistency with SCAQMD's 2016 AQMP. SCAG's 2016-2040 RTP/SCS was adopted in April 2016.[25] In May 2020, SCAG released the final 2020-2045 RTP/SCS called Connect SoCal.[26] Connect SoCal was adopted by SCAG's Regional Council on September 3, 2020.

Additionally, with respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan (RCP) for the SCAG region, which includes Growth Management and Regional Mobility chapters, which form the basis for the land use and transportation

[25] SCAG. 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. April. Available at: https://scag.ca.gov/sites/main/files/file-attachments/f2016rtpscs.pdf?1606005557. Accessed: December 2022.

[26] Available at: https://scag.ca.gov/read-plan-adopted-final-plan. Accessed: December 2022.

components of the AQMP. These chapters are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

Below is a list of SCAQMD rules relevant to the Project:

SCAQMD Rule 402: Nuisance

Prohibits discharges of air contaminants that causes nuisance to the public.

SCAQMD Rule 403: Fugitive Dust

Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and disturbed surface areas, as well as track-out beyond an active operation.

SCAQMD Rule 1113: Architectural Coatings

Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

SCAQMD Rule 1470: Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

Implements the ATCM for Stationary Compression Ignition Engines for engines greater than 50 horsepower (hp). Sets forth requirements to reduce PM emissions and requires off-road engines to meet standards specified in the Off-Road Compression-Ignition Engine Standards. Establishes additional requirements for engines located in close proximity to existing schools.

Air Quality Management Plan Status

The AQMP and SIP processes generally occur concurrently: The SIP is required under the federal CAA to provide the framework for non-attainment areas to come into attainment of the NAAQS, and the AQMP is prepared by the SCAQMD, in part, to satisfy the requirement for a SIP. The AQMP traditionally evaluates all criteria pollutants; portions of the AQMP represent the required SIP elements, which are then transmitted to CARB for review, approval, and transmittal to the USEPA for inclusion in the overall California SIP.

The SCAQMD has been preparing AQMPs (and related SIP elements) since the 1989 AQMP. The list below presents the AQMPs prepared by the SCAQMD and a short summary of included SIP elements:

- **1989 AQMP** - 1-hour ozone SIP elements.
- **1991 AQMP** - 1-hour ozone SIP elements (attainment demonstration).
- **1994 AQMP** - 1-hour ozone SIP elements designed to forestall a potential FIP and PM_{10} SIP elements describing Best Available Control Measures.
- **1997 AQMP** - PM_{10} SIP elements (attainment demonstration) and updated 1-hour ozone SIP elements.
- **1999 AQMP** - Revisions to 8-hour ozone SIP elements as part of the 1997 AQMP lawsuit settlement agreement.
- **2003 AQMP** - Update of some PM_{10} and 1-hour ozone SIP elements.

- **2007 AQMP** - New federal standards requiring 8-hour ozone and $PM_{2.5}$ SIP elements (including new attainment demonstrations and control measures).
- **2012 AQMP** - New federal 24-hour $PM_{2.5}$ standard requiring 24-hour $PM_{2.5}$ SIP elements (attainment demonstration).
- **2016 AQMP** - Update of ozone and $PM_{2.5}$ SIP elements (including new attainment demonstrations and control measures)
- **2022 AQMP** – Includes a variety of new strategies (such as accelerated deployment of available cleaner technologies, etc.) to achieve the 2015 8-hour ozone standard

As previously mentioned, **Table 2-2** shows that Los Angeles County is currently designated as nonattainment for the federal and State O_3 standards; the State PM_{10} standards; the federal and State $PM_{2.5}$ standards; the State NO_2 standards.[27,28] In addition, the southern portion of Los Angeles County is designated as nonattainment for the federal lead standard.

The current status of the AQMPs for these non-attainment pollutants are shown below:

- The 2007 AQMP provides attainment demonstrations for the annual $PM_{2.5}$ standard by April 5, 2015 and of the 8-hour O_3 standard by December 31, 2023; SCAQMD and CARB submitted the amendments to the USEPA. In 2009 and 2011, respectively, at the request of the USEPA, CARB provided clarifying revisions to the annual $PM_{2.5}$ and 8-hour O_3 SIP amendments. In 2011, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration of the annual $PM_{2.5}$ standard by April 5, 2015. In 2012, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration of the annual 8-hour ozone standard by June 15, 2024.[29]
- The 2012 AQMP provides attainment demonstrations for the 24-hour $PM_{2.5}$ standard by 2019 and the 1-hour O_3 standard by 2023. [30,31] In addition, it provides supplemental information for the approved 8-hour ozone SIP. On January 25, 2013, CARB approved the 2012 AQMP, which was subsequently submitted to the USEPA. On September 3, 2014, USEPA issued a final rule approving and promulgating the portions of the SIP

[27] USEPA. The Green Book Non-Attainment Areas for Criteria Pollutants. Available at: https://www.epa.gov/green-book. Accessed: December 2022.

[28] CAAQS attainment status based on CARB website. Available at: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed: December 2022.

[29] CARB. 2013. South Coast Air Basin 2012 PM2.5 and Ozone State Implementation Plans, Resolution No. 13-3. January 25. Available at: https://ww3.arb.ca.gov/planning/sip/planarea/scabsip/resolution13-3.pdf. Accessed: December 2022.

[30] SCAQMD. 2012. Air Quality Management Plan. Main Document. December. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-carb-epa-sip-submittal-(december-2012)/2012-aqmp-carb-epa-sip-submittal-main-document.pdf. Accessed: December 2022.

[31] SCAQMD. 2012. Air Quality Management Plan. Appendix VII – 1-hour Ozone Attainment Demonstration. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-carb-epa-sip-submittal-(december-2012)/2012-aqmp-carb-epa-sip-submittal-appendix-vii.pdf. Accessed: December 2022.

revision related to the 1-hour and 1997 8-hour ozone standards.[32] In 2015, the SCAQMD prepared a Supplement to the 24-hour $PM_{2.5}$ SIP to address Subpart 4 provisions and requirements. On February 12, 2018, USEPA issued a final rule approving and promulgating portions of the SIP revision that addressed the requirements for the 2006 24-hour $PM_{2.5}$ standard.[33]

- The 2016 AQMP provides attainment demonstrations for the 8-hour O_3 standards; 1997 standard (0.08 parts per million [ppm]) by 2023 and 2008 standard (0.075 ppm) by 2031, the 1-hour O3 standard by 2022, 24-hour PM2.5 standard by 2019 and the annual $PM_{2.5}$ standard by 2025. The SCAQMD adopted the 2016 AQMP on March 3, 2017 and submitted the plan to CARB on March 10, 2017. CARB adopted the 2016 AQMP on March 23, 2017 and submitted it to USEPA as a revision to the California SIP on April 27, 2017. On February 12, 2019, USEPA issued a final rule approving and promulgating portions of SIP revision that addresses the requirements for the 2006 24-hour $PM_{2.5}$ standard.[34]

2.3.10.2 Culver City

The current Culver City General Plan, adopted originally in 1994, has land use, circulation, housing, open space, noise, conservation, seismic safety, public safety, and recreation elements. One goal of the plan is for clean air that provides a healthy environment.

The City is currently undergoing a General Plan Update, which is expected to be reviewed and adopted in 2024.

2.4 Environmental Setting

2.4.1 Local Air Quality Monitoring Data

The Project is located within the SCAQMD jurisdiction. The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB. The Northwest Coastal LA County air monitoring station is the station closest to the Project. The Northwest Coastal LA County monitoring station monitors carbon monoxide (CO), nitrogen dioxide (NO_2), and ozone (O_3). Sulfur dioxide (SO_2) data was obtained from the next nearest station, the Southwest Coastal LA County monitoring station. Particulate matter (PM) of aerodynamic diameter less than 2.5 microns ($PM_{2.5}$) and 10 microns (PM_{10}) data were obtained from the Central LA monitoring station.

Table 2-3 lists the five recent years of published data at the monitoring stations for CO, NO_2, O_3, SO_2, $PM_{2.5}$, and PM_{10}, which shows:

- O_3 levels have exceeded the State 1-hour in two of the past five years, and the 8-hour standards and the federal standard in all of the past five years;

[32] USEPA. 2014. Federal Register, Vol. 79, No. 170, Approval and Promulgation of Implementation Plans; California; South Coast 1-Hour and 8-Hour Ozone. Available at:¬ https://www.govinfo.gov/content/pkg/FR-2014-09-03/pdf/2014-20790.pdf. Accessed: December 2022.

[33] USEPA. 2018. Federal Register, Vol. 83, No. 29, Air Quality State Implementation Plans; Approvals and Promulgations: California; South Coast Moderate Area Plan for the 2006 PM2.5 Standards; Correction of Deficiency. Available at: https://www.govinfo.gov/content/pkg/FR-2018-02-12/pdf/2018-02677.pdf. Accessed: December 2022.

[34] USEPA. 2019. Federal Register, Vol. 84, No. 29, Approval and Promulgation of Implementation Plans; California; South Coast Serious Area Plan for the 2006 PM2.5 NAAQS. https://www.govinfo.gov/content/pkg/FR-2019-02-12/pdf/2019-01922.pdf. Accessed: December 2022.

- CO levels are below the State and federal standards;
- NO_2 levels are below the State and federal standards;
- SO_2 levels are below the State and federal standards;
- PM_{10} levels exceeded the State 24-hour standard in one of the past five years, and the State annual standards in three of the past five years; PM_{10} levels are below the federal 24-hour standard; and
- $PM_{2.5}$ levels exceeded federal 24-hour standards in all of the past five years, and were below State and federal annual levels in all years except 2018 and 2020.

3. SIGNIFICANCE THRESHOLDS

3.1 California Environmental Quality Act Guidelines

The analysis provided in this report evaluates the significance of the Project's criteria air pollutant emissions by reference to the following questions from Section III, Air Quality, of Appendix G of the California Environmental Quality Act (CEQA) Guidelines[35]:

Threshold 1. Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Threshold 2. Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?

Threshold 3. Would the Project expose sensitive receptors to substantial pollutant concentrations?

Threshold 4. Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

An evaluation of the Project based on the significance thresholds discussed below is provided in subsequent sections.

3.2 South Coast Air Quality Management District Thresholds

The SCAQMD has established significance thresholds[36] to assess the impacts of project-related construction and operational emissions on regional and local ambient air quality. **Table 3-1** shows the mass daily thresholds for construction and operation as adopted by the SCAQMD for criteria air pollutant emissions and TACs. The analysis summarized in this report estimates project-related construction and operational mass emissions and compares the emissions to these mass daily significance thresholds. This report also evaluates the localized ambient air quality impacts from onsite construction activities using SCAQMD's localized significance threshold (LST) methodology.[37] If emission estimates for the proposed project activities are below the LST emission levels found in the LST mass look-up tables, the proposed construction or operational activity is not significant for air quality. This report does not include an evaluation of ambient air impacts for operational emissions because the Project does not include any of the land uses that typically require such an analysis to be performed based on SCAQMD's methodology.[38] The primary emissions from operational activities that would require an evaluation of project operational emissions relative to ambient air quality significance thresholds include, but are not necessarily limited to, NO_X and CO combustion emissions from stationary sources such as flares and turbines, and/or significant on-site mobile sources such as earth-moving equipment.

[35] California Natural Resources Agency. 2018. Appendix G of the CEQA Guidelines. Available at: http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf. Accessed: December 2022.

[36] SCAQMD 2019. South Coast AQMD Air Quality Significance Thresholds. April. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December 2022.

[37] SCAQMD. 2008. Final Localized Significance Threshold Methodology. July. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed: December 2022.

[38] Ibid.

The SCAQMD has established significance thresholds to assess health risk impacts of TACs from project-related emissions sources on nearby sensitive receptors including residents and other human populations. These significance thresholds include a maximum incremental cancer risk of 10 in a million, incremental chronic and acute hazards indices of 1.0, and cancer burden of 0.5.[39] The analysis summarized in this report evaluates the human health risk impacts from onsite construction activities and from onsite operational emissions to the significance thresholds SCAQMD has established. To evaluate the potential significance of the Project's emissions, this report evaluates whether the Project's estimated emissions would exceed the SCAQMD significance thresholds.

3.3 Project Approach to Significance

This report, relative to threshold 1, evaluates the Project for consistency with applicable plans related to emissions, including the regional air quality attainment plans. This report, relative to threshold 2, quantifies the Project's emissions during construction and operations and compares those results to the applicable SCAQMD thresholds. Relative to threshold 3, this report includes a CO hotspots analysis and summarizes results of the Health Risk Assessment Technical Report which assesses the potential health risk impacts to sensitive receptors. This report, relative to threshold 4, evaluates the potential for odor-generating activities from the Project.

[39] SCAQMD. 2019. South Coast AQMD Air Quality Significance Thresholds. April. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December 2022.

4. AIR QUALITY EMISSIONS INVENTORY

This section describes the methodology that Ramboll used to develop the criteria air pollutant emission inventories associated with the Project, which include one-time emissions associated with construction of the Project and annual emissions associated with operation of the Project. Existing operational emissions are quantified for 2021 while emissions due to operation of the Project are quantified for the first year of operations (i.e., 2023). Sub-categories of operational emissions include the following: area, energy, mobile, and gasoline dispensing facility sources.

4.1 Resources

4.1.1 California Emission Estimator Model®

Ramboll primarily utilized the California Emissions Estimator Model (CalEEMod®) version 2020.4.0[40] methodology to assist in quantifying the criteria air pollutant emissions in the inventories presented in this report for the proposed project. CalEEMod® provides methodologies to calculate both construction emissions and operational emissions from a land use development project. It calculates daily or annual criteria air pollutant emissions. Specifically, the model methodology aids the user in the following calculations:

- One-time short-term construction emissions associated with site preparation, grading, building, and paving from off-road construction equipment, and on-road mobile equipment associated with workers, vendors, and hauling.
- Operational emissions associated with the fully built out project, such as on-road mobile vehicle traffic generated by the land uses, emissions from architectural coating, and emissions from consumer products.

CalEEMod® is a statewide program designed to calculate both criteria pollutant and GHG emissions from development projects in California developed under the auspices of the SCAQMD, with input from other California air districts, and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the USEPA AP-42 emission factors[41], CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

As mentioned above, CalEEMod® is based upon the CARB-approved OFFROAD and EMFAC models. OFFROAD[42] is an emission factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). The off-road

[40] SCAQMD. 2020. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: December 2022.

[41] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors. Accessed: December 2022.

[42] CARB. 2011. Off Road Mobile Source Emission factors. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory. Accessed: December 2022.

diesel emission factors used by CalEEMod® are based on the CARB OFFROAD2011 program. EMFAC2017[43] is the emission factor model used in CalEEMod® to calculate emissions rates from on-road vehicles (e.g., passenger vehicles). EMFAC2017 has been superseded by EMFAC2021. In order to allow for a more accurate representation of mobile source operational emissions associated with the Project, operational mobile source emission factors were estimated using EMFAC2021. These emissions factors were then used to estimate mobile source operational emissions based on CalEEMod® methodology and defaults along with Project specific values where available.

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. Ramboll used default factors for the Los Angeles County area (within the SCAQMD's jurisdiction) for the emissions inventory, unless otherwise noted in the methodology descriptions below.

4.1.2 Gasoline Dispensing Facility Data

Where possible, Ramboll utilized Facility-specific data to estimate Existing and Project emissions. This data was obtained through communication with facility personnel (e.g., for activity information for construction or gasoline annual throughput dispensed at the GDF).

4.2 Construction Emissions

This section describes the calculation of criteria air pollutant emissions from construction activities at the Project site. While the exact construction schedule and equipment mix may vary from the current analysis, the emissions are not expected to be higher than that calculated given the conservative assumptions included in the analysis.

The major construction phases included in this analysis are:

- Demolition: involves removing buildings or structures.
- Grading: involves the cut and fill of land to ensure the proper base and slope for the construction foundation.
- Paving: involves the laying of concrete or asphalt such as in parking lots or roads.
- Building Construction: involves the construction of structures and buildings.
- Architectural Coating: involves parking and lane striping

The proposed schedule for constructing the Project is shown in **Table 4-1**. Construction-related emissions of ROGs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ were estimated using CalEEMod®. PM emissions are composed of exhaust emissions and fugitive emissions. Exhaust emissions are typically given out by a combustion engine of on-road vehicles and/or off-road equipment. Fugitive emissions are PM dust suspended in the air by wind action and construction related activities. Default on-site equipment lists in CalEEMod® supplemented with Project-specific material movement inputs were used for the various construction phases.

[43] CARB. 2015. Mobile Source Emissions Inventory. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools. Accessed: January 2022.

4.2.1 Emissions from Construction Equipment

The emission calculations associated with construction equipment are from off-road equipment engine use based on the equipment list and phase length, and on-road vehicle trips and phase length.

Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod® methodology assumes all of the equipment operates on diesel fuel. The calculations include the running exhaust emissions from off-road equipment. Since the equipment is assumed to be diesel, there are no starting emissions associated with the equipment, as these are *de minimis* for diesel-fueled equipment. CalEEMod® calculates the exhaust emissions based on default values for horsepower and load factor from CARB's OFFROAD2011.[44]

Project construction would include on-site equipment during grading/excavation and site preparation that generates fugitive dust. The construction-related equipment mix assumptions are CalEEMod® default. The combustion emissions from this equipment were calculated using CalEEMod® methodology; the fugitive dust emissions from this equipment were calculated using the quantity of material moved and AP-42 emissions factors. PM_{10} and $PM_{2.5}$ emissions from fugitive dust will be controlled by watering the construction site in accordance with SCAQMD Rule 403 for fugitive dust control. CalEEMod® defaults assume watering the construction site twice a day reduces the fugitive dust emissions by 55%.

4.2.2 Emissions from On-Road Construction Trips

Construction generates on-road vehicle criteria air pollutant emissions from personal vehicles for worker and vendor commuting.

These emissions are calculated in CalEEMod® based on the number of trips and vehicle miles traveled (VMT) along with emission factors from EMFAC2017. The numbers of worker and vendor trips represent defaults from CalEEMod® based on the construction equipment to be used. The number of haul trips was estimated based on the volume of soil to be imported/exported (**Table 4-2**) and the square footage to be demolished (**Table 4-3**).

4.2.3 Fugitive Dust

Fugitive dust contributes to PM_{10} and $PM_{2.5}$ emissions and is generated by the various construction activities occurring at the Project site including entrained road dust, grading, demolition, and truck loading.

Entrained road dust is generated by vehicle travel on paved and unpaved roads. Emission factors for entrained road dust are on a "per mile" basis. In CalEEMod®, entrained road dust emission factors are based on the equations presented in the Paved Roads and Unpaved Roads chapters of USEPA's AP-42 and are then multiplied by the total VMT for Project-related trips. Emissions from entrained road dust were estimated using CalEEMod® and are presented in **Appendix A**.

Fugitive dust emissions from bulldozing equipment (i.e., rubber-tired dozers), grading equipment (i.e., graders, rubber-tired dozers, and scrapers), and demolition activity occur during the Project construction. In addition, truck loading activities would generate fugitive dust emissions. The construction material movement and demolition assumptions are

[44] SCAQMD. 2020. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: December 2022.

presented in **Table 4-2** and **Table 4-3**, respectively. Emissions from these sources were estimated using CalEEMod® and are presented in **Appendix A**.

4.2.4 Architectural Coating

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, and from the painting of stripes, handicap symbols, directional arrows, and car space descriptions in parking lots. CalEEMod® was used to estimate VOC evaporative emissions from application of surface coatings and painting of parking lots. These emissions are presented in **Appendix A**.

4.2.5 Paving

CalEEMod® methodology was used to estimate the VOC off-gassing emissions associated with asphalt paving. The emissions associated with paving are presented in **Table 4-4**.

4.2.6 Stationary Back-up Generator

There is a stationary back-up generator planned to be utilized during construction. This analysis conservatively assumes that the generator will be needed during the entire duration of construction. The unit is a Tier 4 Final diesel-powered portable internal combustion engine rated at 95 brake-horsepower (bhp). Emission factors were extracted from CalEEMod®. Maximum daily emissions were calculated based on Project-specific estimates of the number of hours per day the generator would be used during construction. The emissions associated with this stationary back-up generator during construction are presented in **Table 4-5**.

4.2.7 Construction Project Design Feature

The following construction project design feature was incorporated into the analysis, which is quantified in the construction inventory:

- All off-road diesel-powered construction equipment, as feasible, greater than 50 horsepower shall meet, at a minimum, the Tier 4 emission standards for nonroad diesel engines promulgated by the U.S. Environmental Protection Agency (USEPA).

4.2.8 Total Construction Emissions

The daily criteria air pollutant emissions associated with construction are shown in **Table 4-6**. The maximum daily criteria air pollutant emissions are below the SCAQMD mass daily significance thresholds.

4.3 Operational Emissions

This section describes the calculation of criteria air pollutant emissions from operational activities at the Project site. Operational emissions are evaluated for Existing conditions in 2021 and for the first year of Project Operation in 2023.

4.3.1 Area Sources

Area sources are those emissions that are generally too small to be uniquely identified as point sources and are thus generally aggregated as a group. CalEEMod® estimates emissions for the following sources, which are included under the category of "area" sources: landscaping equipment (e.g., lawn mowers), consumer products, and architectural coatings. Criteria air pollutant emissions due to natural gas combustion in buildings, could also be considered area sources, but are reported by CalEEMod® in the emissions associated with building energy use (described below).

The criteria air pollutant emissions generated by the Project were calculated using CalEEMod® defaults and can be viewed in **Appendix A**.

4.3.2 Energy Sources

Criteria air pollutant emissions are emitted from buildings as a result of activities for which natural gas is typically used as an energy source. Combustion of fossil fuels, such as natural gas, emits criteria air pollutants directly into the atmosphere. Climate Zone 11 was selected based on the CEC forecast climate zone map shown in the CalEEMod® User's Guide. The analysis assumes that the Project's land uses accord to the 2019 Title 24 Standards, as that code cycle became effective on January 1, 2020. To calculate the total building natural gas input for the Project, Ramboll utilized default values provided in CalEEMod®, which are based on the Commercial End-Use Survey (CEUS).

Criteria air pollutant emissions from the natural gas consumption were estimated in CalEEMod® and can be viewed in **Appendix A**.

4.3.3 Mobile Sources

The criteria air pollutant emissions associated with on-road mobile sources are generated from customers and fuel delivery trucks travelling to and from the Project site. The emissions associated with on-road mobile sources include running, idling and starting exhaust emissions, evaporative emissions, tirewear, brakewear, and entrained road dust. Running emissions are dependent on VMT. Starting and evaporative emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. Ramboll calculated mobile source emissions using the trip rates and trip length information provided by Kittelson & Associates, Inc (Kittelson).

The analysis includes the benefit of reductions from some adopted regulatory programs, which are accounted for within the EMFAC2021 model as follows:

- AB 1493 ("the Pavley Standard") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and thereafter. CalEEMod® and EMFAC2021 include emission reductions for non-commercial passenger vehicles and light-duty trucks of model year 2017 – 2025.
- The ACC program, introduced in 2012, combines the control of smog, soot causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2015 through 2025. CalEEMod® and EMFAC2021 include reductions associated with this regulation that are represented in this analysis. While ACC focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.
- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 1) were adopted in 2011 for medium and heavy-duty trucks for model years 2014-2018.[45] This Heavy-Duty National Program is intended to reduce fuel use and GHG emissions from medium- and heavy-duty vehicles, semi-trucks, pickup trucks and vans, and all types and sizes of work trucks and buses in between. CalEEMod® and EMFAC2021 include reductions associated with this regulation that are represented in this analysis.

[45] USEPA, Office of Transportation and Air Quality. 2011. Available at: https://www.gpo.gov/fdsys/pkg/FR-2011-09-15/pdf/2011-20740.pdf. Accessed: December 2022.

- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 2) were adopted in 2016 for medium- and heavy-duty trucks for model years 2018 and beyond.[46] The Phase 2 program includes technology-advancing standards that substantially reduce GHG and criteria pollutant emissions and fuel consumption resulting in an ambitious, yet achievable, program that will allow manufacturers to meet the applicable standards over time, at reasonable cost, through a mix of different technologies. The Phase 2 program's standards will be phased in, beginning with model year 2021 and culminating with model year 2027. [47]

In November 2019, CARB released EMFAC off-model adjustment factors to account for the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One,[48] however, the NHTSA finalized the Corporate Average Fuel Economy Pre-emption rulemaking to withdraw its portions of the SAFE I Rule on December 21, 2021.[49] The SAFE Rule has been incorporated into EMFAC2021, which is used in this analysis making this analysis a conservative estimate for the mobile emissions.

4.3.3.1 Calculating Mobile Source Emissions

Mobile source emissions calculation requires trip rates and trip lengths for each different trip type in the Project (e.g., passenger vehicles and fuel delivery trucks). The following sections describe the methodology to derive the necessary inputs.

a) Trip Generation Rates

The trip generation rates for Project and Existing Trips were provided by Kittelson and are shown in **Appendix B** and **Appendix C**, respectively. The peak daily trips were used to establish maximum daily vehicle miles traveled for the Existing and Project conditions. The number of truck trips associated with fuel delivery are provided by Costco.

b) Trip Lengths

Passenger vehicle trip lengths were based on default trip lengths for Los Angeles County in CalEEMod®. The fuel delivery truck trip length of 17 miles was provided by Kittelson. These trip lengths are represented in **Appendix B** and **Appendix C**.

c) Fleet Mix

The CalEEMod® default fleet mix was used to determine the mix of light-duty vehicles used for passenger vehicles. Fuel delivery trucks were assumed to be heavy-heavy-duty trucks. The fleet mixes utilized for the operational mobile trips are shown in **Appendix B** and **Appendix C**.

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[46] USEPA, Office of Transportation and Air Quality. 2016. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed: December 2022.

[47] The emission reductions attributable to Phase 2 of the regulations for medium- and heavy-duty trucks were not included in the Project's emissions inventory due to the difficulty in quantifying the reductions. Excluding these reductions results in a more conservative (i.e., higher) estimate of emissions for the Project.

[48] CARB. 2019. EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One. Available at: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf. Accessed: December 2022.

[49] NHTSA. Available at: https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed: February 2022.

d) Mobile Source Emission Factors

Exhaust, evaporative, tire wear, and brake wear emission factors were obtained from EMFAC2021 for Los Angeles County (South Coast) and are presented in **Appendix B** (Project) and **Appendix C** (Existing). Emission factors for passenger vehicles were calculated as a fleet-weighted average. Entrained road dust emission factors were calculated following guidance in the CalEEMod® User's Guide, Appendix A, which is based on AP-42, Section 13.2.1 for vehicles traveling on paved roads. Entrained road dust emission factors for PM10 and PM2.5 are shown in **Appendix B**.

4.3.3.2 Mobile Source Emissions

The emission factors for each vehicle type were calculated from EMFAC2021 model outputs. The emission factors used to estimate mobile emissions from running exhaust, running losses, tire wear, brake wear, and entrained road dust are on a "per mile" basis and thus the emissions were calculated by multiplying these factors by the estimated VMT for each vehicle type. The emission factors for starting exhaust and non-running evaporative processes are on a "per trip" basis and thus the emissions were calculated by multiplying these factors by the estimated number of trips for each vehicle type. The emission factors used to estimate criteria air pollutant emissions from idling are on a "per minute of idling" basis and thus the emissions were calculated by multiplying these factors by the estimated idle duration for each vehicle type.

The overall mobile source emissions are shown in **Appendix B** (Project) and **Appendix C** (Existing).

4.3.4 Operational Gasoline Transfer and Dispensing

Emissions from gasoline transfer and dispensing mainly occur during loading, breathing, refueling, spillage, and from hose permeation. Emission factors were obtained from Table X-1 of SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212.[50] Emissions were calculated based on the existing average annual throughput and the permitted annual throughput of 26.64 million gallons per year. These emissions are presented in **Table 4-7**.

4.3.5 Stationary Back-Up Generator

In the event that electrical power supply is not established by the Project's opening date, a stationary back-up generator may be utilized to power the facility. This unit is a Tier 4 Final diesel-powered portable internal combustion engine rated at 109 bhp. Emission factors were extracted from CalEEMod®. The emissions associated with this stationary back-up generator during operation are presented in **Table 4-8**.

4.3.6 Total Operational Emissions

Table 4-9 summarizes the Existing and Project operational criteria air pollutant emissions. As shown in **Table 4-9**, the Project reduces emissions for NOx, PM_{10}, and $PM_{2.5}$ as compared to the Existing scenario. Additionally, the maximum daily criteria air pollutant emissions are below the SCAQMD mass daily significance thresholds for VOC, CO, and SOx. The VOC emissions show the greatest increase due to the lower existing throughput relative the permitted throughput.

[50] SCAQMD. 2017. Risk Assessment Procedures for Rules 1401, 1401.1, and 212. Version 8.1. September. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: December 2022.

5. HEALTH RISK ASSESSMENT

This HRA evaluates the estimated cancer risk, non-cancer chronic hazard index (HIC), acute hazard index, and cancer burden associated with construction and operation of the Project. To meet these objectives, this HRA was conducted consistent with Air Toxics Hot Spots Program Risk Assessment Guidelines developed by the the California Office of Environmental Health Hazard Assessment (OEHHA).[51] The health risks associated with the existing operation are not included in this analysis to be conservative.

5.1 Estimated Air Concentrations

To evaluate the health risks and concentration of air toxics in the surrounding community, SCAQMD recommends estimating concentrations using air pollution dispersion modeling. The methodologies used to evaluate emissions for the Project are based on the most recent SCAQMD Health Risk Assessment Guidelines and the most recent Air Toxics Hot Spots Program Risk Assessment Guidelines from OEHHA.[52,53]

Air concentrations of TACs from Project emissions are estimated using the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD) at off-site receptors. Details on the inputs and methodology used in the dispersion modeling are discussed further in the sections below.

5.1.1 Toxic Air Contaminant Emissions

Ramboll evaluated excess lifetime cancer risk and chronic hazard index (HIC) for off-site receptors from Project construction emissions. In particular, the construction HRA assesses the lifetime cancer risk and HIC associated with DPM emissions from off-road diesel construction equipment, hauling and vendor trucks, and backup generator operation during construction of the Project. Diesel exhaust, a complex mixture that includes hundreds of individual constituents, is identified by the State of California as a known carcinogen.[54,55] Under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole. We conservatively assumed that all PM_{10} from diesel fueled equipment and trucks is DPM.

Additionally, Ramboll evaluated excess lifetime cancer risk, HIC, and acute hazard index for off-site sensitive receptors from Project operational emissions. In particular, the lifetime cancer risk, HIC, and acute hazard index analysis in the operational HRA assesses impacts from toxic air contaminant emissions associated with Costco members' passenger cars travel, starting, and idling, fuel delivery trucks travel, starting, and idling, gasoline transfer and dispensing, and backup generator operation. The mobile source air toxics speciation

[51] California Environmental Protection Agency (Cal/EPA), Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: December 2022.

[52] Cal/EPA, OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: December 2022.

[53] SCAQMD. Risk Assessment Procedures for Rules 1401 and 212. Version 8.1. October. Available at: http://www.aqmd.gov/home/permits/risk-assessment. Accessed: December 2022.

[54] Cal/EPA, OEHHA. 1998. Findings of the Scientific Review Panel on The Report on Diesel Exhaust, as adopted at the Panel's April 22, 1998, meeting.

[55] Cal/EPA, OEHHA. 2018. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May. Available at: https://www.arb.ca.gov/toxics/healthval/contable.pdf. Accessed: June 2022.

profiles are presented in **Table 5-1**. Emission calculations for the construction and operational HRAs are presented in **Appendix D**.

There is currently no acute non-cancer toxicity value available for DPM and acute HI from gasoline-fueled vehicle activity is expected to be minimal. Thus, an acute HI from the Project's construction was not estimated.

5.1.2 Air Dispersion Modeling Methodology

Ramboll used the most recent version of AERMOD (Version 23132)[56] to estimate ambient air concentrations and evaluate the health risks of TACs from Project operation at off-site receptors.[57,58] For each receptor location, the model generates air concentrations (or air dispersion factors if unit emissions [i.e., 1 g/s] were modeled) that result from emissions from multiple sources.

Air dispersion models such as AERMOD require a variety of inputs such as source parameters, meteorological data, topography information, and receptor parameters. When site-specific information was unknown, default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations were used.

5.1.2.1 AERMOD

AERMOD has been approved for use by USEPA, CARB, and SCAQMD, and incorporates multiple variables in its algorithms including:

- Meteorological data representative of surface and upper air conditions;
- Local terrain data to account for elevation changes; and
- Physical specification of emission sources including information such as:
  - Location;
  - Release height; and
  - Source dimensions.

Dispersion model averaging times are specified based on the averaging times of ambient air quality standards and the air quality significance thresholds established by the appropriate regulatory agencies. For the HRA, the 1-hour averaging time was used to evaluate acute (short-term) effects and the PERIOD averaging time (average concentration for the 5-year meteorological data set) was used to calculate chronic (long-term) health effects.

The following other options in AERMOD were selected for use in this analysis. The regulatory default option was selected based the SCAQMD modeling recommendations,[59] which

[56] USEPA. 2023. User's Guide for the AMS/EPA Regulatory Model (AERMOD). August. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf. Accessed: February 2024.

[57] USEPA. 2004. User's Guide for the AMS/EPA Regulatory Model - AERMOD. April. Available at: https://www.rosemonteis.us/sites/default/files/references/usepa-2004b.pdf. Accessed: December 2022.

[58] USEPA. 2017. Guideline on Air Quality Models (Revised). 40 Code of Federal Regulations, Part 51, Appendix W. Office of Air Quality Planning and Standards. January. Available at: https://www.epa.gov/scram/clean-air-act-permit-modeling-guidance. Accessed: December 2022.

[59] SCAQMD. South Coast AQMD Modeling Guidance for AERMOD. Available at: http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance. Accessed: December 2022.

established the settings for variables such as urban modeling dispersion option, receptor heights, and off-site receptor grid spacing. The air dispersion model was run using a unit emission factor approach. The model output based on a unit emission factor approach was incorporated into a post-processing step with the calculated emission rates to estimate the air concentrations at each receptor.

5.1.2.2 Source Characterization

For construction, area sources were used to represent the on-site construction exhaust and fugitive dust sources from grading, demolition, and truck hauling during construction in AERMOD. Off-site construction vehicle travel was evaluated for assumed roadway links within 0.25 miles of site boundary. Haul trucks and vendor vehicle travel were modeled as line-area sources.[60] The construction backup generator was modeled as a point source. The modeled construction source locations are presented in **Figure 4.** Source parameters for construction equipment and on-road mobile sources were developed based on USEPA's Particulate Matter Conformity Guidance for Hotspot Analysis[61], the USEPA AERMOD user guide,[62] and SCAQMD Localized Significance Threshold Methodology.[63] Source parameters for the backup generator were developed based on BAAQMD Health Risk Assessment Modeling Protocol.[64]

For operation, off-site vehicle travel was evaluated for roadway links in the Project vicinity, extending approximately 0.25 miles from the fueling station boundary. Line (area) sources were used in the air dispersion model to represent the on-site and off-site passenger vehicle and fuel delivery truck travel. Areapoly sources were used to represent on-site passenger vehicle and fuel delivery truck idling. The GDF emission sources were modeled as point sources (loading and breathing emissions) and volume sources (refueling, hose permeation, and spillage). The operational backup generator was modeled as a point source. Modeled source locations are shown in **Figure 1**.

Source parameters for mobile sources (**Appendix E**) were developed based on USEPA's Particulate Matter Conformity Guidance for Hotspot Analysis[65] and the USEPA AERMOD user guide.[66] **Appendix E** presents a list of mobile sources and modeled emission rates. A source

[60] USEPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendices. November. Available at: https://nepis.epa.gov/Exe/ZyPdf.cgi?. Accessed: June 2022.

[61] EPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendix J: Additional Reference Information on Air Quality Models and Data Inputs. Available at: https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf. Accessed: June 2022.

[62] USEPA. User's Guide for the AMS/EPA Regulatory Model (AERMOD). Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf. Accessed: June 2022.

[63] SCAQMD. 2008. Final Localized Significance Threshold Methodology. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed: June 2022.

[64] BAAQMD. 2020. Health Risk Assessment Modeling Protocol. Available at: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en. Accessed: February 2024.

[65] EPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendix J: Additional Reference Information on Air Quality Models and Data Inputs. Available at: https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf. Accessed: December 2022.

[66] USEPA. 2004. User's Guide for the AMS/EPA Regulatory Model (AERMOD). Available at: https://www.rosemonteis.us/sites/default/files/references/usepa-2004b.pdf. Accessed: December 2022.

group was created for each roadway segment. As described earlier, modeling was done using the χ/Q method and emission rates were set to 1 gram per second for each source group.

Source parameters for the GDF emission sources (**Appendix E**) were developed based on SCAQMD Risk Assessment Guidance and the dimensions of the proposed GDF.[67] Source parameters for the backup generator were developed based on BAAQMD Health Risk Assessment Modeling Protocol.[68] The emission rate for each source was modeled as 1 gram per second.

5.1.2.3 Meteorology

SCAQMD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the SCAB. SCAQMD's Santa Monica Airport (KSMO) meteorological data set was selected based on that station's close geographic proximity to the Project. The SCAQMD meteorological data set for January 1, 2012 to December 31, 2016 was used for the analysis.[69] The meteorological station location is presented in **Figure 2**.

5.1.2.4 Land Use

The land uses surrounding the Project alignment are primarily a mix of developed residential and commercial areas. Land use classification was confirmed based on aerial photos. AERMOD offers the option of using either rural or urban dispersion characteristics. Selection of rural or urban dispersion characteristics depends on the predominant land use within a three-kilometer radius of the site. SCAQMD recommends that the urban land use option be chosen for all sources in its jurisdiction. The population of Los Angeles County where the Project is located was used to model urban effects.[70]

Data specifying terrain elevations of sources and receptors are imported into the model. Elevations are based on National Elevation Datasets (NEDs) and consist of an array of regularly spaced points on a horizontal plane for which an elevation is specified. NEDs used in this analysis were obtained from the United States Geologic Survey (USGS) and are spaced at 10 meters by 10 meters.[71]

5.1.2.5 Emission Rates

Emissions were modeled using the χ/Q ("chi over q") method, such that each source group has a unit emission rate (i.e., 1 gram per second [g/s]), and the model estimates dispersion factors (with units of [µg/m^3]/[g/s]). Actual emissions were multiplied by the dispersion factors to obtain concentrations.

Emissions from construction vehicle activity and the construction backup generator were assumed to occur between the hours of 8AM and 8PM on Monday-Friday, 9AM and 7PM on

[67] The exact location of the proposed storage tank is unknown. Therefore, the loading and breathing emission sources associated with the storage tank were placed in the center of the gas station canopy.

[68] BAAQMD. 2020. Health Risk Assessment Modeling Protocol. Available at: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en. Accessed: February 2024.

[69] SCAQMD Meteorological Data for AERMOD. Available at: http://www.aqmd.gov/home/air-quality/meteorological-data/data-for-aermod. Accessed: December 2022.

[70] SCAQMD. South Coast AQMD Modeling Guidance for AERMOD. Available at: https://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance. Accessed: December 2022.

[71] USGS National Elevation Dataset. Available at: https://www.mrlc.gov/tools. Accessed: December 2022.

Saturdays, and 10AM and 7PM on Sundays. Construction will occur 7 days per week from February 2023 to April 2024.

Emissions from refueling, hose permeation, and spillage from gasoline dispensing activities as well as passenger vehicle activity were assumed to occur between the hours of 5:30 AM and 9:30 PM, 7 days per week, and 365 days per year based on the anticipated operating schedule of the fueling station. Emissions from fuel delivery truck activity were to occur 24 hours per day, 7 days per week, and 365 days per year based on the potential for fuel to be delivered at any time of day. Emissions from the backup generator were assumed to occur 24 hours per day, 7 days per week, for the first two months of project operation based on the potential for a delay in establishing a permanent power source at the start of operation.

5.1.2.6 Receptors

In order to evaluate health impacts to off-site receptors, nearby sensitive receptor populations were identified. SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, daycare centers, and athletic facilities.[72] The following receptors are included in the AERMOD modeling per SCAQMD guidance:[73]

- Fine Grid 25 m x 25 m up to 200 m from modeled Project sources; and
- Coarse Grid 100 m x 100 m from 200 m to ¼-mile from the Project;[74] and
- Discrete sensitive receptors.

Non-residential sensitive receptor locations were identified within a one-quarter mile (1,320 feet) radius of the modeled Project sources, based on publicly available databases.[75] Google Earth Pro was also used to identify schools and day care centers in the Project vicinity.

Residential areas are located north of the Project across Zanja St, west of the Project across Walnut Ave, and east of the Project across Glencoe Ave. Additionally, a 5-m spacing receptor grid was placed over the closest residential parcel to the proposed project. Spatial averaging of the predicted air concentrations within the nearest residence was used to better represent the air concentration that a resident may be exposed to.

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[72] SCAQMD. 1993. CEQA Air Quality Handbook. April. Available at: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). Accessed: December 2022.

[73] SCAQMD. South Coast AQMD Modeling Guidance for AERMOD. Available at: http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance#. Accessed: December 2022.

[74] Because construction also occurs at the External Map Improvements areas, receptors were conservatively placed within 1,000-m of these areas as well.

[75] California Department of Education, California School Directory. Available at: http://www.cde.ca.gov/re/sd. Accessed: December 2022.

California Community Care Licensing Division - licensed care facilities including adult residential facilities and daycares. Available at: https://www.ccld.dss.ca.gov/carefacilitysearch/. Accessed: December 2022.

California Office of Statewide Health Planning and Development, Automated Licensing Information and Report Tracking System - hospitals and long-term care facilities Available at: http://www.oshpd.ca.gov/hid/Products/Listings.html. Accessed: December 2022.

Davis Demographics School Site Locator – K-12 Schools. Available at: https://www.davisdemographics.com/videos/schoolsite-locator/. Accessed: December 2022.

The locations of all receptors are illustrated on **Figure 3**.[76] Receptor heights were assumed to be ground-level based on SCAQMD guidance.[77]

5.2 Risk Characterization Methods

The HRA was conducted in accordance with SCAQMD risk assessment guidelines.[78] These guidelines are based on OEHHA's 2015 Air Toxics Hot Spots Program Risk Assessment Guidelines.[79] The 2015 OEHHA Guidelines include various updates that are protective of human health, particularly related to estimating potential risks in infants, children, and other sensitive receptors. Lifetime cancer risk, chronic hazard index (HIC), and acute hazard index (HIA) were calculated at each receptor. Details of this methodology are discussed below.

5.3 Exposure Assessment

To calculate health impacts for comparison to SCAQMD thresholds, this report assesses risk to the sensitive receptors. The exposure rate for the residential scenario is more conservative than those for other sensitive receptor types (i.e. school child, daycare child, and patients) as residents have the highest exposure frequency, exposure time, and exposure duration, thus for this analysis, sensitive receptors were evaluated using residential exposure assumptions.

Exposure Assumptions: The exposure parameters used to estimate excess lifetime cancer risks for exposed populations were obtained using risk assessment guidelines from OEHHA and SCAQMD.[80,81]

Calculation of Intake: The dose estimated for each exposure pathway is a function of the concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows:

[76] SCAQMD. 2008. Final Localized Significance Threshold Methodology. July. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed: December 2022.

[77] SCAQMD. South Coast AQMD Modeling Guidance for AERMOD. Available at: http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance#. Accessed: December 2022.

[78] SCAQMD. 2017. Risk Assessment Procedures for Rules 1401 and 212. Version 8.1. October. Available at: http://www.aqmd.gov/home/permits/risk-assessment. Accessed: December 2022.

[79] Cal/EPA, OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: December 2022.

[80] Cal/EPA, OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed: December 2022.

[81] SCAQMD. 2017. Risk Assessment Procedures for Rules 1401 and 212. Version 8.1. September. Available at: http://www.aqmd.gov/home/permits/risk-assessment. Accessed: December 2022.

$$IF_{inh} = \frac{DBR * FAH * EF * ED * CF}{AT}$$

Where:

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

DBR = Daily Breathing Rate (L/kg-day)

FAH = Frequency of time at Home (unitless)

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

CF = Conversion Factor, 0.001 (m^3/L)

AT = Averaging Time (days)

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh}, by the chemical concentration in air, C_i. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the current OEHHA Hot Spots guidance.[82]

5.3.1 Age Sensitivity Factors

As a conservative and health-protective measure, the estimated excess lifetime cancer risks for a resident will be adjusted using age sensitivity factors (ASFs) that account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA 2009 Technical Support Document and OEHHA 2015 Air Toxics Hot Spots Program Risk Assessment Guidelines.[83,84] Cancer risk estimates were weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age and by a factor of three for exposures that occur from two years through 15 years of age. No weighting factor (i.e., an ASF of one, which is equivalent to no adjustment) is applied to ages 16 and older.

5.3.2 Toxicity Assessment

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. For purposes of calculating exposure criteria to be used in risk assessments, adverse health effects are classified into two broad categories – cancer and non-cancer endpoints. Toxicity values that are used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment.

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[82] Cal/EPA, OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Appendix D. February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015gmappendices.pdf. Accessed: December 2022.

[83] Cal/EPA, OEHHA. 2009. Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustment to Allow for Early Life Stage Exposures. May. Available online at: https://oehha.ca.gov/air/crnr/technical-support-document-cancer-potency-factors-2009. Accessed: December 2022.

[84] Cal/EPA, OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Appendix D: February. Available at: https://oehha.ca.gov/media/downloads/crnr/2015gmappendices.pdf. Accessed: December 2022.

5.3.3 Risk Characterization

5.3.3.1 Estimation of Cancer Risks

Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF).

The equation used to calculate the potential excess lifetime cancer risk for the inhalation pathway is as follows:

$$Riskinh = Ci \; x \; CF \; x \; IFinh \; x \; CPFi \; x \; ASF$$

Where:

Riskinh = Cancer risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a particular potential carcinogen (unitless)

Ci = Annual average air concentration for chemical (µg/m^3)

CF = Conversion factor (mg/µg)

IFinh = Intake factor for inhalation (m^3/kg-day)

CPFi = Cancer potency factor for chemical (mg chemical/kg body weight-day)$^{-1}$

ASF = Age sensitivity factor (unitless)

5.3.3.2 Estimation of Chronic Non-Cancer Hazard Indices

The potential for exposure to result in adverse chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the non-cancer chronic reference exposure level (cREL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient (HQ). To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the HQs for all chemicals are summed, yielding a HI:

$$HQi = Ci \; / \; cREL$$

$$HI = \sum HQ$$

Where:

HI = Hazard index

HQi = Chronic hazard quotient for chemical i

Ci = Annual average concentration of chemical i (µg/m^3)

cRELi = Chronic noncancer reference exposure level for chemical i (µg/m^3)

5.3.3.3 Estimation of Cancer Burden

As defined in the SCAQMD Rule 1401 risk assessment guidelines, "the cancer burden is the estimated increase in the occurrence of cancer cases in a population as a result of exposures to TAC emissions over a 70-year exposure duration." A cancer burden evaluation is only required by SCAQMD if the maximum residential cancer risk over the 30-year exposure is greater than one in a million. The estimate of cancer burden is included in this HRA following the steps below:

1. The area of impact is first determined based on the results of the residential cancer analysis, assuming 30-year exposure.
2. All census receptors within the 1 in a million-risk contour are identified. The cancer burden is then estimated using the lifetime 70-year exposure duration.
3. Cancer burden is then calculated for each census tract using the 2020 census population multiplied by the estimated 70-year residential cancer risk.

5.4 Health Risk Results

Using the health risk assessment options detailed in **Table 5-2**, the cancer risk, non-cancer chronic hazard index (HIC), and acute hazard index for the maximally impacted residential, worker, and sensitive receptors were estimated. The results of the operational, construction, and combined health risk assessments are presented in **Table 5-3, Table 5-4,** and **Table 5-5**, respectively. The calculated cancer burden for operation, construction, and combined construction and operation are presented in **Table 5-6.**

6. CO HOTSPOTS

Mobile-source impacts occur on two basic scales of motion. Regionally, Project-related travel will add to regional trip generation and increase the VMT within the local airshed and the SCAB. Locally, Project traffic will be added to the City's roadway system. There is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the basin is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The Project Traffic Impact Report evaluated the level of service (LOS) (i.e., increased congestion) impacts at intersections affected by the Project. The potential for CO hotspots was evaluated based on the results of the traffic report.

Project Evaluation

Based on the analysis below, the Project would not result in a CO "hot spot" and a CO "hot spots" analysis is not needed to determine whether the change in the level of service (LOS) of an intersection in the Project area would have the potential to result in exceedances of the CAAQS or NAAQS or expose sensitive receptors to substantial pollutant concentrations.

It has long been recognized that CO exceedances are caused by vehicular emissions,[85] primarily when idling at intersections.[86,87] Accordingly, vehicle emissions standards have become increasingly more stringent. Before the first vehicle emission regulations, cars in the 1950s were typically emitting about 87 grams of CO per mile.[88] Since the first regulation of CO emissions from vehicles (model year 1966) in California, vehicle emissions standards for CO applicable to light duty vehicles have decreased by 96% for automobiles,[89,90] and new cold weather CO standards have been implemented, effective for the 1996 model year.[91] Currently, the CO standard in California is a maximum of 4.2 grams/mile for passenger cars (with provisions for certain cars to emit less).[92] With the turnover of older vehicles,

[85] USEPA. 2000. Air Quality Criteria for Carbon Monoxide. EPA 600/P-099/001F. June.

[86] SCAQMD. 1993. CEQA Air Quality Handbook. Section 4.5. April.

[87] SCAQMD. 2003. Air Quality Management Plan. August. Available at: https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2003-aqmp. Accessed: December 2022.

[88] USEPA. Available at: https://www.epa.gov/transportation-air-pollution-and-climate-change/timeline-major-accomplishments-transportation-air. Accessed: December 2022.

[89] National Academy Board on Energy and Environmental Systems. 2008. Review of the 21st Century Truck Partnership. Appendix D: Vehicle Emission Regulations [excerpt from. Available at: http://books.nap.edu/openbook.php?record_id=12258&page=107] Accessed: December 2022.

[90] Kavanagh, Jason. 2008. Untangling U.S. Vehicle Emissions Regulations.

[91] Title 13. California Code of Regulations. Section 1960.1(f)(2) [for 50,000 mile half-life]

[92] CARB. 2018. California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles. December 19. Available at: http://ww2.arb.ca.gov/sites/default/files/2020-02/ldtps_2015%2B%20CP%20or%202017%2B%20GHG%20MY_lev%20iii_clean%20complete_4-19_accessible.pdf. Accessed: December 2022.

introduction of cleaner fuels and implementation of control technology on industrial facilities, CO concentrations in the SCAQMD have steadily declined.

The analysis prepared for CO attainment in the SCAB by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the SCAB. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan).[93] As discussed in the 1992 CO Plan, peak CO concentrations in the SCAB are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Blvd. and Imperial Highway (Lynwood); Wilshire Blvd. and Veteran Ave. (Westwood); Sunset Blvd. and Highland Ave. (Hollywood); and La Cienega Blvd. and Century Blvd. (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm, which indicates that the most stringent 1-hour CO standard (20.0 ppm) would likely not be exceeded until the daily traffic at the intersection exceeded more than 400,000 vehicles per day.[94]

An analysis of the Project's intersections shows that the highest average daily traffic volumes would be approximately 67,000 vehicles[95] at the intersection of Lincoln Boulevard and Washington Boulevard, which is well below the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. This daily trip estimate is based on the future daily peak hour traffic volumes plus the Project contribution. There is no reason unique to SCAB meteorology to conclude that the CO concentrations at the Washington Blvd/Lincoln Blvd intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

[93] SCAQMD. 2005. Federal Attainment Plan for Carbon Monoxide. Carbon Monoxide Redesignation Request and Maintenance Plan. February. Available at: http://www.arb.ca.gov/planning/sip/sccosip05/sccosip_redesig_mplan.pdf. Accessed: December 2022.

[94] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

[95] A daily traffic volume was estimated from Kittelson & Associates by taking the maximum traffic volume for the Saturday midday peak hour, multiplying by ten, and summing all of the turn movements at the intersection.

7. PROJECT INVENTORY IN CONTEXT

This section assesses the significance of the Project's emissions for purposes of CEQA.

7.1 Threshold 1

Would the Project conflict with or obstruct implementation of the applicable air quality plan?

As discussed in **Section 4**, estimated emissions for the Project show that the maximum mass daily emissions for construction and operations are less than the SCAQMD mass daily significance thresholds for all criteria pollutants. In fact, as shown in **Table 4-9**, the Project will result in a *net reduction* in criteria pollutant emissions. The Project would result in a less than significant impact on regional air quality.

As discussed in **Section 2.3**, the most current air quality plan for the region is the SCAQMD 2022 AQMP, which is based on demographic growth forecasts for various socioeconomic categories developed by SCAG for their 2020-2045 RTP/SCS. Thus, consistency with the planning assumptions contained within the RTP/SCS demonstrates consistency with SCAQMD's 2022 AQMP.

The SCAG RTP is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. Using growth forecasts and economic trends that project out over a 20-year period, the RTP considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address our mobility needs. The SCS is a required element of the RTP. The SCS integrates land use and transportation strategies that will achieve CARB emissions reduction targets.[96]

The Project would not create any overall population growth; therefore, it has no effect on the growth assumptions used in the 2022 AQMP and 2020-2045 RTP/SCS, *Connect SoCal*. The Project is consistent with these plans and would not impair the region's ability to achieve the SCAQMD's goals for attainment of air quality standards.

7.2 Threshold 2

Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?

The Project is located within Los Angeles County, which is currently designated as nonattainment for the federal and State O_3 standards, the State PM_{10} standards, the federal and State $PM_{2.5}$ standards, and the federal Pb standards. Ozone precursors include VOC and NO_X. As discussed in **Section 4**, estimated emissions for the Project show that the maximum daily mass emissions for construction and operations are less than the SCAQMD mass daily significance thresholds for all criteria pollutants. Therefore, the Project would not result in cumulatively considerable impacts for criteria pollutants for which the Project region is non-attainment. The Project includes a Project Design Feature:

[96] SCAG. 2020. 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy. September. Available at: https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020. Accessed: February 2024.

- All off-road diesel-powered construction equipment, as feasible, greater than 50 horsepower shall meet, at a minimum, the Tier 4 emission standards for nonroad diesel engines promulgated by the U.S. Environmental Protection Agency (USEPA).

7.3 Threshold 3

Would the Project expose sensitive receptors to substantial pollutant concentrations?

7.3.1 Localized Significance Thresholds

The SCAQMD's LST methodology was used to evaluate localized ambient air quality impacts from onsite construction and operation activities and whether the Project would expose sensitive receptors to substantial pollutant concentrations. The maximum on-site emissions from Project construction and operation are below the SCAQMD LST thresholds, as shown in **Table 7-1**. As a result, the Project would have a less than significant impact.

7.3.2 Health Risk Thresholds

The operational, construction, and combined health risk assessment results were used to assess if the Project would expose sensitive receptors to substantial pollutant concentrations. The operational analysis evaluated cancer and non-cancer health impacts of TAC emissions from the Project operation, and the construction analysis evaluated cancer and non-cancer health impacts of DPM emissions from the Project construction. The results of the combined health risk analysis are presented in **Table 5-5**, and the calculated combined cancer burden is presented in **Table 5-6**.

The results of the operational, construction, and combined analyses show that the cancer and non-cancer health impacts of the Project-related operational, construction, and combined emissions are less than significant. The operational, construction, and combined cancer burden results are less than the SCAQMD threshold of 0.5.

7.3.3 Localized Carbon Monoxide Impacts

Per **Section 6**, the Project would not result in a CO "hot spot" and a CO "hot spots" analysis is not needed to determine whether the change in the level of service (LOS) of an intersection in the Project area would have the potential to result in exceedances of the CAAQS or NAAQS or expose sensitive receptors to substantial pollutant concentrations.

7.4 Threshold 4

Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

According to the SCAQMD, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding.[97] The Project does not include any uses identified by the SCAQMD as being associated with odors, and thus the Project would not result in odors adversely affecting a substantial number of people.

[97] SCAQMD. CEQA Air Quality Handbook. Available at: https://www.dtsc-ssfl.com/files/lib_ceqa/ref_draft_peir/Chap4_2-AirQuality/SCAQMD_1993_-_CEQA_Handbook.pdf. Accessed: February 2022.

8. CUMULATIVE ANALYSIS

The cumulative analysis for air quality is based on guidance provided by SCAQMD.[98] "As Lead Agency, the [SCAQMD] uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the HI significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

8.1 AQMP Consistency

The cumulative analysis can also be evaluated in terms of consistency with SCAQMD's AQMP. As discussed in **Section 2.3**, SCAQMD and SCAG are jointly responsible for formulating and implementing the AQMP for the SCAB. SCAG's Regional Mobility Plan and Growth Management Plan form the basis for the land use and transportation control portion of the AQMP. Thus, consistency with the planning assumptions contained within the RTP/SCS demonstrates consistency with SCAQMD's 2022 AQMP.

The Project would not create any overall population growth; therefore, it would have no effect on the growth assumptions used in the 2022 AQMP and *Connect SoCal*. As a result, the Project would be consistent with SCAG's 2020-2045 RTP/SCS and the SCAQMD 2022 AQMP and would not impair the region's ability to achieve the SCAQMD's goals for attainment of air quality standards.

8.2 Construction Impacts

As discussed above, if a project exceeds the SCAQMD's recommended significance thresholds for project-specific impacts, then the project would be viewed as having a cumulatively significant impact. As shown in **Section 4.2**, the Project's estimated maximum mass daily emissions due to construction would be less than the SCAQMD mass daily significance thresholds for all criteria pollutants. Therefore, the Project's construction-related contribution to regional air emissions of these pollutants would not be cumulatively considerable.

Similarly, **Section 7.3.1** evaluates Project-related construction emissions on localized ambient air quality concentrations of NO_2, CO, SO_2, $PM_{2.5}$, and PM_{10} using SCAQMD LST methodology, and demonstrates that the Project would have a less-than-significant impact. Therefore, according to SCAQMD guidance, the Project's construction-related contribution to localized air quality concentrations of these pollutants would not be cumulatively considerable.

The Project would generate DPM emissions related to the construction activities, which are assessed in the construction health risk assessment. Given the less-than-significant health risk impacts, and consistent with the SCAQMD's guidance on the assessment of cumulative

[98] SCAQMD. 2003. Cumulative Impacts White Paper-Appendix D. August. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4. Accessed: December 2022.

impacts, the Project construction-related contribution to toxics would not be cumulatively considerable.

8.3 Operational Impacts

As discussed in **Section 4**, the estimated maximum mass daily emissions due to Project operations would be less than the SCAQMD mass daily significance thresholds for all criteria pollutants. Therefore, according to SCAQMD guidance, the Project's operation-related contribution to regional air emissions of these pollutants would not be cumulatively considerable.

The Project would generate TAC emissions related to the gasoline dispensing facility operational activities, which are assessed in the operational health risk assessment. Given the less-than-significant health risk impacts, and consistent with the SCAQMD's guidance on the assessment of cumulative impacts, the Project operation-related contribution to toxics would not be cumulatively considerable.

8.4 Odor Impacts

With respect to other emissions, such as those leading to potential odor impacts, the Project would not include any land uses identified by SCAQMD as being associated with odors. Thus, potential odor impacts from the Project would be less than significant and, consistent with the SCAQMD approach to assessing cumulative impacts, the Project operation-related contribution to odors would not be cumulatively considerable.

TABLES

Table 2-1. Summary of NAAQS and CAAQS
Culver City Costco Fuel Station
Culver City, California

Pollutant	Averaging Period	California Standard	Federal Standard
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	---
	8 hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)
Respirable Particulate Matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3
	Annual	20 µg/m^3	---
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	35 µg/m^3
	Annual	12 µg/m^3	12 µg/m^3
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 hour[3]	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)
	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Lead (Pb)	30 day average	1.5 µg/m^3	---
	Rolling 3-month average	---	0.15 µg/m^3
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)
	24 hour	0.04 ppm (105 µg/m^3)	0.14 ppm (367 µg/m^3)
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m^3)	---
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m^3)	---
Sulfates	24 hour	25 µg/m^3	---

Source:

[1] CARB. Ambient Air Quality Standards. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed: September 2021.

Abbreviations:

µg/m^3 - micrograms per cubic meter
CAAQS - California Ambient Air Quality Standards
CARB - California Air Resources Board
mg/m^3 - milligrams per cubic meter
NAAQS - National Ambient Air Quality Standards
ppm - parts per million

Table 2-2. NAAQS and CAAQS Attainment Status
Culver City Costco Fuel Station
Culver City, California

Pollutant	Averaging Period	Los Angeles County Attainment Status	
		California Standard	Federal Standard
Ozone (O_3)	1 hour	Nonattainment	---
	8 hour	Nonattainment	Extreme Nonattainment
Respirable Particulate Matter (PM_{10})	24 hour	Nonattainment	Attainment (Maintenance)
	Annual	Nonattainment	---
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	Serious Nonattainment
	Annual	Nonattainment	Serious Nonattainment
Carbon Monoxide (CO)	1 hour	Attainment	Attainment (Maintenance)
	8 hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1 hour	Attainment	Unclassified/Attainment
	Annual	Attainment	Attainment (Maintenance)
Lead (Pb)[1,2]	30 day average	Attainment	---
	Rolling 3-month average	---	Nonattainment
Sulfur Dioxide (SO_2)	1 hour	Attainment	Attainment
	3 hour	---	Attainment
Hydrogen Sulfide (H_2S)	1 hour	Unclassified	---
Vinyl Chloride	24 hour	No Information Available	---
Sulfates	24 hour	Attainment	---

Notes:

[1] Attainment status for the California standard is for the year 2018.

[2] Nonattainment applies to the southern portion of Los Angeles County only.

Source:

CARB. Area Designations Maps / State and National. Available at: www.arb.ca.gov/desig/adm/adm.htm. Accessed: Septmeber 2021.

USEPA. EPA Region 9 Air Quality Maps. Available at: https://www3.epa.gov/region9/air/maps/. Accessed on: September 2021.

Abbreviations:

CAAQS - California Ambient Air Quality Standards

CARB - California Air Resources Board

NAAQS - National Ambient Air Quality Standards

USEPA - United States Environmental Protection Agency

Table 2-3. Air Quality Data for Nearest SCAQMD Monitoring Station
Culver City Costco Fuel Station
Culver City, California

Pollutant	2016	2017	2018	2019	2020
Ozone (O_3)[1]					
Maximum Concentration 1-hr period, ppm	0.085	0.099	0.094	0.086	0.134
Maximum Concentration 8-hr period, ppm	0.073	0.077	0.073	0.075	0.092
Annual 4th Highest 8-hr maximum over 3 years	0.066	0.069	0.068	0.064	0.078
Days of Exceedances, California 1-hr Standard	0	1	0	0	6
Days of Exceedances, California 8-hr Standard	2	3	2	1	8
Days of Exceedances, Federal 8-hr Standard	2	3	2	1	8
Carbon Monoxide (CO)[1]					
Maximum Concentration 1-hr period, ppm	2.2	2.0	1.6	1.9	2.0
Maximum Concentration 8-hr period, ppm	1.1	1.2	1.3	1.2	1.2
Number of Exceedances, California 1-hr Standard	0	0	0	0	0
Number of Exceedances, California 8-hr Standard	0	0	0	0	0
Number of Exceedances, Federal 1-hr Standard	0	0	0	0	0
Number of Exceedances, Federal 8-hr Standard	0	0	0	0	0
Nitrogen Dioxide (NO_2)[1]					
Maximum Concentration 1-hr period, ppm	0.055	0.056	0.065	0.049	0.077
98th Percentile Daily Maximum Concentration 1-hr period, ppm	0.049	0.046	0.046	0.043	0.044
Annual Arithmetic Mean (AAM), ppm	0.012	0.010	0.013	0.010	0.011
Number of Exceedances, California 1-hr Standard	0	0	0	0	0
Exceed California Annual Standard?	No	No	No	No	No
Number of Exceedances, Federal 1-hr Standard	0	0	0	0	0
Exceed Federal Annual Standard?	No	No	No	No	No
Sulfur Dioxide (SO_2)[2]					
Maximum Concentration 1-hr period, ppm	0.010	0.010	0.012	0.008	0.006
99th Percentile Daily Maximum Concentration 1-hr period, ppm	0.006	0.007	0.005	0.004	0.003
Number of Exceedances, California 1-hr Standard	0	0	0	0	0
Number of Exceedances, Federal 1-hr Standard	0	0	0	0	0
Respirable Particulate Matter (PM_{10})[2]					
Maximum Concentration 24-hr period, $\mu g/m^3$	43	46	45	62	43
Annual Arithmetic Mean (AAM), $\mu g/m^3$	21.6	19.8	20.5	19.2	22.5
Number of Exceedances, California 24-hr Standard	0	0	0	2	0
Exceed California Annual Standard?	Yes	No	Yes	No	Yes
Number of Exceedances, Federal 24-hr Standard	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)[3]					
Maximum Concentration 24-hr period, $\mu g/m^3$	44.4	49.2	43.8	43.5	47.3
98th Percentile Concentration 24-hr period, $\mu g/m^3$	27.3	27.8	30.5	28.3	28.0
Annual Arithmetic Mean (AAM), $\mu g/m^3$	11.8	11.9	12.6	10.9	12.3
Exceed California Annual Standard?	No	No	Yes	No	Yes
Number of Exceedances, Federal 24-hr Standard	2	5	3	1	2
Exceed Federal Annual Standard?	No	No	Yes	No	Yes

Notes:

[1] Data presented is for the Northwest Coastal LA County air quality monitoring station.

[2] Data presented is for the Southwest Coastal LA County air quality monitoring station.

[3] Data presented is for the Central LA air quality monitoring station.

Source:

SCAQMD. Historical Data by Year. Available at: https://www.aqmd.gov/home/air-quality/historical-air-quality-data/historical-data-by-year. Accessed: September 2021.

Abbreviations:

$\mu g/m^3$ - micrograms per cubic meter

hr - hour

ppb - parts per billion

ppm - parts per million

SCAQMD - South Coast Air Quality Management District

Table 3-1. SCAQMD Air Quality Significance Thresholds
Culver City Costco Fuel Station
Culver City, California

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO_2e for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants		
NO_2 1-hour average Annual Arithmetic Mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour Average Annual Average	10.4 µg/m^3 (construction); 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour Average	10.4 µg/m^3 (construction); 2.5 µg/m^3 (operation)	
SO_2 1-hour Average 24-hour Average	0.25 ppm (state); 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
CO 1-hour Average 8-hour Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	

Source:

[1] SCAQMD. 2019. South Coast AQMD Air Quality Significance Thresholds. April. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: September 2021.

Abbreviations:

µg/m^3 - micrograms per cubic meter
CO - carbon monoxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
lbs - pounds
MT - metric ton
NO_2 - nitrogen dioxide
NOx - nitrogen oxides
PM_{10} - respirable particulate matter
$PM_{2.5}$ - fine particulate matter
ppm - parts per million
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide
SO_x - sulfur oxides
TACs - toxic air contaminants
VOC - volatile organic compounds
yr - year

Table 4-1. Construction Schedule
Culver City Costco Fuel Station
Culver City, California

Construction Phase Name[1]	CalEEMod® Phase Type[1]	Phase Duration[2] (days)
Phase 1 Demolition	Demolition	28
Phase 1 SP, Grading, and Utilities	Grading	35
Phase 1 Paving	Paving	5
Phase 1 Parking and Lane Striping	Architectural Coating	3
Phase 2 and 3 Building Construction	Building Construction	86
Phase 2 and 3 Paving	Paving	2
Phase 2 and 3 Lane Striping	Architectural Coating	1
Phase 4 Demolition	Demolition	9
Phase 4 Demolition Material Export	Grading	9
Phase 4 SP, Grading, and Utilities	Grading	55
Phase 4 Paving	Paving	3
Phase 4 Parking and Lane Striping	Architectural Coating	3

Notes:

[1] Construction phases and duration are based on Project-specific estimates.

[2] The construction work week was assumed to be 7 days per week.

Abbreviations:

CalEEMod® - California Emissions Estimator Model

Table 4-2. Construction Material Movement
Culver City Costco Fuel Station
Culver City, California

Phase Name	Material Imported[1] (yd^3)	Material Exported[1] (yd^3)
Phase 4 Demolition Material Export	0	1,145
Phase 4 SP, Grading, and Utilities	1,272	0

Notes:

[1] Soil import and export quantities based on project-specific data.

Abbreviations:

yd^3 - cubic yard

Table 4-3. Construction Demolition Assumptions
Culver City Costco Fuel Station
Culver City, California

Phase Name	Size Metric	Unit Amount[1]
Phase 1 Demolition	Square Footage	8,480
Phase 4 Demolition	Square Footage	4,750

Notes:

[1] Square-footage quantity based on project-specific data.

Table 4-4. Construction Paving Emissions
Culver City Costco Fuel Station
Culver City, California

Project Activity	Project Sub-Activity	Number of Work Days	Total Area Paved (acres)	Emission Factor[1] (lb/acre)	Emissions (lb/day)
Phase 1 Paving	Paving	6	0.57	2.62	0.25
Phase 2 and 3 Paving inside new Fuel Station	Paving	2	0.32		0.42
Phase 4 Paving	Paving	2	0.64		0.84

Notes:

[1] Emission factor for asphalt paving off-gassing emissions obtained from CalEEMod Appendix A. Available at: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-a2020-4-0.pdf?sfvrsn=6. Accessed: September 2021.

Abbreviations:

lb - pounds

Conversion Factors:

5,280 ft/mile
43,560 sqft/acre

Table 4-5. Back-up Generator CAP Emissions Calculations for Construction
Culver City Costco Fuel Station
Culver City, California

Operating Parameters	
Parameter	**Value**
Engine Make	Isuzu
Engine Model	BR-4JJ1X
Number of Generators	1
Gross Engine Power Output (bhp)[1]	95

Schedule[2]	**hours/ engine/day**
Maximum	12

Emissions

Pollutant	**Combustion Emission Factors[3] (g/bhp-hr)**	**Emissions (lbs/hr)**	**Emissions[2] (lbs/day)**
Volatile Organic Compounds (VOC)	0.05	0.01	0.13
Nitrogen Oxides (NO_X)	0.26	0.05	0.65
Carbon Monoxide (CO)	3.70	0.77	9.30
Sulfur Dioxides (SO_X)	0.01	0.00	0.02
Particulate Matter (PM_{10})	0.01	0.00	0.03
Particulate Matter ($PM_{2.5}$)	0.01	0.00	0.03

Notes:

[1] The gross engine power output for the Isuzu BR-4JJ1X generator was extracted from the unit's Statewide Portable Equipment Registration form.

[2] The stationary back-up generator is assumed to operate up to 12 hours per day, per Project-specific information.

[3] Combustion emission factors are based on CalEEMod® default emission factors for Tier 4 diesel-powered generator sets with an engine rating between 75 and 119.9 horsepower.

Conversion Factors

453.59 grams/lb

Abbreviations/Acronyms

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimator Model
g - gram
bhp - brake-horsepower
hr - hour
lb(s) - pound(s)
PM_{10} - particulate matter of 10 microns or less in diameter
$PM_{2.5}$ - particulate matter of 2.5 microns or less in diameter
yr - year

Table 4-6. Maximum Daily Criteria Air Pollutant Emission Estimates for Project Construction
Culver City Costco Fuel Station
Culver City, California

Scenario[1]	Maximum Daily Criteria Air Pollutant Emission Estimates[1]					
	VOC[2]	NO_x	CO	SO_X[3]	PM_{10}	$PM_{2.5}$
	(lb/day)					
2023	48.2	6.8	34.1	0.06	0.6	0.3
2024	15.8	5.9	36.4	0.08	4.2	1.9
SCAQMD Mass Daily Significance Thresholds[4]	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold for any Year of Construction?	NO	NO	NO	NO	NO	NO

Notes:

[1] Emissions for project construction were estimated using CalEEMod® (see Appendix A). Construction emissions include construction of the fuel station and parking lot, demolition of the existing Goodyear Tire Facility, and back-up generator use. Project construction emissions assume watering control consistent with SCAQMD Rule 403 and the use of Tier 4 construction equipment greater than 50 hp.

[2] For purposes of this analysis VOC emissions are assumed to be equal to ROG.

[3] For purposes of this analysis SO_X emissions are assumed to be equal to SO_2.

[4] SCAQMD Air Quality Significance Thresholds. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed: September 2021.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO - carbon monoxide
hp - horsepower
lbs - pounds
NO_x - nitrogen oxide compounds (NO + NO_2)
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide
SO_x - sulfur oxide compounds
VOC - volatile organic compounds

Table 4-7. Gasoline Dispensing Facility Operational VOC Emissions
Culver City Costco Fuel Station
Culver City, California

Scenario	VOC Emission Factor[1] (lb/1,000 gallons)						Throughput (million gallons/ year)	Emissions (lb/day)
	Loading	Breathing	Refueling	Hose Permeation	Spillage	Total		
Existing	0.15	0.024	0.32	0.009	0.24	**0.743**	13.18	**26.8**
Project							26.64	**54.2**

Notes:

[1] Emission factors obtained from Table X-1 of SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: September 2021.

Abbreviations:

lb - pounds

SCAQMD - South Coast Air Quality Management District

VOC - volatile organic compounds

Table 4-8. Back-up Generator CAP Emissions Calculations for Operation
Culver City Costco Fuel Station
Culver City, California

Operating Parameters	
Parameter	**Value**
Engine Make	JCB Power Systems LTD
Engine Model	444 TA4-81 I3A
Number of Generators	1
Gross Engine Power Output (bhp)[1]	109

Schedule[2]	**hours/ engine/day**
Maximum	24

Emissions

Pollutant	**Combustion Emission Factors[3] (g/bhp-hr)**	**Emissions (lbs/hr)**	**Emissions[2] (lbs/day)**
Volatile Organic Compounds (VOC)	0.05	0.01	0.29
Nitrogen Oxides (NO_X)	0.26	0.06	1.50
Carbon Monoxide (CO)	3.70	0.89	21.34
Sulfur Dioxides (SO_X)	0.01	0.00	0.04
Particulate Matter (PM_{10})	0.01	0.00	0.06
Particulate Matter ($PM_{2.5}$)	0.01	0.00	0.06

Notes:

[1] The gross engine power output for the JCB Power Systems 444 TA4-81 I3A generator was extracted from the unit's Statewide Portable Equipment Registration form.

[2] The stationary back-up generator is assumed to operate up to 24 hours per day, per Project-specific information.

[3] Combustion emission factors are based on CalEEMod® default emission factors for Tier 4 diesel-powered generator sets with an engine rating between 75 and 119.9 horsepower.

Conversion Factors

453.59 grams/lb

Abbreviations/Acronyms

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimator Model
g - gram
bhp - brake-horsepower
hr - hour
lb(s) - pound(s)
PM_{10} - particulate matter of 10 microns or less in diameter
$PM_{2.5}$ - particulate matter of 2.5 microns or less in diameter
yr - year

Table 4-9. Maximum Daily Criteria Air Pollutant Emission Estimates for Project Operation
Culver City Costco Fuel Station
Culver City, California

Emission Category	Maximum Daily Criteria Air Pollutant Emission Estimates[1]					
	VOC[2]	NO_x	CO	SO_x[3]	PM_{10}	$PM_{2.5}$
	(lb/day)					
Existing						
Area[4]	0.25	0.00	0.00	0.00	0.00	0.00
Energy[4]	0.02	0.16	0.14	0.00	0.01	0.01
Mobile[5]	9.66	9.96	102.83	0.18	13.14	3.38
Gasoline Dispensing Facility	26.82	--	--	--	--	--
Total Daily Emissions (lbs/day)	**36.7**	**10.1**	**103.0**	**0.19**	**13.2**	**3.4**
Project						
Area[4]	0.11	0.00	0.00	0.00	0.00	0.00
Energy[4]	0.00	0.02	0.02	0.00	0.00	0.00
Mobile[5]	8.09	8.18	84.32	0.17	11.93	3.07
Gasoline Dispensing Facility	54.23	--	--	--	--	--
Back-up Generator	0.29	1.50	21.34	0.04	0.06	0.06
Total Daily Emissions (lbs/day)	**62.7**	**9.7**	**105.7**	**0.2**	**12.0**	**3.1**
Incremental						
Project minus Existing	26.0	-0.4	2.7	0.03	-1.2	-0.3
SCAQMD Mass Daily Significance Thresholds[6]	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

Notes:

[1] Emissions totals may not add up due to rounding. Emissions shown as zero may be non-zero values; however, they are below a meaningful reporting level for this analysis.

[2] For purposes of this analysis VOC emissions are assumed to be equal to ROG.

[3] For purposes of this analysis SO_X emissions are assumed to be equal to SO_2.

[4] Total area and energy emissions were estimated using CalEEMod® (see Appendix A).

[5] Total mobile emissions were estimated using CalEEMod® default trip lengths, EMFAC2021 emission factors, and Project-specific vehicle trip rates provided by Kittelson & Associates. See Appendix B and Appendix C for details.

[6] SCAQMD Air Quality Significance Thresholds. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed: September 2021.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO - carbon monoxide
lbs - pounds
NO_x - nitrogen oxide compounds (NO + NO_2)
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide
SO_x - sulfur oxide compounds
VOC - volatile organic compounds

Table 5-1. Mobile Source Air Toxics Speciation Profiles
Culver City Costco Fuel Station
Culver City, California

Non-Criteria Air Pollutant	Speciation Profile	Speciated MSAT/COPC
ROG running and idling exhaust emissions from gasoline-fueled vehicles	Maximum of CARB Profiles OG2303 and OG2304[1]	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene
	USEPA MOVES Gasoline VOC[2] Profile[3]	POM
ROG starting exhaust emissions from gasoline-fueled vehicles	Maximum of CARB Profiles OG2301 and OG2302[4]	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene
	USEPA MOVES Gasoline VOC[2] Profile[3]	POM
ROG evaporative emissions from gasoline-fueled vehicles	CARB Profile OG2315[5]	Benzene, Ethyl Benzene
$PM_{2.5}$ running and starting exhaust emissions from gasoline-fueled vehicles	USEPA MOVES Gasoline $PM_{2.5}$ Profile[3,6]	Naphthalene, POM
DPM[6]	N/A	DPM
ROG running exhaust emissions from diesel-fueled vehicles[7]	USEPA MOVES Diesel VOC[2] Profile for Post-2007 Model Years[3]	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene[5], POM[5]
$PM_{2.5}$ running exhaust emissions from diesel-fueled vehicles[7]	USEPA MOVES Diesel $PM_{2.5}$ Profile for Post-2007 Model Years[3]	Naphthalene[8], POM[8]

Notes:

[1] CARB. 2013. Organic Gas Speciation Profiles for Catalyzed Gasoline-Powered Vehicle Stabilized Running Exhaust - E6 Fuel (OG2303 & OG2304). December. Available at: https://ww3.arb.ca.gov/ei/speciate/profilereference/cate6running_og2303&04.pdf. Accessed: September 2021.

[2] Per EMFAC2021 User's Guide, The EMFAC2021 ROG class is the same as EPA's VOC definition. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-06/emfac202x_users_guide_01112021_final_ada.pdf. Accessed: September 2021.

[3] USEPA. 2020. Air Toxic Emissions from On-Road Vehicles in MOVES3. November. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1010TJM.pdf. Accessed: September 2021.

[4] CARB. 2013. Organic Gas Speciation Profiles for Catalyzed Gasoline-Powered Vehicle Start Exhaust - E6 Fuel (OG2301 & OG2302). October. Available at: https://ww3.arb.ca.gov/ei/speciate/profilereference/cate6start_og2301&02.pdf. Accessed: September 2021.

[5] CARB. 2015. Organic Gas Speciation Profile for Gasoline-Powered Vehicles Hot Soak Evaporations - E10 Summer Fuel (OG2315). January. Available at: https://ww3.arb.ca.gov/ei/speciate/profilereference/e10shotsoak-og2315.pdf. Accessed: September 2021.

[6] Diesel particulate matter was used as a surrogate for estimating cancer risk and chronic health impacts of diesel vehicle exhaust.

[7] Speciated diesel exhaust emissions were used only for estimating acute health impacts of diesel vehicle exhaust.

[8] Naphthalene and POM have only cancer and chronic impacts. Since DPM was used as a surrogate for estimating cancer and chronic impacts of diesel vehicle exhaust, naphthalene and POM emissions from diesel-fueled vehicles were not used to estimate health impacts in this health risk assessment.

Abbreviations:

CARB – California Air Resources Board
COPC – chemicals of potential concern
$PM_{2.5}$ – particulate matter less than 2.5 microns in diameter
ROG – Reactive Organic Gases
USEPA – United States Environmental Protection Agency
MOVES – Motor Vehicle Emissions Stimulator
MSAT - Mobile Source Air Toxic
POM – polycyclic organic matter
TOG – Total Organic Gases
VOC – Volatile Organic Gases

Table 5-2. Health Risk Assessment Options Used in HARP2 ADMRT Tool
Culver City Costco Fuel Station
Culver City, California

HARP2 Risk Analyses Screen/ Option Title		Options Chosen				
		Residential Cancer Risk Run	**Residential Chronic Risk Run**	**Worker Cancer Risk Run**	**Worker Chronic Risk Run**	**Acute Risk Run**
Select Risk Scenario	Analysis Type	Cancer Risk	Chronic Risk (Non-cancer)	Cancer Risk	Chronic Risk (Non-cancer)	Acute Risk (Non-cancer)
	Receptor Type	Individual Resident		Worker		N/A
	Exposure Duration	30-Year[3]	N/A	25-Year[3]	N/A	N/A
	Intake Rate Percentile	RMP using the Derived Method	OEHHA Derived Method	OEHHA Derived Method		N/A
Select Pathways to Evaluate	Tab "Pathways to Evaluate"	Select "User Defined" pathways and choose: inhalation, soil ingestion, dermal, mother's milk, and homegrown produce		Select "Worker Pathways"		Default Inhalation Only Pathway
		Select deposition rate of 0.02 m/s		Select deposition rate of 0.02 m/s		
	Tab "Inh"	Check box "Apply the default fraction of time spent at home (FAH) to ages greater than or equal to 16 years"		Check box "Use Adjustment Factors" with WAF = 1.5[2]		Use Defaults (No Change)
	Tab "Soil"	Use Defaults (No Change)		Use Defaults (No Change)		N/A
	Tab "Derm"	Select "Warm" Climate		Select "Warm" Climate		N/A
	Tab "MMlk"	Use Defaults (No Change)		N/A	N/A	N/A
	Tab "HG Produce"	Use Defaults (No Change)		N/A	N/A	N/A

Notes:

[1] HARP2 options based on SCAQMD's default assumptions for HRAs. Available at: http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab-2588-supplemental-guidelines.pdf?sfvrsn=19. Accessed: September 2021.

[2]-Annual concentration adjustment factor is not applied to emergency backup generator. Annual concentration adjustment factor for all other sources is based on a schedule of 5:30 AM to 9:30 PM, 7 days a week.

[3] For the cancer burden calculation, an exposure duration of 70 years is selected. For the combined analysis, an exposure duration of 29.3 years for 30-year residential risk, 69.3 years for 70-year residential risk, and 24.3 years for worker risk is selected to account for the anticipated days of construction activity. An exposure duration of 2 months is selected for generator operation in all scenarios.

Abbreviations:

ADMRT - Air Dispersion Modeling and Risk Tool
EIR - environmental impact report
HARP - Hotspots Analysis and Reporting Program
HRA - health risk assessment
m - mile
N/A - not applicable
OEHHA - Office of Environmental Health Hazard Assessment
RMP - Risk Management Policy
s - second
SCAQMD - South Coast Air Quality Management District

Table 5-3. Health Risk Assessment Results - Project Operation[1]
Culver City Costco Fuel Station
Culver City, California

Receptor Type	Maximum Estimated Cancer Risk (in a million)	Maximum Estimated Chronic Hazard Index	Maximum Estimated Acute Hazard Index
Resident[2]	8.1	0.04	0.10
Sensitive	5.0	0.02	0.05
Worker	5.8	0.18	0.35
SCAQMD Threshold[3]	10	1	1

Notes:

[1] The results in this table represent the health risks associated with the Project's TAC emissions as a conservative assumption. The incremental risks (i.e., Project minus Existing) would have been lower than the Project risks.

[2] MEIR risk was calculated based on spatial averaging of 5-m spaced receptors within the MEIR property boundary. Risk results for all the modeled receptors are provided in Appendix F.

[3] SCAQMD Air Quality Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: February 2022.

Abbreviations:

ADMRT - Air Dispersion Modeling and Risk Tool

HARP - Hotspots Analysis and Reporting Program

MEIR - Maximally Exposed Individual Resident

SCAQMD - South Coast Air Quality Management District

TAC - Toxic Air Contaminant

Table 5-4. Health Risk Assessment Results - Project Construction[1]
Culver City Costco Fuel Station
Culver City, California

Receptor Type	Maximum Estimated Cancer Risk (in a million)	Maximum Estimated Chronic Hazard Index[1]
Residential[2]	1.2	0.01
Sensitive	0.7	0.00
Worker	0.4	0.01
SCAQMD Threshold[3]	**10**	**1.0**

Notes:

[1] Chronic hazard indices and cancer risks shown as 0.0 are non-zero values; however, they are below a meaningful reporting level for this analysis.

[2] MEIR risk was calculated based on spatial averaging of 5-m spaced receptors within the MEIR property boundary. Risk results for all the modeled receptors are provided in Appendix F.

[3] SCAQMD Air Quality Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: November 2022.

Abbreviations:

HRA - health risk assessment

SDAPCD - San Diego Air Pollution Control District

MEIR - Maximally Exposed Individual Resident

Table 5-5. Combined Health Risk Assessment Results[1]
Culver City Costco Fuel Station
Culver City, California

Receptor Type	Maximum Estimated Cancer Risk (in a million)[1]	Maximum Estimated Chronic Hazard Index[1]	Maximum Estimated Acute Hazard Index[1]
Resident[2]	8.7	0.04	0.10
Sensitive	5.2	0.02	0.05
Worker	5.9	0.18	0.35
SCAQMD Threshold[3]	**10**	**1**	**1**

Notes:

[1] The results in this table represent the combined health risks from the Project's TAC emissions associated with Project operation and from the Project's DPM emissions associated with Project construction, as a conservative assumption. The incremental risks (i.e., Project minus Existing) would have been lower than the Project risks.

[2] MEIR risk was calculated based on spatial averaging of 5-m spaced receptors within the MEIR property boundary. Risk results for all the modeled receptors are provided in Appendix F.

[3] SCAQMD Air Quality Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: February 2022.

Abbreviations:
ADMRT - Air Dispersion Modeling and Risk Tool
HARP - Hotspots Analysis and Reporting Program
MEIR - Maximally Exposed Individual Resident
SCAQMD - South Coast Air Quality Management District
TAC - Toxic Air Contaminant

Table 5-6. Population Exposure to Project Emissions:
Cancer Burden Calculations
Culver City Costco Fuel Station
Culver City, California

Project	Population within Zone of Impact[1]	MEIR Cancer Risk[2]	Cancer Burden[3]	SCAQMD Threshold[4]
Construction	183	1.63E-06	0.0003	0.5
Operation	4,304	1.33E-05	0.0574	0.5
Combined	4,675	1.36E-05	0.0637	0.5

Notes:

[1] A zone of impact was determined for cancer risk based on the lifetime cancer risk of 1 in a million or greater. Population within the zone of impact was obtained from the 2020 census data from the United States Census Bureau.

[2] The MEIR cancer risk assuming 70-year exposure duration was conservatively used to represent the cancer risks at census receptors.

[3] Screening level cancer burden was calculated based on the population within the zone of impact multiplying the MEIR.

[4] SCAQMD Air Quality Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December 2022.

Abbreviations:

MEIR - Maximally Exposed Individual Resident

SCAQMD - South Coast Air Quality Management District

Table 7-1. Comparison of On-site Project Emissions to SCAQMD Localized Significance Thresholds
Culver City Costco Fuel Station
Culver City, California

Scenario	Maximum Daily On-site Emissions[1] (lb/day)				
	CO	NO_X	1-hour NO_X [2]	PM_{10}	$PM_{2.5}$
Construction					
Project Construction	34.9	6.6	6.6	3.5	1.7
SCAQMD LSTs[3]	659.6	103.4	57.4	6.9	3.4
Exceeds SCAQMD LSTs?	NO	NO	NO	NO	NO
Operation					
Project Operation	65.0	5.4	5.4	1.0	0.4
SCAQMD LSTs[3]	659.6	103.4	57.4	1.7	1.0
Exceeds SCAQMD LSTs?	NO	NO	NO	NO	NO

Notes:

[1] Emissions for CO and NO_X are the maximum of on-site operation and on-site construction emissions. Project construction emissions assume watering control consistent with SCAQMD Rule 403 and the use of Tier 4 construction equipment greater than 50 hp.

[2] An approximated LST was estimated to evaluate the federal 1-hour NO_2 standard, as the SCAQMD LST has not been updated to reflect this standard. This value was estimated by scaling the SCAQMD LST that represents the state 1-hr NO_2 standard with the ratio of the federal to state 1-hr NO_2 standard (0.10 ppm/0.18 ppm).

[3] LSTs based on the a receptor located at 34 meters from a 1-acre project site SRA 2 (Northwest Coastal LA County). Distance was measured using Google Earth. LSTs were obtained from the 2008 SCAQMD Final Localized Significance Threshold Methodology, Appendix C, Mass Rate LST Look-up Tables. Available at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds. Accessed: September 2021.

Abbreviations:

CO - carbon monoxide

lb - pounds

LST - localized significance threshold

NO_2 - nitrogen dioxide

NO_X - nitrogen oxides

PM_{10} - particulate matter less than 10 microns in aerodynamic diameter

$PM_{2.5}$ - particulate matter less than 2.5 microns in aerodynamic diameter

ppm - parts per million

SCAQMD - South Coast Air Quality Management District

FIGURES

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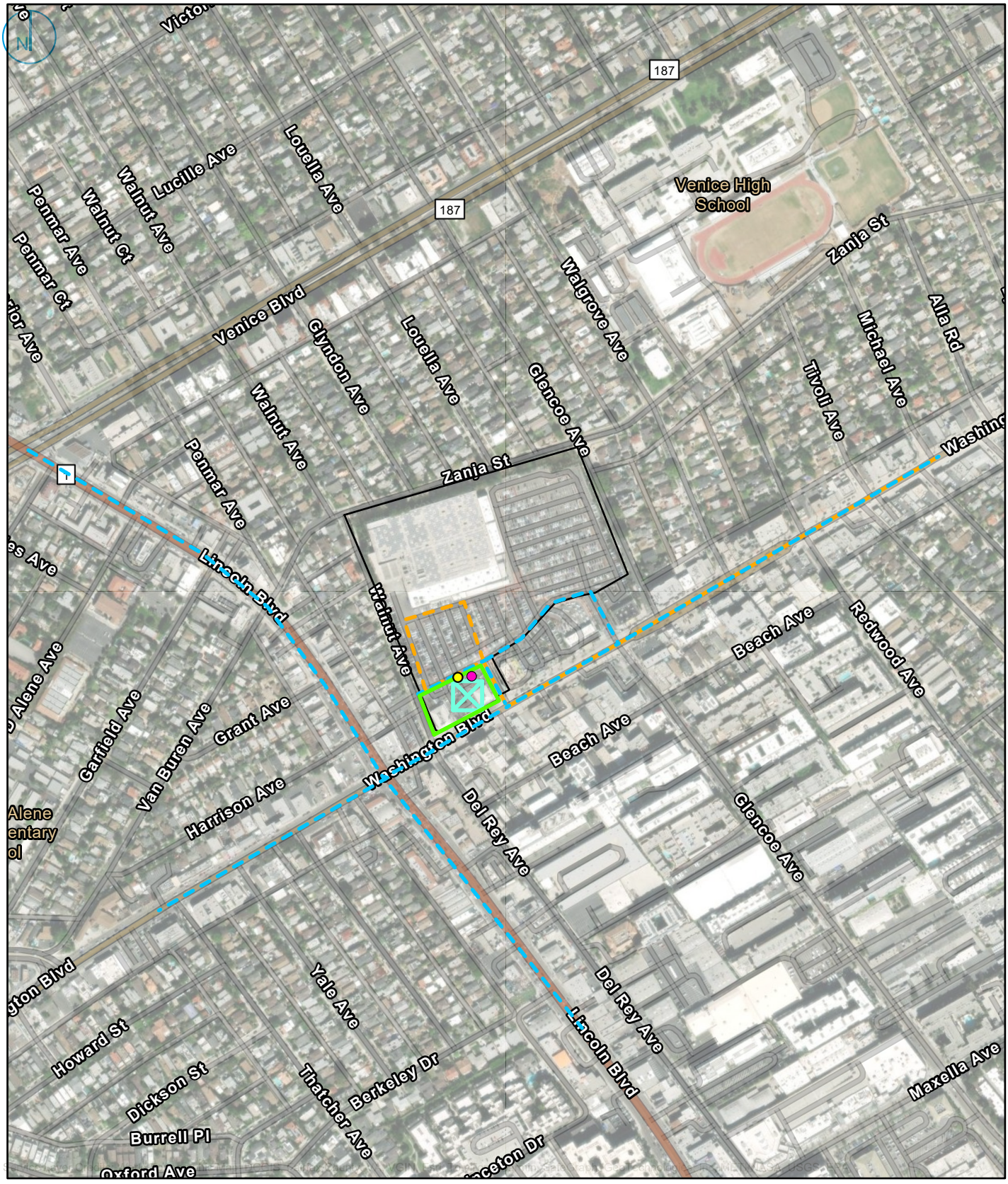


Site Boundary
GDF Refueling and Spillage
GDF Breathing and Loading

Roadways
Fuel Delivery Truck Roadways
Passenger Vehicle Roadways
Fuel Delivery Truck and Passenger Vehicle Idling
Backup Generator (Operation)

0 275 550 Feet

MODELED SOURCE LOCATIONS - PROJECT OPERATION

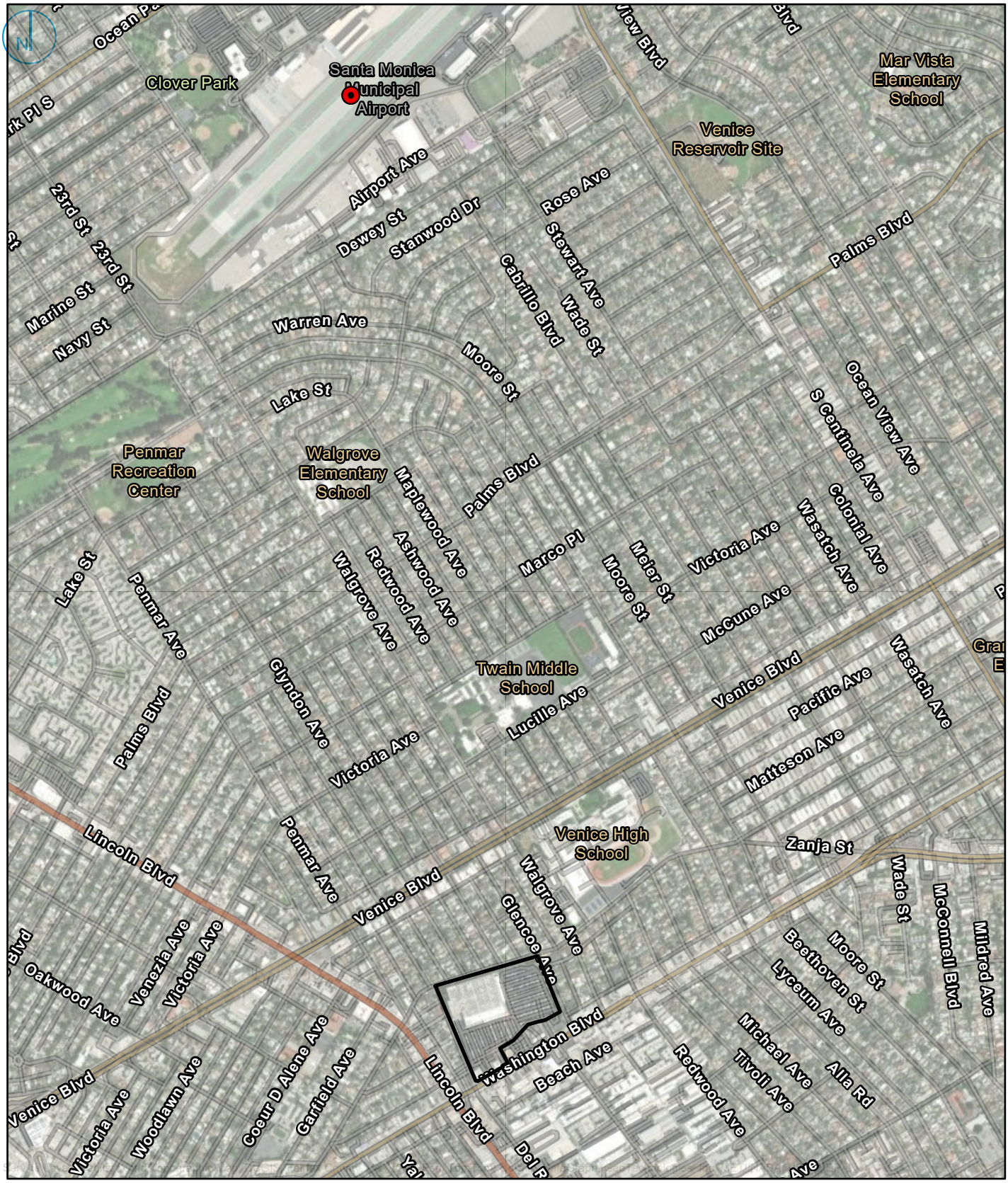
Culver City Costco Fuel Station
Culver City, CA

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 1690022890 | DATED: 2/23/2024 | DESIGNER: RPEPEL



Site Boundary

Meteorological Station

0 750 1,500 Feet

METEOROLOGICAL STATION LOCATION

Culver City Costco Fuel Station
Culver City, CA

FIGURE 02

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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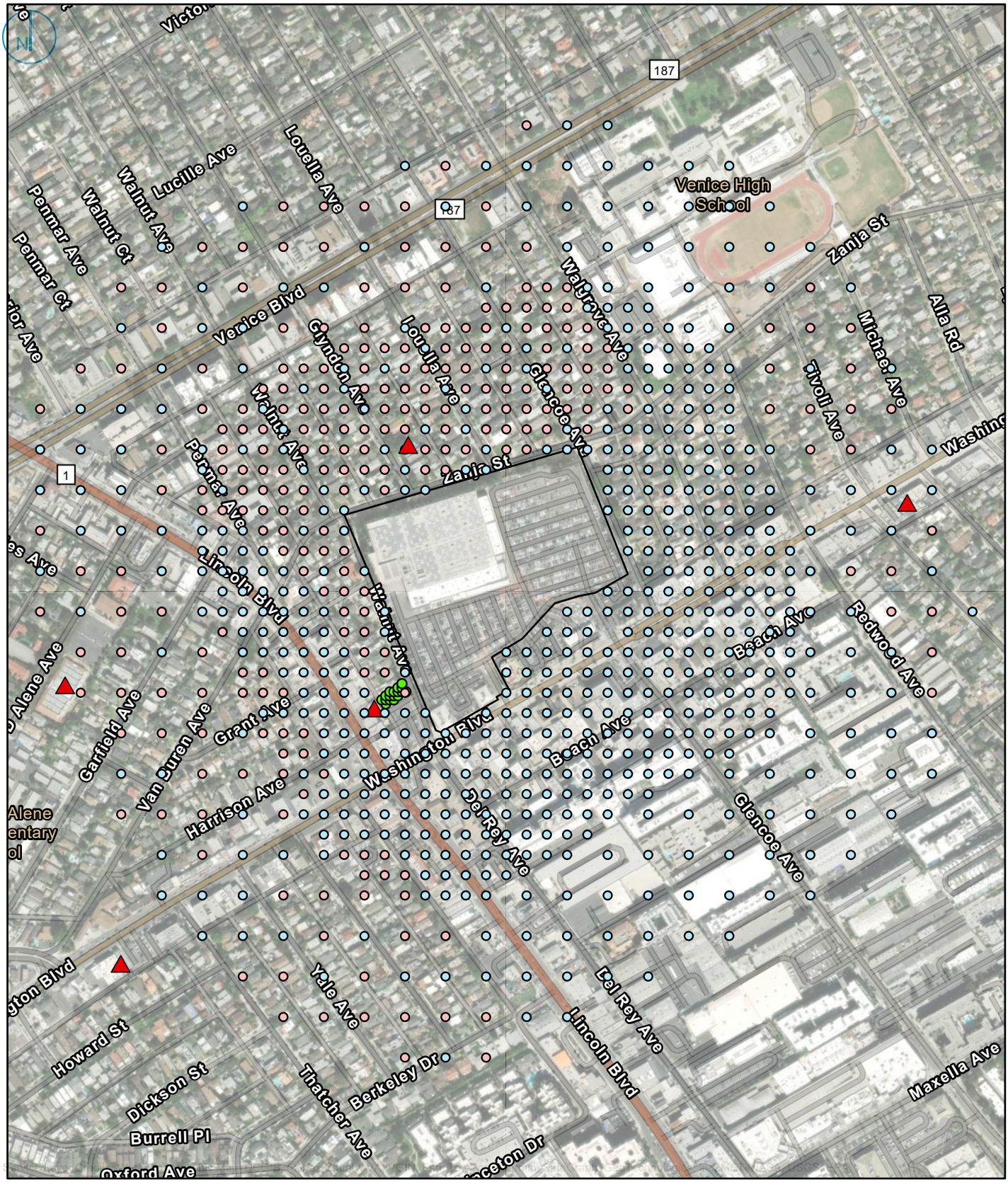
PROJECT: 1690022890 | DATED: 2/23/2024 | DESIGNER: RPEPEL



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PROJECT: 1690022890 | DATED: 2/23/2024 | DESIGNER: RPEPEL

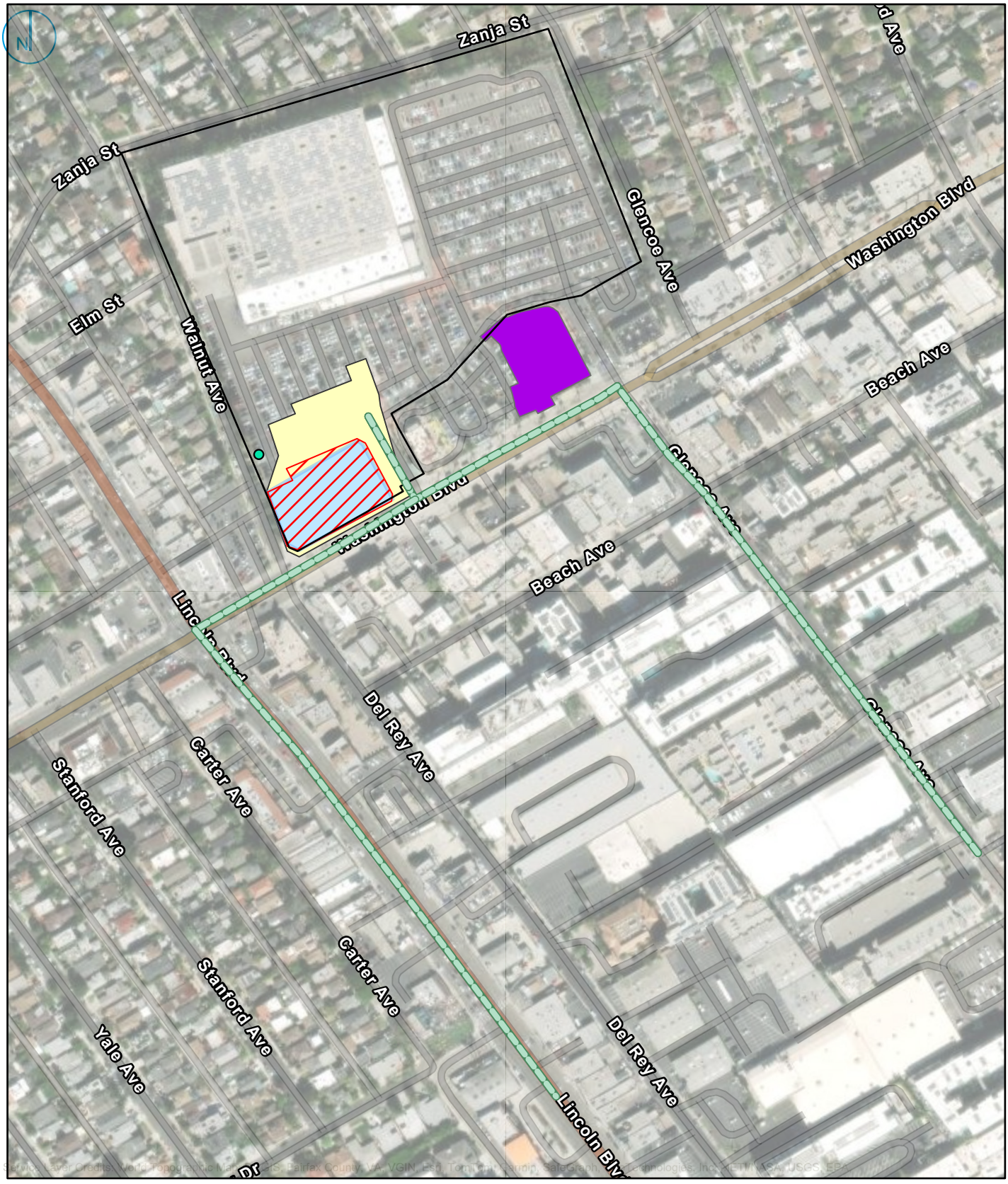
MODELED RECEPTOR LOCATIONS

Culver City Costco Fuel Station
Culver City, CA

FIGURE 03

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

C:\Users\rpepel\Desktop\Culver_City_2024.aprx\Figure 04



PROJECT: 1690022890 | DATED: 2/23/2024 | DESIGNER: RPEPEL

- Site Boundary
- Backup Generator (Construction)
- Vendor and Hauling Truck Travel Routes
- Offroad Construction Equipment for Phase 1
- Offroad Construction Equipment for Phase 2
- Offroad Construction Equipment for Phase 3
- Offroad Construction Equipment for Phases 4 and 5

0 150 300 Feet

MODELED SOURCE LOCATIONS - PROJECT CONSTRUCTION

Culver City Costco Fuel Station
Culver City, CA

FIGURE 04

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

APPENDIX A
CALEEMOD® OUTPUTS

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City Unmitigated Construction

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	1.53	4,235.25	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Paving emissions associated with the GDF/Parking lot area are calculated outside of CalEEMod.

Construction Phase - Construction schedule based on project-specific information.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Project-specific values.

Off-road Equipment -

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Trip rates for worker/vendor trips during building construction based on square footage of gasoline/service station and parking lot land uses.

Demolition - Project-specific values

Grading - Material import and export quantities based on project-specific data.

Architectural Coating - Parking area includes the parking lot land use. Parking area represents the area that is expected to be painted based on CalEEMod defaults.

Vehicle Trips - Construction emissions only.

Consumer Products - Construction emissions only.

Area Coating - Construction emissions only.

Landscape Equipment - Construction emissions only.

Energy Use - Construction emissions only.

Water And Wastewater - Construction emissions only.

Solid Waste - Construction emissions only.

Construction Off-road Equipment Mitigation - Water 2x/day per SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblAreaCoating	Area_Nonresidential_Exterior	2118	0
tblAreaCoating	Area_Nonresidential_Interior	6353	0
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	200.00	86.00
tblConstructionPhase	NumDays	20.00	28.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	20.00	9.00
tblConstructionPhase	NumDays	4.00	55.00
tblConstructionPhase	NumDays	4.00	35.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblGrading	MaterialExported	0.00	1,145.00
tblGrading	MaterialImported	0.00	1,272.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	0.10	1.53
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSolidWaste	SolidWasteGenerationRate	16.17	0.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	1.00	13.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblWater	IndoorWaterUseRate	398,456.67	0.00
tblWater	OutdoorWaterUseRate	244,215.38	0.00

2.0 Emissions Summary

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7893	18.1960	22.4274	0.0391	7.1944	0.8256	7.7994	3.4544	0.7840	4.0110	0.0000	3,659.6365	3,659.6365	0.7612	0.0204	3,684.7455
2024	15.8622	30.5269	23.7124	0.0592	8.2477	1.2224	9.4702	3.6760	1.1341	4.8102	0.0000	5,888.7060	5,888.7060	1.3149	0.2186	5,986.7070
Maximum	**48.7893**	**30.5269**	**23.7124**	**0.0592**	**8.2477**	**1.2224**	**9.4702**	**3.6760**	**1.1341**	**4.8102**	**0.0000**	**5,888.7060**	**5,888.7060**	**1.3149**	**0.2186**	**5,986.7070**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7893	18.1960	22.4274	0.0391	3.2989	0.8256	3.9040	1.5708	0.7840	2.1274	0.0000	3,659.6365	3,659.6365	0.7612	0.0204	3,684.7455
2024	15.8622	30.5269	23.7124	0.0592	4.0572	1.2224	5.2796	1.7477	1.1341	2.8819	0.0000	5,888.7059	5,888.7059	1.3149	0.2186	5,986.7070
Maximum	**48.7893**	**30.5269**	**23.7124**	**0.0592**	**4.0572**	**1.2224**	**5.2796**	**1.7477**	**1.1341**	**2.8819**	**0.0000**	**5,888.7059**	**5,888.7059**	**1.3149**	**0.2186**	**5,986.7070**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	52.36	0.00	46.82	53.46	0.00	43.21	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Demolition	Demolition	2/1/2023	2/28/2023	7	28	
2	Phase 1 SP, Grading, and Utilities	Grading	4/3/2023	5/7/2023	7	35	
3	Phase 1 Paving	Paving	5/8/2023	5/12/2023	7	5	
4	Phase 1 Parking and Lane Striping	Architectural Coating	5/13/2023	5/15/2023	7	3	
5	Phase 2 and 3 Building Construction	Building Construction	9/1/2023	11/25/2023	7	86	
6	Phase 2 and 3 Paving	Paving	11/22/2023	11/23/2023	7	2	
7	Phase 2 and 3 Lane Striping	Architectural Coating	11/24/2023	11/24/2023	7	1	
8	Phase 4 Demolition	Demolition	3/1/2024	3/9/2024	7	9	
9	Phase 4 Demolition Material Export	Grading	3/1/2024	3/9/2024	7	9	
10	Phase 4 SP, Grading, and Utilities	Grading	3/1/2024	4/24/2024	7	55	
11	Phase 4 Paving	Paving	4/25/2024	4/27/2024	7	3	
12	Phase 4 Parking and Lane Striping	Architectural Coating	4/28/2024	4/30/2024	7	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 35

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 1 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 1 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 1 Paving	Pavers	1	6.00	130	0.42
Phase 1 Paving	Paving Equipment	1	8.00	132	0.36
Phase 1 Paving	Rollers	1	7.00	80	0.38
Phase 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 2 and 3 Building Construction	Cranes	1	6.00	231	0.29
Phase 2 and 3 Building Construction	Forklifts	1	6.00	89	0.20
Phase 2 and 3 Building Construction	Generator Sets	1	8.00	84	0.74
Phase 2 and 3 Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 2 and 3 Building Construction	Welders	3	8.00	46	0.45
Phase 2 and 3 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 2 and 3 Paving	Pavers	1	6.00	130	0.42
Phase 2 and 3 Paving	Paving Equipment	1	8.00	132	0.36
Phase 2 and 3 Paving	Rollers	1	7.00	80	0.38
Phase 2 and 3 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 and 3 Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 4 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 4 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 4 Demolition Material Export	Graders	0	8.00	187	0.41
Phase 4 Demolition Material Export	Rubber Tired Dozers	0	8.00	247	0.40

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase 4 Demolition Material Export	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Phase 4 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 4 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 4 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 4 Paving	Pavers	1	6.00	130	0.42
Phase 4 Paving	Paving Equipment	1	8.00	132	0.36
Phase 4 Paving	Rollers	1	7.00	80	0.38
Phase 4 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 4 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	5	13.00	0.00	39.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 SP, Grading, and Utilities	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition	5	13.00	0.00	22.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition Material Export	0	0.00	0.00	143.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 SP, Grading, and Utilities	4	10.00	0.00	159.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water Exposed Area

3.2 Phase 1 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2981	0.0000	0.2981	0.0451	0.0000	0.0451			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328		2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.2981**	**0.6766**	**0.9748**	**0.0451**	**0.6328**	**0.6779**		**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0200e-003	0.1818	0.0485	8.1000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.5134	89.5134	4.9300e-003	0.0142	93.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0446**	**0.2108**	**0.5183**	**2.1000e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**219.5232**	**219.5232**	**8.2100e-003**	**0.0172**	**224.8585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1342	0.0000	0.1342	0.0203	0.0000	0.0203			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328	0.0000	2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.1342**	**0.6766**	**0.8108**	**0.0203**	**0.6328**	**0.6531**	**0.0000**	**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0200e-003	0.1818	0.0485	8.1000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.5134	89.5134	4.9300e-003	0.0142	93.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0446**	**0.2108**	**0.5183**	**2.1000e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**219.5232**	**219.5232**	**8.2100e-003**	**0.0172**	**224.8585**

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
Total	**0.0320**	**0.0223**	**0.3614**	**9.9000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**100.0075**	**100.0075**	**2.5200e-003**	**2.3100e-003**	**100.7583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**3.1872**	**0.6044**	**3.7915**	**1.5411**	**0.5560**	**2.0971**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
Total	**0.0320**	**0.0223**	**0.3614**	**9.9000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**100.0075**	**100.0075**	**2.5200e-003**	**2.3100e-003**	**100.7583**

3.4 Phase 1 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7600e-003	0.1919	0.0744	9.3000e-004	0.0320	9.6000e-004	0.0330	9.2200e-003	9.2000e-004	0.0101		100.1412	100.1412	3.3600e-003	0.0144	104.5156
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0474**	**0.2209**	**0.5442**	**2.2200e-003**	**0.1773**	**1.8300e-003**	**0.1792**	**0.0478**	**1.7200e-003**	**0.0495**		**230.1510**	**230.1510**	**6.6400e-003**	**0.0174**	**235.5014**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

3.6 Phase 2 and 3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7600e-003	0.1919	0.0744	9.3000e-004	0.0320	9.6000e-004	0.0330	9.2200e-003	9.2000e-004	0.0101		100.1412	100.1412	3.3600e-003	0.0144	104.5156
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0474**	**0.2209**	**0.5442**	**2.2200e-003**	**0.1773**	**1.8300e-003**	**0.1792**	**0.0478**	**1.7200e-003**	**0.0495**		**230.1510**	**230.1510**	**6.6400e-003**	**0.0174**	**235.5014**

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

3.7 Phase 2 and 3 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

3.9 Phase 4 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5195	0.0000	0.5195	0.0787	0.0000	0.0787			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.5195**	**0.6311**	**1.1506**	**0.0787**	**0.5895**	**0.6681**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2700e-003	0.3198	0.0866	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9400e-003	0.0137		154.8701	154.8701	8.7400e-003	0.0246	162.4200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0440**	**0.3457**	**0.5232**	**2.6600e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7100e-003**	**0.0530**		**281.1950**	**281.1950**	**0.0117**	**0.0274**	**289.6505**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2338	0.0000	0.2338	0.0354	0.0000	0.0354			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.2338**	**0.6311**	**0.8649**	**0.0354**	**0.5895**	**0.6249**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2700e-003	0.3198	0.0866	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9400e-003	0.0137		154.8701	154.8701	8.7400e-003	0.0246	162.4200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0440**	**0.3457**	**0.5232**	**2.6600e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7100e-003**	**0.0530**		**281.1950**	**281.1950**	**0.0117**	**0.0274**	**289.6505**

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0144	0.0000	0.0144	2.1800e-003	0.0000	2.1800e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0144**	**0.0000**	**0.0144**	**2.1800e-003**	**0.0000**	**2.1800e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0342	2.0787	0.5632	9.1500e-003	0.2781	0.0132	0.2913	0.0763	0.0126	0.0889		1,006.6556	1,006.6556	0.0568	0.1599	1,055.7300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**2.0787**	**0.5632**	**9.1500e-003**	**0.2781**	**0.0132**	**0.2913**	**0.0763**	**0.0126**	**0.0889**		**1,006.6556**	**1,006.6556**	**0.0568**	**0.1599**	**1,055.7300**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4700e-003	0.0000	6.4700e-003	9.8000e-004	0.0000	9.8000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.4700e-003**	**0.0000**	**6.4700e-003**	**9.8000e-004**	**0.0000**	**9.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0342	2.0787	0.5632	9.1500e-003	0.2781	0.0132	0.2913	0.0763	0.0126	0.0889		1,006.6556	1,006.6556	0.0568	0.1599	1,055.7300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**2.0787**	**0.5632**	**9.1500e-003**	**0.2781**	**0.0132**	**0.2913**	**0.0763**	**0.0126**	**0.0889**		**1,006.6556**	**1,006.6556**	**0.0568**	**0.1599**	**1,055.7300**

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0852	0.0000	7.0852	3.4251	0.0000	3.4251			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0852**	**0.5722**	**7.6574**	**3.4251**	**0.5265**	**3.9516**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2300e-003	0.3782	0.1025	1.6600e-003	0.0506	2.4000e-003	0.0530	0.0139	2.2900e-003	0.0162		183.1563	183.1563	0.0103	0.0291	192.0851
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0298	0.0199	0.3358	9.6000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		97.1730	97.1730	2.2800e-003	2.1500e-003	97.8697
Total	**0.0361**	**0.3981**	**0.4383**	**2.6200e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8800e-003**	**0.0464**		**280.3293**	**280.3293**	**0.0126**	**0.0313**	**289.9548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1883	0.0000	3.1883	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**3.1883**	**0.5722**	**3.7606**	**1.5413**	**0.5265**	**2.0678**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2300e-003	0.3782	0.1025	1.6600e-003	0.0506	2.4000e-003	0.0530	0.0139	2.2900e-003	0.0162		183.1563	183.1563	0.0103	0.0291	192.0851
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0298	0.0199	0.3358	9.6000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		97.1730	97.1730	2.2800e-003	2.1500e-003	97.8697
Total	**0.0361**	**0.3981**	**0.4383**	**2.6200e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8800e-003**	**0.0464**		**280.3293**	**280.3293**	**0.0126**	**0.0313**	**289.9548**

3.12 Phase 4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0388**	**0.0259**	**0.4366**	**1.2500e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**126.3249**	**126.3249**	**2.9700e-003**	**2.7900e-003**	**127.2305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0388**	**0.0259**	**0.4366**	**1.2500e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**126.3249**	**126.3249**	**2.9700e-003**	**2.7900e-003**	**127.2305**

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9400e-003	5.9700e-003	0.1008	2.9000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		29.1519	29.1519	6.8000e-004	6.4000e-004	29.3609
Total	**8.9400e-003**	**5.9700e-003**	**0.1008**	**2.9000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**29.1519**	**29.1519**	**6.8000e-004**	**6.4000e-004**	**29.3609**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9400e-003	5.9700e-003	0.1008	2.9000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		29.1519	29.1519	6.8000e-004	6.4000e-004	29.3609
Total	**8.9400e-003**	**5.9700e-003**	**0.1008**	**2.9000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**29.1519**	**29.1519**	**6.8000e-004**	**6.4000e-004**	**29.3609**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Unmitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City Unmitigated Construction

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	1.53	4,235.25	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Paving emissions associated with the GDF/Parking lot area are calculated outside of CalEEMod.

Construction Phase - Construction schedule based on project-specific information.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Project-specific values.

Off-road Equipment -

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Trip rates for worker/vendor trips during building construction based on square footage of gasoline/service station and parking lot land uses.

Demolition - Project-specific values

Grading - Material import and export quantities based on project-specific data.

Architectural Coating - Parking area includes the parking lot land use. Parking area represents the area that is expected to be painted based on CalEEMod defaults.

Vehicle Trips - Construction emissions only.

Consumer Products - Construction emissions only.

Area Coating - Construction emissions only.

Landscape Equipment - Construction emissions only.

Energy Use - Construction emissions only.

Water And Wastewater - Construction emissions only.

Solid Waste - Construction emissions only.

Construction Off-road Equipment Mitigation - Water 2x/day per SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblAreaCoating	Area_Nonresidential_Exterior	2118	0
tblAreaCoating	Area_Nonresidential_Interior	6353	0
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	200.00	86.00
tblConstructionPhase	NumDays	20.00	28.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	20.00	9.00
tblConstructionPhase	NumDays	4.00	55.00
tblConstructionPhase	NumDays	4.00	35.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblGrading	MaterialExported	0.00	1,145.00
tblGrading	MaterialImported	0.00	1,272.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	0.10	1.53
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSolidWaste	SolidWasteGenerationRate	16.17	0.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	1.00	13.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblWater	IndoorWaterUseRate	398,456.67	0.00
tblWater	OutdoorWaterUseRate	244,215.38	0.00

2.0 Emissions Summary

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7929	18.2111	22.3538	0.0390	7.1944	0.8256	7.7994	3.4544	0.7840	4.0110	0.0000	3,646.0978	3,646.0978	0.7613	0.0208	3,671.3419
2024	15.8629	30.6543	23.6607	0.0591	8.2477	1.2225	9.4702	3.6760	1.1342	4.8102	0.0000	5,878.3806	5,878.3806	1.3149	0.2191	5,976.5490
Maximum	**48.7929**	**30.6543**	**23.6607**	**0.0591**	**8.2477**	**1.2225**	**9.4702**	**3.6760**	**1.1342**	**4.8102**	**0.0000**	**5,878.3806**	**5,878.3806**	**1.3149**	**0.2191**	**5,976.5490**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7929	18.2111	22.3538	0.0390	3.2989	0.8256	3.9040	1.5708	0.7840	2.1274	0.0000	3,646.0978	3,646.0978	0.7613	0.0208	3,671.3419
2024	15.8629	30.6543	23.6607	0.0591	4.0572	1.2225	5.2797	1.7477	1.1342	2.8819	0.0000	5,878.3806	5,878.3806	1.3149	0.2191	5,976.5489
Maximum	**48.7929**	**30.6543**	**23.6607**	**0.0591**	**4.0572**	**1.2225**	**5.2797**	**1.7477**	**1.1342**	**2.8819**	**0.0000**	**5,878.3806**	**5,878.3806**	**1.3149**	**0.2191**	**5,976.5489**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	52.36	0.00	46.82	53.46	0.00	43.21	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Demolition	Demolition	2/1/2023	2/28/2023	7	28	
2	Phase 1 SP, Grading, and Utilities	Grading	4/3/2023	5/7/2023	7	35	
3	Phase 1 Paving	Paving	5/8/2023	5/12/2023	7	5	
4	Phase 1 Parking and Lane Striping	Architectural Coating	5/13/2023	5/15/2023	7	3	
5	Phase 2 and 3 Building Construction	Building Construction	9/1/2023	11/25/2023	7	86	
6	Phase 2 and 3 Paving	Paving	11/22/2023	11/23/2023	7	2	
7	Phase 2 and 3 Lane Striping	Architectural Coating	11/24/2023	11/24/2023	7	1	
8	Phase 4 Demolition	Demolition	3/1/2024	3/9/2024	7	9	
9	Phase 4 Demolition Material Export	Grading	3/1/2024	3/9/2024	7	9	
10	Phase 4 SP, Grading, and Utilities	Grading	3/1/2024	4/24/2024	7	55	
11	Phase 4 Paving	Paving	4/25/2024	4/27/2024	7	3	
12	Phase 4 Parking and Lane Striping	Architectural Coating	4/28/2024	4/30/2024	7	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 35

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 1 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 1 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 1 Paving	Pavers	1	6.00	130	0.42
Phase 1 Paving	Paving Equipment	1	8.00	132	0.36
Phase 1 Paving	Rollers	1	7.00	80	0.38
Phase 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 2 and 3 Building Construction	Cranes	1	6.00	231	0.29
Phase 2 and 3 Building Construction	Forklifts	1	6.00	89	0.20
Phase 2 and 3 Building Construction	Generator Sets	1	8.00	84	0.74
Phase 2 and 3 Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 2 and 3 Building Construction	Welders	3	8.00	46	0.45
Phase 2 and 3 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 2 and 3 Paving	Pavers	1	6.00	130	0.42
Phase 2 and 3 Paving	Paving Equipment	1	8.00	132	0.36
Phase 2 and 3 Paving	Rollers	1	7.00	80	0.38
Phase 2 and 3 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 and 3 Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 4 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 4 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 4 Demolition Material Export	Graders	0	8.00	187	0.41
Phase 4 Demolition Material Export	Rubber Tired Dozers	0	8.00	247	0.40

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase 4 Demolition Material Export	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Phase 4 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 4 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 4 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 4 Paving	Pavers	1	6.00	130	0.42
Phase 4 Paving	Paving Equipment	1	8.00	132	0.36
Phase 4 Paving	Rollers	1	7.00	80	0.38
Phase 4 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 4 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	5	13.00	0.00	39.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 SP, Grading, and Utilities	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition	5	13.00	0.00	22.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition Material Export	0	0.00	0.00	143.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 SP, Grading, and Utilities	4	10.00	0.00	159.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water Exposed Area

3.2 Phase 1 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2981	0.0000	0.2981	0.0451	0.0000	0.0451			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328		2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.2981**	**0.6766**	**0.9748**	**0.0451**	**0.6328**	**0.6779**		**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8300e-003	0.1898	0.0492	8.2000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.6077	89.6077	4.9200e-003	0.0142	93.9713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0475**	**0.2218**	**0.4810**	**2.0400e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**212.7637**	**212.7637**	**8.2400e-003**	**0.0174**	**218.1654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1342	0.0000	0.1342	0.0203	0.0000	0.0203			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328	0.0000	2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.1342**	**0.6766**	**0.8108**	**0.0203**	**0.6328**	**0.6531**	**0.0000**	**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8300e-003	0.1898	0.0492	8.2000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.6077	89.6077	4.9200e-003	0.0142	93.9713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0475**	**0.2218**	**0.4810**	**2.0400e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**212.7637**	**212.7637**	**8.2400e-003**	**0.0174**	**218.1654**

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
Total	**0.0344**	**0.0246**	**0.3322**	**9.4000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**94.7354**	**94.7354**	**2.5600e-003**	**2.4700e-003**	**95.5339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**3.1872**	**0.6044**	**3.7915**	**1.5411**	**0.5560**	**2.0971**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
Total	**0.0344**	**0.0246**	**0.3322**	**9.4000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**94.7354**	**94.7354**	**2.5600e-003**	**2.4700e-003**	**95.5339**

3.4 Phase 1 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5600e-003	0.2009	0.0767	9.3000e-004	0.0320	9.7000e-004	0.0330	9.2200e-003	9.3000e-004	0.0102		100.3102	100.3102	3.3400e-003	0.0144	104.6956
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0503**	**0.2330**	**0.5085**	**2.1500e-003**	**0.1773**	**1.8400e-003**	**0.1792**	**0.0478**	**1.7300e-003**	**0.0495**		**223.4661**	**223.4661**	**6.6600e-003**	**0.0176**	**228.8896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5600e-003	0.2009	0.0767	9.3000e-004	0.0320	9.7000e-004	0.0330	9.2200e-003	9.3000e-004	0.0102		100.3102	100.3102	3.3400e-003	0.0144	104.6956
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0503**	**0.2330**	**0.5085**	**2.1500e-003**	**0.1773**	**1.8400e-003**	**0.1792**	**0.0478**	**1.7300e-003**	**0.0495**		**223.4661**	**223.4661**	**6.6600e-003**	**0.0176**	**228.8896**

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

3.7 Phase 2 and 3 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

3.9 Phase 4 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5195	0.0000	0.5195	0.0787	0.0000	0.0787			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.5195**	**0.6311**	**1.1506**	**0.0787**	**0.5895**	**0.6681**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9200e-003	0.3339	0.0878	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9500e-003	0.0137		155.0356	155.0356	8.7200e-003	0.0246	162.5931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0467**	**0.3625**	**0.4894**	**2.5900e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7200e-003**	**0.0530**		**274.7122**	**274.7122**	**0.0117**	**0.0276**	**283.2328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2338	0.0000	0.2338	0.0354	0.0000	0.0354			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.2338**	**0.6311**	**0.8649**	**0.0354**	**0.5895**	**0.6249**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9200e-003	0.3339	0.0878	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9500e-003	0.0137		155.0356	155.0356	8.7200e-003	0.0246	162.5931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0467**	**0.3625**	**0.4894**	**2.5900e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7200e-003**	**0.0530**		**274.7122**	**274.7122**	**0.0117**	**0.0276**	**283.2328**

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0144	0.0000	0.0144	2.1800e-003	0.0000	2.1800e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0144**	**0.0000**	**0.0144**	**2.1800e-003**	**0.0000**	**2.1800e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	2.1704	0.5707	9.1600e-003	0.2781	0.0132	0.2914	0.0763	0.0126	0.0889		1,007.7313	1,007.7313	0.0567	0.1601	1,056.8549
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0320**	**2.1704**	**0.5707**	**9.1600e-003**	**0.2781**	**0.0132**	**0.2914**	**0.0763**	**0.0126**	**0.0889**		**1,007.7313**	**1,007.7313**	**0.0567**	**0.1601**	**1,056.8549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4700e-003	0.0000	6.4700e-003	9.8000e-004	0.0000	9.8000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.4700e-003**	**0.0000**	**6.4700e-003**	**9.8000e-004**	**0.0000**	**9.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	2.1704	0.5707	9.1600e-003	0.2781	0.0132	0.2914	0.0763	0.0126	0.0889		1,007.7313	1,007.7313	0.0567	0.1601	1,056.8549
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0320**	**2.1704**	**0.5707**	**9.1600e-003**	**0.2781**	**0.0132**	**0.2914**	**0.0763**	**0.0126**	**0.0889**		**1,007.7313**	**1,007.7313**	**0.0567**	**0.1601**	**1,056.8549**

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0852	0.0000	7.0852	3.4251	0.0000	3.4251			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0852**	**0.5722**	**7.6574**	**3.4251**	**0.5265**	**3.9516**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.3949	0.1038	1.6700e-003	0.0506	2.4000e-003	0.0530	0.0139	2.3000e-003	0.0162		183.3520	183.3520	0.0103	0.0291	192.2898
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0321	0.0220	0.3090	9.1000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0590	92.0590	2.3200e-003	2.2900e-003	92.7998
Total	**0.0380**	**0.4169**	**0.4128**	**2.5800e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8900e-003**	**0.0464**		**275.4110**	**275.4110**	**0.0126**	**0.0314**	**285.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1883	0.0000	3.1883	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**3.1883**	**0.5722**	**3.7606**	**1.5413**	**0.5265**	**2.0678**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.3949	0.1038	1.6700e-003	0.0506	2.4000e-003	0.0530	0.0139	2.3000e-003	0.0162		183.3520	183.3520	0.0103	0.0291	192.2898
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0321	0.0220	0.3090	9.1000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0590	92.0590	2.3200e-003	2.2900e-003	92.7998
Total	**0.0380**	**0.4169**	**0.4128**	**2.5800e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8900e-003**	**0.0464**		**275.4110**	**275.4110**	**0.0126**	**0.0314**	**285.0896**

3.12 Phase 4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0418**	**0.0286**	**0.4016**	**1.1800e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**119.6767**	**119.6767**	**3.0100e-003**	**2.9800e-003**	**120.6397**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0418**	**0.0286**	**0.4016**	**1.1800e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**119.6767**	**119.6767**	**3.0100e-003**	**2.9800e-003**	**120.6397**

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6400e-003	6.6000e-003	0.0927	2.7000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6177	27.6177	6.9000e-004	6.9000e-004	27.8399
Total	**9.6400e-003**	**6.6000e-003**	**0.0927**	**2.7000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6177**	**27.6177**	**6.9000e-004**	**6.9000e-004**	**27.8399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6400e-003	6.6000e-003	0.0927	2.7000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6177	27.6177	6.9000e-004	6.9000e-004	27.8399
Total	**9.6400e-003**	**6.6000e-003**	**0.0927**	**2.7000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6177**	**27.6177**	**6.9000e-004**	**6.9000e-004**	**27.8399**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Unmitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Unmitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City Mitigated Construction

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	1.53	4,235.25	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Paving emissions associated with the GDF/Parking lot area are calculated outside of CalEEMod.

Construction Phase - Construction schedule based on project-specific information.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Project-specific values.

Off-road Equipment -

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Trip rates for worker/vendor trips during building construction based on square footage of gasoline/service station and parking lot land uses.

Demolition - Project-specific values

Grading - Material import and export quantities based on project-specific data.

Architectural Coating - Parking area includes the parking lot land use. Parking area represents the area that is expected to be painted based on CalEEMod defaults.

Vehicle Trips - Construction emissions only.

Consumer Products - Construction emissions only.

Area Coating - Construction emissions only.

Landscape Equipment - Construction emissions only.

Energy Use - Construction emissions only.

Water And Wastewater - Construction emissions only.

Solid Waste - Construction emissions only.

Construction Off-road Equipment Mitigation - Water 2x/day per SCAQMD Rule 403. Equipment >50 hp mitigated to Tier 4 Final.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblAreaCoating	Area_Nonresidential_Exterior	2118	0
tblAreaCoating	Area_Nonresidential_Interior	6353	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	200.00	86.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	20.00	9.00
tblConstructionPhase	NumDays	4.00	55.00
tblConstructionPhase	NumDays	4.00	35.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblGrading	MaterialExported	0.00	1,145.00
tblGrading	MaterialImported	0.00	1,272.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	0.10	1.53
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSolidWaste	SolidWasteGenerationRate	16.17	0.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	1.00	13.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblWater	IndoorWaterUseRate	398,456.67	0.00
tblWater	OutdoorWaterUseRate	244,215.38	0.00

2.0 Emissions Summary

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7893	18.1960	22.4274	0.0391	7.1944	0.8256	7.7994	3.4544	0.7840	4.0110	0.0000	3,659.6365	3,659.6365	0.7612	0.0204	3,684.7455
2024	15.8622	30.5269	23.7124	0.0592	8.2477	1.2224	9.4702	3.6760	1.1341	4.8102	0.0000	5,888.7060	5,888.7060	1.3149	0.2186	5,986.7070
Maximum	**48.7893**	**30.5269**	**23.7124**	**0.0592**	**8.2477**	**1.2224**	**9.4702**	**3.6760**	**1.1341**	**4.8102**	**0.0000**	**5,888.7060**	**5,888.7060**	**1.3149**	**0.2186**	**5,986.7070**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.0291	6.1800	24.7638	0.0391	3.2989	0.2217	3.3332	1.5708	0.2215	1.6050	0.0000	3,659.6365	3,659.6365	0.7612	0.0204	3,684.7455
2024	15.7111	5.1331	27.1502	0.0592	4.0572	0.0902	4.1474	1.7477	0.0893	1.8371	0.0000	5,888.7059	5,888.7059	1.3149	0.2186	5,986.7070
Maximum	**48.0291**	**6.1800**	**27.1502**	**0.0592**	**4.0572**	**0.2217**	**4.1474**	**1.7477**	**0.2215**	**1.8371**	**0.0000**	**5,888.7059**	**5,888.7059**	**1.3149**	**0.2186**	**5,986.7070**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.41	76.78	-12.51	0.00	52.36	84.77	56.68	53.46	83.80	60.98	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Demolition	Demolition	2/1/2023	2/28/2023	7	28	
2	Phase 1 SP, Grading, and Utilities	Grading	4/3/2023	5/7/2023	7	35	
3	Phase 1 Paving	Paving	5/8/2023	5/12/2023	7	5	
4	Phase 1 Parking and Lane Striping	Architectural Coating	5/13/2023	5/15/2023	7	3	
5	Phase 2 and 3 Building Construction	Building Construction	9/1/2023	11/25/2023	7	86	
6	Phase 2 and 3 Paving	Paving	11/22/2023	11/23/2023	7	2	
7	Phase 2 and 3 Lane Striping	Architectural Coating	11/24/2023	11/24/2023	7	1	
8	Phase 4 Demolition	Demolition	3/1/2024	3/9/2024	7	9	
9	Phase 4 Demolition Material Export	Grading	3/1/2024	3/9/2024	7	9	
10	Phase 4 SP, Grading, and Utilities	Grading	3/1/2024	4/24/2024	7	55	
11	Phase 4 Paving	Paving	4/25/2024	4/27/2024	7	3	
12	Phase 4 Parking and Lane Striping	Architectural Coating	4/28/2024	4/30/2024	7	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 35

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 1 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 1 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 1 Paving	Pavers	1	6.00	130	0.42
Phase 1 Paving	Paving Equipment	1	8.00	132	0.36
Phase 1 Paving	Rollers	1	7.00	80	0.38
Phase 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 2 and 3 Building Construction	Cranes	1	6.00	231	0.29
Phase 2 and 3 Building Construction	Forklifts	1	6.00	89	0.20
Phase 2 and 3 Building Construction	Generator Sets	1	8.00	84	0.74
Phase 2 and 3 Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 2 and 3 Building Construction	Welders	3	8.00	46	0.45
Phase 2 and 3 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 2 and 3 Paving	Pavers	1	6.00	130	0.42
Phase 2 and 3 Paving	Paving Equipment	1	8.00	132	0.36
Phase 2 and 3 Paving	Rollers	1	7.00	80	0.38
Phase 2 and 3 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 and 3 Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 4 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 4 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 4 Demolition Material Export	Graders	0	8.00	187	0.41
Phase 4 Demolition Material Export	Rubber Tired Dozers	0	8.00	247	0.40

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase 4 Demolition Material Export	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Phase 4 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 4 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 4 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 4 Paving	Pavers	1	6.00	130	0.42
Phase 4 Paving	Paving Equipment	1	8.00	132	0.36
Phase 4 Paving	Rollers	1	7.00	80	0.38
Phase 4 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 4 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	5	13.00	0.00	39.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 SP, Grading, and Utilities	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition	5	13.00	0.00	22.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition Material Export	0	0.00	0.00	143.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 SP, Grading, and Utilities	4	10.00	0.00	159.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Phase 1 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2981	0.0000	0.2981	0.0451	0.0000	0.0451			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328		2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.2981**	**0.6766**	**0.9748**	**0.0451**	**0.6328**	**0.6779**		**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0200e-003	0.1818	0.0485	8.1000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.5134	89.5134	4.9300e-003	0.0142	93.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0446**	**0.2108**	**0.5183**	**2.1000e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**219.5232**	**219.5232**	**8.2100e-003**	**0.0172**	**224.8585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1342	0.0000	0.1342	0.0203	0.0000	0.0203			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1342**	**0.0375**	**0.1716**	**0.0203**	**0.0375**	**0.0578**	**0.0000**	**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0200e-003	0.1818	0.0485	8.1000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.5134	89.5134	4.9300e-003	0.0142	93.8727
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0446**	**0.2108**	**0.5183**	**2.1000e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**219.5232**	**219.5232**	**8.2100e-003**	**0.0172**	**224.8585**

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
Total	**0.0320**	**0.0223**	**0.3614**	**9.9000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**100.0075**	**100.0075**	**2.5200e-003**	**2.3100e-003**	**100.7583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.1872**	**0.0336**	**3.2208**	**1.5411**	**0.0336**	**1.5748**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

3.3 Phase 1 SP, Grading, and Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
Total	**0.0320**	**0.0223**	**0.3614**	**9.9000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**100.0075**	**100.0075**	**2.5200e-003**	**2.3100e-003**	**100.7583**

3.4 Phase 1 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**15.7022**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7600e-003	0.1919	0.0744	9.3000e-004	0.0320	9.6000e-004	0.0330	9.2200e-003	9.2000e-004	0.0101		100.1412	100.1412	3.3600e-003	0.0144	104.5156
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0474**	**0.2209**	**0.5442**	**2.2200e-003**	**0.1773**	**1.8300e-003**	**0.1792**	**0.0478**	**1.7200e-003**	**0.0495**		**230.1510**	**230.1510**	**6.6400e-003**	**0.0174**	**235.5014**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9250	4.9617	13.6674	0.0221		0.1869	0.1869		0.1869	0.1869	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**0.9250**	**4.9617**	**13.6674**	**0.0221**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7600e-003	0.1919	0.0744	9.3000e-004	0.0320	9.6000e-004	0.0330	9.2200e-003	9.2000e-004	0.0101		100.1412	100.1412	3.3600e-003	0.0144	104.5156
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0474**	**0.2209**	**0.5442**	**2.2200e-003**	**0.1773**	**1.8300e-003**	**0.1792**	**0.0478**	**1.7200e-003**	**0.0495**		**230.1510**	**230.1510**	**6.6400e-003**	**0.0174**	**235.5014**

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0290	0.4698	1.2900e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		130.0098	130.0098	3.2800e-003	3.0000e-003	130.9859
Total	**0.0416**	**0.0290**	**0.4698**	**1.2900e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**130.0098**	**130.0098**	**3.2800e-003**	**3.0000e-003**	**130.9859**

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.0472**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
Total	**9.6000e-003**	**6.6900e-003**	**0.1084**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**30.0023**	**30.0023**	**7.6000e-004**	**6.9000e-004**	**30.2275**

3.9 Phase 4 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5195	0.0000	0.5195	0.0787	0.0000	0.0787			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.5195**	**0.6311**	**1.1506**	**0.0787**	**0.5895**	**0.6681**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2700e-003	0.3198	0.0866	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9400e-003	0.0137		154.8701	154.8701	8.7400e-003	0.0246	162.4200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0440**	**0.3457**	**0.5232**	**2.6600e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7100e-003**	**0.0530**		**281.1950**	**281.1950**	**0.0117**	**0.0274**	**289.6505**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2338	0.0000	0.2338	0.0354	0.0000	0.0354			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.2338**	**0.0375**	**0.2713**	**0.0354**	**0.0375**	**0.0729**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2700e-003	0.3198	0.0866	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9400e-003	0.0137		154.8701	154.8701	8.7400e-003	0.0246	162.4200
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0440**	**0.3457**	**0.5232**	**2.6600e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7100e-003**	**0.0530**		**281.1950**	**281.1950**	**0.0117**	**0.0274**	**289.6505**

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0144	0.0000	0.0144	2.1800e-003	0.0000	2.1800e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0144**	**0.0000**	**0.0144**	**2.1800e-003**	**0.0000**	**2.1800e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0342	2.0787	0.5632	9.1500e-003	0.2781	0.0132	0.2913	0.0763	0.0126	0.0889		1,006.6556	1,006.6556	0.0568	0.1599	1,055.7300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**2.0787**	**0.5632**	**9.1500e-003**	**0.2781**	**0.0132**	**0.2913**	**0.0763**	**0.0126**	**0.0889**		**1,006.6556**	**1,006.6556**	**0.0568**	**0.1599**	**1,055.7300**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4700e-003	0.0000	6.4700e-003	9.8000e-004	0.0000	9.8000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.4700e-003**	**0.0000**	**6.4700e-003**	**9.8000e-004**	**0.0000**	**9.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0342	2.0787	0.5632	9.1500e-003	0.2781	0.0132	0.2913	0.0763	0.0126	0.0889		1,006.6556	1,006.6556	0.0568	0.1599	1,055.7300
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0342**	**2.0787**	**0.5632**	**9.1500e-003**	**0.2781**	**0.0132**	**0.2913**	**0.0763**	**0.0126**	**0.0889**		**1,006.6556**	**1,006.6556**	**0.0568**	**0.1599**	**1,055.7300**

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0852	0.0000	7.0852	3.4251	0.0000	3.4251			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0852**	**0.5722**	**7.6574**	**3.4251**	**0.5265**	**3.9516**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2300e-003	0.3782	0.1025	1.6600e-003	0.0506	2.4000e-003	0.0530	0.0139	2.2900e-003	0.0162		183.1563	183.1563	0.0103	0.0291	192.0851
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0298	0.0199	0.3358	9.6000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		97.1730	97.1730	2.2800e-003	2.1500e-003	97.8697
Total	**0.0361**	**0.3981**	**0.4383**	**2.6200e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8800e-003**	**0.0464**		**280.3293**	**280.3293**	**0.0126**	**0.0313**	**289.9548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1883	0.0000	3.1883	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.1883**	**0.0336**	**3.2220**	**1.5413**	**0.0336**	**1.5749**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.2300e-003	0.3782	0.1025	1.6600e-003	0.0506	2.4000e-003	0.0530	0.0139	2.2900e-003	0.0162		183.1563	183.1563	0.0103	0.0291	192.0851
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0298	0.0199	0.3358	9.6000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		97.1730	97.1730	2.2800e-003	2.1500e-003	97.8697
Total	**0.0361**	**0.3981**	**0.4383**	**2.6200e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8800e-003**	**0.0464**		**280.3293**	**280.3293**	**0.0126**	**0.0313**	**289.9548**

3.12 Phase 4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0388**	**0.0259**	**0.4366**	**1.2500e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**126.3249**	**126.3249**	**2.9700e-003**	**2.7900e-003**	**127.2305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0388	0.0259	0.4366	1.2500e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		126.3249	126.3249	2.9700e-003	2.7900e-003	127.2305
Total	**0.0388**	**0.0259**	**0.4366**	**1.2500e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**126.3249**	**126.3249**	**2.9700e-003**	**2.7900e-003**	**127.2305**

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9400e-003	5.9700e-003	0.1008	2.9000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		29.1519	29.1519	6.8000e-004	6.4000e-004	29.3609
Total	**8.9400e-003**	**5.9700e-003**	**0.1008**	**2.9000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**29.1519**	**29.1519**	**6.8000e-004**	**6.4000e-004**	**29.3609**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**15.7022**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9400e-003	5.9700e-003	0.1008	2.9000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		29.1519	29.1519	6.8000e-004	6.4000e-004	29.3609
Total	**8.9400e-003**	**5.9700e-003**	**0.1008**	**2.9000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**29.1519**	**29.1519**	**6.8000e-004**	**6.4000e-004**	**29.3609**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Unmitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City Mitigated Construction

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	1.53	4,235.25	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Paving emissions associated with the GDF/Parking lot area are calculated outside of CalEEMod.

Construction Phase - Construction schedule based on project-specific information.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Project-specific values.

Off-road Equipment -

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Trip rates for worker/vendor trips during building construction based on square footage of gasoline/service station and parking lot land uses.

Demolition - Project-specific values

Grading - Material import and export quantities based on project-specific data.

Architectural Coating - Parking area includes the parking lot land use. Parking area represents the area that is expected to be painted based on CalEEMod defaults.

Vehicle Trips - Construction emissions only.

Consumer Products - Construction emissions only.

Area Coating - Construction emissions only.

Landscape Equipment - Construction emissions only.

Energy Use - Construction emissions only.

Water And Wastewater - Construction emissions only.

Solid Waste - Construction emissions only.

Construction Off-road Equipment Mitigation - Water 2x/day per SCAQMD Rule 403. Equipment >50 hp mitigated to Tier 4 Final.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblArchitecturalCoating	ConstArea_Parking	0.00	1,673.00
tblAreaCoating	Area_Nonresidential_Exterior	2118	0
tblAreaCoating	Area_Nonresidential_Interior	6353	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	200.00	86.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	20.00	9.00
tblConstructionPhase	NumDays	4.00	55.00
tblConstructionPhase	NumDays	4.00	35.00
tblConstructionPhase	NumDays	4.00	9.00
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblGrading	MaterialExported	0.00	1,145.00
tblGrading	MaterialImported	0.00	1,272.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	0.10	1.53
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblSolidWaste	SolidWasteGenerationRate	16.17	0.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	1.00	13.00
tblTripsAndVMT	WorkerTripNumber	0.00	3.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblWater	IndoorWaterUseRate	398,456.67	0.00
tblWater	OutdoorWaterUseRate	244,215.38	0.00

2.0 Emissions Summary

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.7929	18.2111	22.3538	0.0390	7.1944	0.8256	7.7994	3.4544	0.7840	4.0110	0.0000	3,646.0978	3,646.0978	0.7613	0.0208	3,671.3419
2024	15.8629	30.6543	23.6607	0.0591	8.2477	1.2225	9.4702	3.6760	1.1342	4.8102	0.0000	5,878.3806	5,878.3806	1.3149	0.2191	5,976.5490
Maximum	**48.7929**	**30.6543**	**23.6607**	**0.0591**	**8.2477**	**1.2225**	**9.4702**	**3.6760**	**1.1342**	**4.8102**	**0.0000**	**5,878.3806**	**5,878.3806**	**1.3149**	**0.2191**	**5,976.5490**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	48.0327	6.1951	24.6902	0.0390	3.2989	0.2217	3.3332	1.5708	0.2215	1.6050	0.0000	3,646.0978	3,646.0978	0.7613	0.0208	3,671.3419
2024	15.7118	5.2604	27.0984	0.0591	4.0572	0.0902	4.1474	1.7477	0.0894	1.8371	0.0000	5,878.3806	5,878.3806	1.3149	0.2191	5,976.5489
Maximum	**48.0327**	**6.1951**	**27.0984**	**0.0591**	**4.0572**	**0.2217**	**4.1474**	**1.7477**	**0.2215**	**1.8371**	**0.0000**	**5,878.3806**	**5,878.3806**	**1.3149**	**0.2191**	**5,976.5489**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.41	76.56	-12.55	0.00	52.36	84.77	56.68	53.46	83.79	60.98	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**	**0.0000**	**7.0000e-003**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Demolition	Demolition	2/1/2023	2/28/2023	7	28	
2	Phase 1 SP, Grading, and Utilities	Grading	4/3/2023	5/7/2023	7	35	
3	Phase 1 Paving	Paving	5/8/2023	5/12/2023	7	5	
4	Phase 1 Parking and Lane Striping	Architectural Coating	5/13/2023	5/15/2023	7	3	
5	Phase 2 and 3 Building Construction	Building Construction	9/1/2023	11/25/2023	7	86	
6	Phase 2 and 3 Paving	Paving	11/22/2023	11/23/2023	7	2	
7	Phase 2 and 3 Lane Striping	Architectural Coating	11/24/2023	11/24/2023	7	1	
8	Phase 4 Demolition	Demolition	3/1/2024	3/9/2024	7	9	
9	Phase 4 Demolition Material Export	Grading	3/1/2024	3/9/2024	7	9	
10	Phase 4 SP, Grading, and Utilities	Grading	3/1/2024	4/24/2024	7	55	
11	Phase 4 Paving	Paving	4/25/2024	4/27/2024	7	3	
12	Phase 4 Parking and Lane Striping	Architectural Coating	4/28/2024	4/30/2024	7	3	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 35

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 1 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 1 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 1 Paving	Pavers	1	6.00	130	0.42
Phase 1 Paving	Paving Equipment	1	8.00	132	0.36
Phase 1 Paving	Rollers	1	7.00	80	0.38
Phase 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 2 and 3 Building Construction	Cranes	1	6.00	231	0.29
Phase 2 and 3 Building Construction	Forklifts	1	6.00	89	0.20
Phase 2 and 3 Building Construction	Generator Sets	1	8.00	84	0.74
Phase 2 and 3 Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Phase 2 and 3 Building Construction	Welders	3	8.00	46	0.45
Phase 2 and 3 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 2 and 3 Paving	Pavers	1	6.00	130	0.42
Phase 2 and 3 Paving	Paving Equipment	1	8.00	132	0.36
Phase 2 and 3 Paving	Rollers	1	7.00	80	0.38
Phase 2 and 3 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 and 3 Lane Striping	Air Compressors	1	6.00	78	0.48
Phase 4 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 4 Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Phase 4 Demolition Material Export	Graders	0	8.00	187	0.41
Phase 4 Demolition Material Export	Rubber Tired Dozers	0	8.00	247	0.40

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase 4 Demolition Material Export	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Phase 4 SP, Grading, and Utilities	Graders	1	8.00	187	0.41
Phase 4 SP, Grading, and Utilities	Rubber Tired Dozers	1	8.00	247	0.40
Phase 4 SP, Grading, and Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Phase 4 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Phase 4 Paving	Pavers	1	6.00	130	0.42
Phase 4 Paving	Paving Equipment	1	8.00	132	0.36
Phase 4 Paving	Rollers	1	7.00	80	0.38
Phase 4 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 4 Parking and Lane Striping	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	5	13.00	0.00	39.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 SP, Grading, and Utilities	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 and 3 Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition	5	13.00	0.00	22.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Demolition Material Export	0	0.00	0.00	143.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 SP, Grading, and Utilities	4	10.00	0.00	159.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Phase 4 Parking and Lane Striping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Phase 1 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2981	0.0000	0.2981	0.0451	0.0000	0.0451			0.0000			0.0000
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328		2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**	**0.2981**	**0.6766**	**0.9748**	**0.0451**	**0.6328**	**0.6779**		**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8300e-003	0.1898	0.0492	8.2000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.6077	89.6077	4.9200e-003	0.0142	93.9713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0475**	**0.2218**	**0.4810**	**2.0400e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**212.7637**	**212.7637**	**8.2400e-003**	**0.0174**	**218.1654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1342	0.0000	0.1342	0.0203	0.0000	0.0203			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1342**	**0.0375**	**0.1716**	**0.0203**	**0.0375**	**0.0578**	**0.0000**	**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Phase 1 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8300e-003	0.1898	0.0492	8.2000e-004	0.0244	1.1500e-003	0.0255	6.6800e-003	1.1000e-003	7.7800e-003		89.6077	89.6077	4.9200e-003	0.0142	93.9713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0475**	**0.2218**	**0.4810**	**2.0400e-003**	**0.1697**	**2.0200e-003**	**0.1717**	**0.0452**	**1.9000e-003**	**0.0471**		**212.7637**	**212.7637**	**8.2400e-003**	**0.0174**	**218.1654**

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
Total	**0.0344**	**0.0246**	**0.3322**	**9.4000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**94.7354**	**94.7354**	**2.5600e-003**	**2.4700e-003**	**95.5339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.1872**	**0.0336**	**3.2208**	**1.5411**	**0.0336**	**1.5748**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Phase 1 SP, Grading, and Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
Total	**0.0344**	**0.0246**	**0.3322**	**9.4000e-004**	**0.1118**	**6.7000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**94.7354**	**94.7354**	**2.5600e-003**	**2.4700e-003**	**95.5339**

3.4 Phase 1 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Phase 1 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**15.8641**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**15.7022**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Phase 1 Parking and Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5600e-003	0.2009	0.0767	9.3000e-004	0.0320	9.7000e-004	0.0330	9.2200e-003	9.3000e-004	0.0102		100.3102	100.3102	3.3400e-003	0.0144	104.6956
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0503**	**0.2330**	**0.5085**	**2.1500e-003**	**0.1773**	**1.8400e-003**	**0.1792**	**0.0478**	**1.7300e-003**	**0.0495**		**223.4661**	**223.4661**	**6.6600e-003**	**0.0176**	**228.8896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9250	4.9617	13.6674	0.0221		0.1869	0.1869		0.1869	0.1869	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**0.9250**	**4.9617**	**13.6674**	**0.0221**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Phase 2 and 3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5600e-003	0.2009	0.0767	9.3000e-004	0.0320	9.7000e-004	0.0330	9.2200e-003	9.3000e-004	0.0102		100.3102	100.3102	3.3400e-003	0.0144	104.6956
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0503**	**0.2330**	**0.5085**	**2.1500e-003**	**0.1773**	**1.8400e-003**	**0.1792**	**0.0478**	**1.7300e-003**	**0.0495**		**223.4661**	**223.4661**	**6.6600e-003**	**0.0176**	**228.8896**

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Phase 2 and 3 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0447	0.0320	0.4318	1.2200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		123.1560	123.1560	3.3200e-003	3.2000e-003	124.1941
Total	**0.0447**	**0.0320**	**0.4318**	**1.2200e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**123.1560**	**123.1560**	**3.3200e-003**	**3.2000e-003**	**124.1941**

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.2091**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.0174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.0472**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Phase 2 and 3 Lane Striping - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
Total	**0.0103**	**7.3900e-003**	**0.0997**	**2.8000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**28.4206**	**28.4206**	**7.7000e-004**	**7.4000e-004**	**28.6602**

3.9 Phase 4 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5195	0.0000	0.5195	0.0787	0.0000	0.0787			0.0000			0.0000
Off-Road	1.4397	13.8867	13.4879	0.0241		0.6311	0.6311		0.5895	0.5895		2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**1.4397**	**13.8867**	**13.4879**	**0.0241**	**0.5195**	**0.6311**	**1.1506**	**0.0787**	**0.5895**	**0.6681**		**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9200e-003	0.3339	0.0878	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9500e-003	0.0137		155.0356	155.0356	8.7200e-003	0.0246	162.5931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0467**	**0.3625**	**0.4894**	**2.5900e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7200e-003**	**0.0530**		**274.7122**	**274.7122**	**0.0117**	**0.0276**	**283.2328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2338	0.0000	0.2338	0.0354	0.0000	0.0354			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,324.9459	2,324.9459	0.5884		2,339.6562
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.2338**	**0.0375**	**0.2713**	**0.0354**	**0.0375**	**0.0729**	**0.0000**	**2,324.9459**	**2,324.9459**	**0.5884**		**2,339.6562**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Phase 4 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9200e-003	0.3339	0.0878	1.4100e-003	0.0428	2.0300e-003	0.0448	0.0117	1.9500e-003	0.0137		155.0356	155.0356	8.7200e-003	0.0246	162.5931
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0467**	**0.3625**	**0.4894**	**2.5900e-003**	**0.1881**	**2.8700e-003**	**0.1910**	**0.0503**	**2.7200e-003**	**0.0530**		**274.7122**	**274.7122**	**0.0117**	**0.0276**	**283.2328**

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0144	0.0000	0.0144	2.1800e-003	0.0000	2.1800e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0144**	**0.0000**	**0.0144**	**2.1800e-003**	**0.0000**	**2.1800e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	2.1704	0.5707	9.1600e-003	0.2781	0.0132	0.2914	0.0763	0.0126	0.0889		1,007.7313	1,007.7313	0.0567	0.1601	1,056.8549
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0320**	**2.1704**	**0.5707**	**9.1600e-003**	**0.2781**	**0.0132**	**0.2914**	**0.0763**	**0.0126**	**0.0889**		**1,007.7313**	**1,007.7313**	**0.0567**	**0.1601**	**1,056.8549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4700e-003	0.0000	6.4700e-003	9.8000e-004	0.0000	9.8000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.4700e-003**	**0.0000**	**6.4700e-003**	**9.8000e-004**	**0.0000**	**9.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Phase 4 Demolition Material Export - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0320	2.1704	0.5707	9.1600e-003	0.2781	0.0132	0.2914	0.0763	0.0126	0.0889		1,007.7313	1,007.7313	0.0567	0.1601	1,056.8549
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0320**	**2.1704**	**0.5707**	**9.1600e-003**	**0.2781**	**0.0132**	**0.2914**	**0.0763**	**0.0126**	**0.0889**		**1,007.7313**	**1,007.7313**	**0.0567**	**0.1601**	**1,056.8549**

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0852	0.0000	7.0852	3.4251	0.0000	3.4251			0.0000			0.0000
Off-Road	1.3015	13.8178	8.6998	0.0206		0.5722	0.5722		0.5265	0.5265		1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**1.3015**	**13.8178**	**8.6998**	**0.0206**	**7.0852**	**0.5722**	**7.6574**	**3.4251**	**0.5265**	**3.9516**		**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.3949	0.1038	1.6700e-003	0.0506	2.4000e-003	0.0530	0.0139	2.3000e-003	0.0162		183.3520	183.3520	0.0103	0.0291	192.2898
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0321	0.0220	0.3090	9.1000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0590	92.0590	2.3200e-003	2.2900e-003	92.7998
Total	**0.0380**	**0.4169**	**0.4128**	**2.5800e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8900e-003**	**0.0464**		**275.4110**	**275.4110**	**0.0126**	**0.0314**	**285.0896**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1883	0.0000	3.1883	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.5803	1,995.5803	0.6454		2,011.7155
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.1883**	**0.0336**	**3.2220**	**1.5413**	**0.0336**	**1.5749**	**0.0000**	**1,995.5803**	**1,995.5803**	**0.6454**		**2,011.7155**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Phase 4 SP, Grading, and Utilities - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8200e-003	0.3949	0.1038	1.6700e-003	0.0506	2.4000e-003	0.0530	0.0139	2.3000e-003	0.0162		183.3520	183.3520	0.0103	0.0291	192.2898
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0321	0.0220	0.3090	9.1000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0590	92.0590	2.3200e-003	2.2900e-003	92.7998
Total	**0.0380**	**0.4169**	**0.4128**	**2.5800e-003**	**0.1624**	**3.0400e-003**	**0.1654**	**0.0435**	**2.8900e-003**	**0.0464**		**275.4110**	**275.4110**	**0.0126**	**0.0314**	**285.0896**

3.12 Phase 4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0418**	**0.0286**	**0.4016**	**1.1800e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**119.6767**	**119.6767**	**3.0100e-003**	**2.9800e-003**	**120.6397**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2038	0.9684	10.0824	0.0136		0.0320	0.0320		0.0320	0.0320	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0136**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.12 Phase 4 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0286	0.4016	1.1800e-003	0.1453	8.4000e-004	0.1462	0.0385	7.7000e-004	0.0393		119.6767	119.6767	3.0100e-003	2.9800e-003	120.6397
Total	**0.0418**	**0.0286**	**0.4016**	**1.1800e-003**	**0.1453**	**8.4000e-004**	**0.1462**	**0.0385**	**7.7000e-004**	**0.0393**		**119.6767**	**119.6767**	**3.0100e-003**	**2.9800e-003**	**120.6397**

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**15.8532**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6400e-003	6.6000e-003	0.0927	2.7000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6177	27.6177	6.9000e-004	6.9000e-004	27.8399
Total	**9.6400e-003**	**6.6000e-003**	**0.0927**	**2.7000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6177**	**27.6177**	**6.9000e-004**	**6.9000e-004**	**27.8399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6725					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**15.7022**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.13 Phase 4 Parking and Lane Striping - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.6400e-003	6.6000e-003	0.0927	2.7000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6177	27.6177	6.9000e-004	6.9000e-004	27.8399
Total	**9.6400e-003**	**6.6000e-003**	**0.0927**	**2.7000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6177**	**27.6177**	**6.9000e-004**	**6.9000e-004**	**27.8399**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Unmitigated	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5700e-003	6.5700e-003	2.0000e-005		7.0000e-003
Total	**2.8000e-004**	**3.0000e-005**	**3.0600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5700e-003**	**6.5700e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Mitigated Construction - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Costco Culver City Project Operation

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	0.89	4,235.25	0
Parking Lot	0.64	Acre	0.64	27,878.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project-specific values for project land uses

Construction Phase - Operational emissions only. Construction activity left as default

Off-road Equipment - Operational emissions only. Construction activity left as default

Grading - Operational emissions only. Construction activity left as default

Demolition - Operational emissions only. Construction activity left as default

Trips and VMT - Operational emissions only. Construction activity left as default

On-road Fugitive Dust - Operational emissions only. Construction activity left as default

Architectural Coating - Operational emissions only. Construction activity left as default

Vehicle Trips - Project-specific values

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.10	0.89
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00

2.0 Emissions Summary

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.9167	17.0089	14.4729	0.0255	7.1944	0.8388	7.9374	3.4544	0.7837	4.1379	0.0000	2,458.6334	2,458.6334	0.6482	0.0184	2,474.4965
Maximum	**4.9167**	**17.0089**	**14.4729**	**0.0255**	**7.1944**	**0.8388**	**7.9374**	**3.4544**	**0.7837**	**4.1379**	**0.0000**	**2,458.6334**	**2,458.6334**	**0.6482**	**0.0184**	**2,474.4965**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.9167	17.0089	14.4729	0.0255	7.1944	0.8388	7.9374	3.4544	0.7837	4.1379	0.0000	2,458.6334	2,458.6334	0.6482	0.0184	2,474.4965
Maximum	**4.9167**	**17.0089**	**14.4729**	**0.0255**	**7.1944**	**0.8388**	**7.9374**	**3.4544**	**0.7837**	**4.1379**	**0.0000**	**2,458.6334**	**2,458.6334**	**0.6482**	**0.0184**	**2,474.4965**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Energy	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1092**	**0.0205**	**0.0203**	**1.2000e-004**	**0.0000**	**1.5600e-003**	**1.5600e-003**	**0.0000**	**1.5600e-003**	**1.5600e-003**		**24.5241**	**24.5241**	**4.9000e-004**	**4.5000e-004**	**24.6702**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Energy	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1092**	**0.0205**	**0.0203**	**1.2000e-004**	**0.0000**	**1.5600e-003**	**1.5600e-003**	**0.0000**	**1.5600e-003**	**1.5600e-003**		**24.5241**	**24.5241**	**4.9000e-004**	**4.5000e-004**	**24.6702**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/29/2022	2/1/2022	5	2	
3	Grading	Grading	2/2/2022	2/7/2022	5	4	
4	Building Construction	Building Construction	2/8/2022	11/14/2022	5	200	
5	Paving	Paving	11/15/2022	11/28/2022	5	10	
6	Architectural Coating	Architectural Coating	11/29/2022	12/12/2022	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.64

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**		**0.8379**	**0.8379**		**0.7829**	**0.7829**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0450**	**0.0329**	**0.5124**	**1.3300e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**135.2165**	**135.2165**	**3.6600e-003**	**3.2500e-003**	**136.2774**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**		**0.8379**	**0.8379**		**0.7829**	**0.7829**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0450**	**0.0329**	**0.5124**	**1.3300e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**135.2165**	**135.2165**	**3.6600e-003**	**3.2500e-003**	**136.2774**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727		1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2662**	**0.6225**	**6.8887**	**3.0041**	**0.5727**	**3.5768**		**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0277	0.0202	0.3153	8.2000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		83.2102	83.2102	2.2500e-003	2.0000e-003	83.8630
Total	**0.0277**	**0.0202**	**0.3153**	**8.2000e-004**	**0.0894**	**5.7000e-004**	**0.0900**	**0.0237**	**5.3000e-004**	**0.0242**		**83.2102**	**83.2102**	**2.2500e-003**	**2.0000e-003**	**83.8630**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727	0.0000	1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2662**	**0.6225**	**6.8887**	**3.0041**	**0.5727**	**3.5768**	**0.0000**	**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0277	0.0202	0.3153	8.2000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		83.2102	83.2102	2.2500e-003	2.0000e-003	83.8630
Total	**0.0277**	**0.0202**	**0.3153**	**8.2000e-004**	**0.0894**	**5.7000e-004**	**0.0900**	**0.0237**	**5.3000e-004**	**0.0242**		**83.2102**	**83.2102**	**2.2500e-003**	**2.0000e-003**	**83.8630**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0826**	**0.7423**	**7.8249**	**3.4247**	**0.6829**	**4.1076**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0346	0.0253	0.3941	1.0200e-003	0.1118	7.2000e-004	0.1125	0.0296	6.6000e-004	0.0303		104.0127	104.0127	2.8200e-003	2.5000e-003	104.8288
Total	**0.0346**	**0.0253**	**0.3941**	**1.0200e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**104.0127**	**104.0127**	**2.8200e-003**	**2.5000e-003**	**104.8288**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0826**	**0.7423**	**7.8249**	**3.4247**	**0.6829**	**4.1076**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0346	0.0253	0.3941	1.0200e-003	0.1118	7.2000e-004	0.1125	0.0296	6.6000e-004	0.0303		104.0127	104.0127	2.8200e-003	2.5000e-003	104.8288
Total	**0.0346**	**0.0253**	**0.3941**	**1.0200e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**104.0127**	**104.0127**	**2.8200e-003**	**2.5000e-003**	**104.8288**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8400e-003	0.2449	0.0840	9.8000e-004	0.0320	2.3300e-003	0.0344	9.2200e-003	2.2300e-003	0.0115		105.2308	105.2308	3.5200e-003	0.0152	109.8376
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0548**	**0.2778**	**0.5963**	**2.3100e-003**	**0.1773**	**3.2600e-003**	**0.1806**	**0.0478**	**3.0900e-003**	**0.0508**		**240.4473**	**240.4473**	**7.1800e-003**	**0.0184**	**246.1150**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8400e-003	0.2449	0.0840	9.8000e-004	0.0320	2.3300e-003	0.0344	9.2200e-003	2.2300e-003	0.0115		105.2308	105.2308	3.5200e-003	0.0152	109.8376
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0548**	**0.2778**	**0.5963**	**2.3100e-003**	**0.1773**	**3.2600e-003**	**0.1806**	**0.0478**	**3.0900e-003**	**0.0508**		**240.4473**	**240.4473**	**7.1800e-003**	**0.0184**	**246.1150**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.1677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8554**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0450**	**0.0329**	**0.5124**	**1.3300e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**135.2165**	**135.2165**	**3.6600e-003**	**3.2500e-003**	**136.2774**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.1677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8554**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0450	0.0329	0.5124	1.3300e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		135.2165	135.2165	3.6600e-003	3.2500e-003	136.2774
Total	**0.0450**	**0.0329**	**0.5124**	**1.3300e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**135.2165**	**135.2165**	**3.6600e-003**	**3.2500e-003**	**136.2774**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.7017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**4.9063**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.5800e-003	0.1182	3.1000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		31.2038	31.2038	8.4000e-004	7.5000e-004	31.4486
Total	**0.0104**	**7.5800e-003**	**0.1182**	**3.1000e-004**	**0.0335**	**2.1000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.0900e-003**		**31.2038**	**31.2038**	**8.4000e-004**	**7.5000e-004**	**31.4486**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.7017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**4.9063**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0104	7.5800e-003	0.1182	3.1000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		31.2038	31.2038	8.4000e-004	7.5000e-004	31.4486
Total	**0.0104**	**7.5800e-003**	**0.1182**	**3.1000e-004**	**0.0335**	**2.1000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.0900e-003**		**31.2038**	**31.2038**	**8.4000e-004**	**7.5000e-004**	**31.4486**

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374
Parking Lot	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
NaturalGas Unmitigated	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	208.398	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2500e-003**	**0.0204**	**0.0172**	**1.2000e-004**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**		**24.5174**	**24.5174**	**4.7000e-004**	**4.5000e-004**	**24.6631**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0.208398	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2500e-003**	**0.0204**	**0.0172**	**1.2000e-004**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**		**24.5174**	**24.5174**	**4.7000e-004**	**4.5000e-004**	**24.6631**

6.0 Area Detail

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Unmitigated	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0937					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Total	**0.1069**	**3.0000e-005**	**3.1300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.7100e-003**	**6.7100e-003**	**2.0000e-005**		**7.1500e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0937					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Total	**0.1069**	**3.0000e-005**	**3.1300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.7100e-003**	**6.7100e-003**	**2.0000e-005**		**7.1500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Project Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Costco Culver City Project Operation

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	30.00	Pump	0.89	4,235.25	0
Parking Lot	0.64	Acre	0.64	27,878.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project-specific values for project land uses

Construction Phase - Operational emissions only. Construction activity left as default

Off-road Equipment - Operational emissions only. Construction activity left as default

Grading - Operational emissions only. Construction activity left as default

Demolition - Operational emissions only. Construction activity left as default

Trips and VMT - Operational emissions only. Construction activity left as default

On-road Fugitive Dust - Operational emissions only. Construction activity left as default

Architectural Coating - Operational emissions only. Construction activity left as default

Vehicle Trips - Project-specific values

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.10	0.89
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	WD_TR	172.01	0.00

2.0 Emissions Summary

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.9174	17.0115	14.4309	0.0254	7.1944	0.8388	7.9374	3.4544	0.7837	4.1379	0.0000	2,451.4842	2,451.4842	0.6482	0.0187	2,467.4148
Maximum	**4.9174**	**17.0115**	**14.4309**	**0.0254**	**7.1944**	**0.8388**	**7.9374**	**3.4544**	**0.7837**	**4.1379**	**0.0000**	**2,451.4842**	**2,451.4842**	**0.6482**	**0.0187**	**2,467.4148**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.9174	17.0115	14.4309	0.0254	7.1944	0.8388	7.9374	3.4544	0.7837	4.1379	0.0000	2,451.4842	2,451.4842	0.6482	0.0187	2,467.4148
Maximum	**4.9174**	**17.0115**	**14.4309**	**0.0254**	**7.1944**	**0.8388**	**7.9374**	**3.4544**	**0.7837**	**4.1379**	**0.0000**	**2,451.4842**	**2,451.4842**	**0.6482**	**0.0187**	**2,467.4148**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Energy	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1092**	**0.0205**	**0.0203**	**1.2000e-004**	**0.0000**	**1.5600e-003**	**1.5600e-003**	**0.0000**	**1.5600e-003**	**1.5600e-003**		**24.5241**	**24.5241**	**4.9000e-004**	**4.5000e-004**	**24.6702**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Energy	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1092**	**0.0205**	**0.0203**	**1.2000e-004**	**0.0000**	**1.5600e-003**	**1.5600e-003**	**0.0000**	**1.5600e-003**	**1.5600e-003**		**24.5241**	**24.5241**	**4.9000e-004**	**4.5000e-004**	**24.6702**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/29/2022	2/1/2022	5	2	
3	Grading	Grading	2/2/2022	2/7/2022	5	4	
4	Building Construction	Building Construction	2/8/2022	11/14/2022	5	200	
5	Paving	Paving	11/15/2022	11/28/2022	5	10	
6	Architectural Coating	Architectural Coating	11/29/2022	12/12/2022	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.64

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,353; Non-Residential Outdoor: 2,118; Striped Parking Area: 1,673 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**		**0.8379**	**0.8379**		**0.7829**	**0.7829**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0482**	**0.0363**	**0.4704**	**1.2600e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**128.0673**	**128.0673**	**3.7000e-003**	**3.4800e-003**	**129.1958**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**		**0.8379**	**0.8379**		**0.7829**	**0.7829**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0482**	**0.0363**	**0.4704**	**1.2600e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**128.0673**	**128.0673**	**3.7000e-003**	**3.4800e-003**	**129.1958**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727		1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2662**	**0.6225**	**6.8887**	**3.0041**	**0.5727**	**3.5768**		**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0296	0.0223	0.2895	7.7000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		78.8107	78.8107	2.2800e-003	2.1400e-003	79.5051
Total	**0.0296**	**0.0223**	**0.2895**	**7.7000e-004**	**0.0894**	**5.7000e-004**	**0.0900**	**0.0237**	**5.3000e-004**	**0.0242**		**78.8107**	**78.8107**	**2.2800e-003**	**2.1400e-003**	**79.5051**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727	0.0000	1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2662**	**0.6225**	**6.8887**	**3.0041**	**0.5727**	**3.5768**	**0.0000**	**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0296	0.0223	0.2895	7.7000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		78.8107	78.8107	2.2800e-003	2.1400e-003	79.5051
Total	**0.0296**	**0.0223**	**0.2895**	**7.7000e-004**	**0.0894**	**5.7000e-004**	**0.0900**	**0.0237**	**5.3000e-004**	**0.0242**		**78.8107**	**78.8107**	**2.2800e-003**	**2.1400e-003**	**79.5051**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0826**	**0.7423**	**7.8249**	**3.4247**	**0.6829**	**4.1076**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0371	0.0279	0.3619	9.7000e-004	0.1118	7.2000e-004	0.1125	0.0296	6.6000e-004	0.0303		98.5133	98.5133	2.8500e-003	2.6700e-003	99.3813
Total	**0.0371**	**0.0279**	**0.3619**	**9.7000e-004**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**98.5133**	**98.5133**	**2.8500e-003**	**2.6700e-003**	**99.3813**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0826**	**0.7423**	**7.8249**	**3.4247**	**0.6829**	**4.1076**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0371	0.0279	0.3619	9.7000e-004	0.1118	7.2000e-004	0.1125	0.0296	6.6000e-004	0.0303		98.5133	98.5133	2.8500e-003	2.6700e-003	99.3813
Total	**0.0371**	**0.0279**	**0.3619**	**9.7000e-004**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**98.5133**	**98.5133**	**2.8500e-003**	**2.6700e-003**	**99.3813**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.2550	0.0869	9.8000e-004	0.0320	2.3400e-003	0.0344	9.2200e-003	2.2400e-003	0.0115		105.2703	105.2703	3.5100e-003	0.0152	109.8827
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0579**	**0.2913**	**0.5573**	**2.2400e-003**	**0.1773**	**3.2700e-003**	**0.1806**	**0.0478**	**3.1000e-003**	**0.0509**		**233.3376**	**233.3376**	**7.2100e-003**	**0.0187**	**239.0784**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7200e-003	0.2550	0.0869	9.8000e-004	0.0320	2.3400e-003	0.0344	9.2200e-003	2.2400e-003	0.0115		105.2703	105.2703	3.5100e-003	0.0152	109.8827
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0579**	**0.2913**	**0.5573**	**2.2400e-003**	**0.1773**	**3.2700e-003**	**0.1806**	**0.0478**	**3.1000e-003**	**0.0509**		**233.3376**	**233.3376**	**7.2100e-003**	**0.0187**	**239.0784**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.1677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8554**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0482**	**0.0363**	**0.4704**	**1.2600e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**128.0673**	**128.0673**	**3.7000e-003**	**3.4800e-003**	**129.1958**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.1677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8554**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0482	0.0363	0.4704	1.2600e-003	0.1453	9.3000e-004	0.1462	0.0385	8.6000e-004	0.0394		128.0673	128.0673	3.7000e-003	3.4800e-003	129.1958
Total	**0.0482**	**0.0363**	**0.4704**	**1.2600e-003**	**0.1453**	**9.3000e-004**	**0.1462**	**0.0385**	**8.6000e-004**	**0.0394**		**128.0673**	**128.0673**	**3.7000e-003**	**3.4800e-003**	**129.1958**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.7017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**4.9063**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0111	8.3800e-003	0.1086	2.9000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		29.5540	29.5540	8.5000e-004	8.0000e-004	29.8144
Total	**0.0111**	**8.3800e-003**	**0.1086**	**2.9000e-004**	**0.0335**	**2.1000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.0900e-003**		**29.5540**	**29.5540**	**8.5000e-004**	**8.0000e-004**	**29.8144**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	4.7017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**4.9063**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0111	8.3800e-003	0.1086	2.9000e-004	0.0335	2.1000e-004	0.0338	8.8900e-003	2.0000e-004	9.0900e-003		29.5540	29.5540	8.5000e-004	8.0000e-004	29.8144
Total	**0.0111**	**8.3800e-003**	**0.1086**	**2.9000e-004**	**0.0335**	**2.1000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.0900e-003**		**29.5540**	**29.5540**	**8.5000e-004**	**8.0000e-004**	**29.8144**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374
Parking Lot	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
NaturalGas Unmitigated	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	208.398	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2500e-003**	**0.0204**	**0.0172**	**1.2000e-004**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**		**24.5174**	**24.5174**	**4.7000e-004**	**4.5000e-004**	**24.6631**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Gasoline/Service Station	0.208398	2.2500e-003	0.0204	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003		24.5174	24.5174	4.7000e-004	4.5000e-004	24.6631
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.2500e-003**	**0.0204**	**0.0172**	**1.2000e-004**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**		**24.5174**	**24.5174**	**4.7000e-004**	**4.5000e-004**	**24.6631**

6.0 Area Detail

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Unmitigated	0.1069	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0937					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Total	**0.1069**	**3.0000e-005**	**3.1300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.7100e-003**	**6.7100e-003**	**2.0000e-005**		**7.1500e-003**

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0937					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.7100e-003	6.7100e-003	2.0000e-005		7.1500e-003
Total	**0.1069**	**3.0000e-005**	**3.1300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.7100e-003**	**6.7100e-003**	**2.0000e-005**		**7.1500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City Project Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City - Existing Operation

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	16.00	Pump	0.64	2,258.80	0
Parking Lot	0.70	Acre	0.70	30,492.00	0
Fast Food Restaurant w/o Drive Thru	1.59	1000sqft	0.04	1,590.00	0
Fast Food Restaurant w/o Drive Thru	0.79	1000sqft	0.02	790.00	0
Strip Mall	5.28	1000sqft	0.12	5,280.00	0
Strip Mall	0.82	1000sqft	0.02	820.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project-specific data

Construction Phase - Default construction

Vehicle Trips - Mobile emissions calculated separately

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.05	0.64

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	696.00	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	500.00	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	346.23	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.1795	21.3747	15.2754	0.0255	7.1944	1.1536	8.1854	3.4544	1.0771	4.3661	0.0000	2,465.1994	2,465.1994	0.6492	0.0270	2,481.3967
2021	11.0330	14.0862	13.7243	0.0252	0.2237	0.6916	0.9153	0.0603	0.6677	0.7281	0.0000	2,323.2839	2,323.2839	0.4152	0.0262	2,340.2715
Maximum	**11.0330**	**21.3747**	**15.2754**	**0.0255**	**7.1944**	**1.1536**	**8.1854**	**3.4544**	**1.0771**	**4.3661**	**0.0000**	**2,465.1994**	**2,465.1994**	**0.6492**	**0.0270**	**2,481.3967**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.1795	21.3747	15.2754	0.0255	7.1944	1.1536	8.1854	3.4544	1.0771	4.3661	0.0000	2,465.1994	2,465.1994	0.6492	0.0270	2,481.3967
2021	11.0330	14.0862	13.7243	0.0252	0.2237	0.6916	0.9153	0.0603	0.6677	0.7281	0.0000	2,323.2839	2,323.2839	0.4152	0.0262	2,340.2715
Maximum	**11.0330**	**21.3747**	**15.2754**	**0.0255**	**7.1944**	**1.1536**	**8.1854**	**3.4544**	**1.0771**	**4.3661**	**0.0000**	**2,465.1994**	**2,465.1994**	**0.6492**	**0.0270**	**2,481.3967**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Energy	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2710**	**0.1608**	**0.1377**	**9.6000e-004**	**0.0000**	**0.0122**	**0.0122**	**0.0000**	**0.0122**	**0.0122**		**192.9778**	**192.9778**	**3.7100e-003**	**3.5400e-003**	**194.1249**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Energy	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2710**	**0.1608**	**0.1377**	**9.6000e-004**	**0.0000**	**0.0122**	**0.0122**	**0.0000**	**0.0122**	**0.0122**		**192.9778**	**192.9778**	**3.7100e-003**	**3.5400e-003**	**194.1249**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	7/28/2020	5	20	
2	Site Preparation	Site Preparation	7/29/2020	7/30/2020	5	2	
3	Grading	Grading	7/31/2020	8/5/2020	5	4	
4	Building Construction	Building Construction	8/6/2020	5/12/2021	5	200	
5	Paving	Paving	5/13/2021	5/26/2021	5	10	
6	Architectural Coating	Architectural Coating	5/27/2021	6/9/2021	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 16,108; Non-Residential Outdoor: 5,369; Striped Parking Area: 1,830 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	16.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0428	0.6182	1.4100e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		142.8868	142.8868	4.6000e-003	3.8900e-003	144.1603
Total	**0.0533**	**0.0428**	**0.6182**	**1.4100e-003**	**0.1453**	**1.0700e-003**	**0.1464**	**0.0385**	**9.9000e-004**	**0.0395**		**142.8868**	**142.8868**	**4.6000e-003**	**3.8900e-003**	**144.1603**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0428	0.6182	1.4100e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		142.8868	142.8868	4.6000e-003	3.8900e-003	144.1603
Total	**0.0533**	**0.0428**	**0.6182**	**1.4100e-003**	**0.1453**	**1.0700e-003**	**0.1464**	**0.0385**	**9.9000e-004**	**0.0395**		**142.8868**	**142.8868**	**4.6000e-003**	**3.8900e-003**	**144.1603**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**6.2662**	**0.8210**	**7.0872**	**3.0041**	**0.7553**	**3.7594**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0328	0.0264	0.3804	8.7000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		87.9303	87.9303	2.8300e-003	2.3900e-003	88.7140
Total	**0.0328**	**0.0264**	**0.3804**	**8.7000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**87.9303**	**87.9303**	**2.8300e-003**	**2.3900e-003**	**88.7140**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**6.2662**	**0.8210**	**7.0872**	**3.0041**	**0.7553**	**3.7594**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0328	0.0264	0.3804	8.7000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		87.9303	87.9303	2.8300e-003	2.3900e-003	88.7140
Total	**0.0328**	**0.0264**	**0.3804**	**8.7000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**87.9303**	**87.9303**	**2.8300e-003**	**2.3900e-003**	**88.7140**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**7.0826**	**0.9902**	**8.0728**	**3.4247**	**0.9110**	**4.3357**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0329	0.4755	1.0900e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		109.9129	109.9129	3.5400e-003	2.9900e-003	110.8926
Total	**0.0410**	**0.0329**	**0.4755**	**1.0900e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**109.9129**	**109.9129**	**3.5400e-003**	**2.9900e-003**	**110.8926**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**7.0826**	**0.9902**	**8.0728**	**3.4247**	**0.9110**	**4.3357**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0329	0.4755	1.0900e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		109.9129	109.9129	3.5400e-003	2.9900e-003	110.8926
Total	**0.0410**	**0.0329**	**0.4755**	**1.0900e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**109.9129**	**109.9129**	**3.5400e-003**	**2.9900e-003**	**110.8926**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.4488	0.1465	1.4400e-003	0.0448	7.4000e-003	0.0522	0.0129	7.0800e-003	0.0200		154.4142	154.4142	5.2500e-003	0.0222	161.1732
Worker	0.0656	0.0527	0.7608	1.7400e-003	0.1788	1.3200e-003	0.1802	0.0474	1.2100e-003	0.0486		175.8606	175.8606	5.6600e-003	4.7800e-003	177.4281
Total	**0.0883**	**0.5015**	**0.9073**	**3.1800e-003**	**0.2237**	**8.7200e-003**	**0.2324**	**0.0603**	**8.2900e-003**	**0.0686**		**330.2748**	**330.2748**	**0.0109**	**0.0270**	**338.6013**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.4488	0.1465	1.4400e-003	0.0448	7.4000e-003	0.0522	0.0129	7.0800e-003	0.0200		154.4142	154.4142	5.2500e-003	0.0222	161.1732
Worker	0.0656	0.0527	0.7608	1.7400e-003	0.1788	1.3200e-003	0.1802	0.0474	1.2100e-003	0.0486		175.8606	175.8606	5.6600e-003	4.7800e-003	177.4281
Total	**0.0883**	**0.5015**	**0.9073**	**3.1800e-003**	**0.2237**	**8.7200e-003**	**0.2324**	**0.0603**	**8.2900e-003**	**0.0686**		**330.2748**	**330.2748**	**0.0109**	**0.0270**	**338.6013**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4042	0.1351	1.4100e-003	0.0448	6.0500e-003	0.0509	0.0129	5.7900e-003	0.0187		151.3688	151.3688	5.1500e-003	0.0218	157.9982
Worker	0.0601	0.0460	0.6898	1.6900e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		170.6951	170.6951	5.0400e-003	4.3600e-003	172.1216
Total	**0.0795**	**0.4502**	**0.8249**	**3.1000e-003**	**0.2237**	**7.2800e-003**	**0.2310**	**0.0603**	**6.9200e-003**	**0.0673**		**322.0639**	**322.0639**	**0.0102**	**0.0262**	**330.1198**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0194	0.4042	0.1351	1.4100e-003	0.0448	6.0500e-003	0.0509	0.0129	5.7900e-003	0.0187		151.3688	151.3688	5.1500e-003	0.0218	157.9982
Worker	0.0601	0.0460	0.6898	1.6900e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		170.6951	170.6951	5.0400e-003	4.3600e-003	172.1216
Total	**0.0795**	**0.4502**	**0.8249**	**3.1000e-003**	**0.2237**	**7.2800e-003**	**0.2310**	**0.0603**	**6.9200e-003**	**0.0673**		**322.0639**	**322.0639**	**0.0102**	**0.0262**	**330.1198**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9573**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0488	0.0374	0.5605	1.3700e-003	0.1453	1.0000e-003	0.1463	0.0385	9.2000e-004	0.0395		138.6898	138.6898	4.1000e-003	3.5500e-003	139.8488
Total	**0.0488**	**0.0374**	**0.5605**	**1.3700e-003**	**0.1453**	**1.0000e-003**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**138.6898**	**138.6898**	**4.1000e-003**	**3.5500e-003**	**139.8488**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9573**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0488	0.0374	0.5605	1.3700e-003	0.1453	1.0000e-003	0.1463	0.0385	9.2000e-004	0.0395		138.6898	138.6898	4.1000e-003	3.5500e-003	139.8488
Total	**0.0488**	**0.0374**	**0.5605**	**1.3700e-003**	**0.1453**	**1.0000e-003**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**138.6898**	**138.6898**	**4.1000e-003**	**3.5500e-003**	**139.8488**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**11.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0113	8.6200e-003	0.1294	3.2000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.1000e-004	9.1000e-003		32.0053	32.0053	9.5000e-004	8.2000e-004	32.2728
Total	**0.0113**	**8.6200e-003**	**0.1294**	**3.2000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.1000e-004**	**9.1000e-003**		**32.0053**	**32.0053**	**9.5000e-004**	**8.2000e-004**	**32.2728**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**11.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0113	8.6200e-003	0.1294	3.2000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.1000e-004	9.1000e-003		32.0053	32.0053	9.5000e-004	8.2000e-004	32.2728
Total	**0.0113**	**8.6200e-003**	**0.1294**	**3.2000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.1000e-004**	**9.1000e-003**		**32.0053**	**32.0053**	**9.5000e-004**	**8.2000e-004**	**32.2728**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Gasoline/Service Station	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Parking Lot	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Strip Mall	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
NaturalGas Unmitigated	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	1003.36	0.0108	0.0984	0.0826	5.9000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		118.0418	118.0418	2.2600e-003	2.1600e-003	118.7433
Fast Food Restaurant w/o Drive Thru	498.522	5.3800e-003	0.0489	0.0411	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003		58.6497	58.6497	1.1200e-003	1.0800e-003	58.9982
Gasoline/Service Station	111.145	1.2000e-003	0.0109	9.1500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.0759	13.0759	2.5000e-004	2.4000e-004	13.1536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	23.5792	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.7740	2.7740	5.0000e-005	5.0000e-005	2.7905
Strip Mall	3.66192	4.0000e-005	3.6000e-004	3.0000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.4308	0.4308	1.0000e-005	1.0000e-005	0.4334
Total		**0.0177**	**0.1608**	**0.1351**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.9723**	**192.9723**	**3.6900e-003**	**3.5400e-003**	**194.1190**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	0.498522	5.3800e-003	0.0489	0.0411	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003		58.6497	58.6497	1.1200e-003	1.0800e-003	58.9982
Fast Food Restaurant w/o Drive Thru	1.00336	0.0108	0.0984	0.0826	5.9000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		118.0418	118.0418	2.2600e-003	2.1600e-003	118.7433
Gasoline/Service Station	0.111145	1.2000e-003	0.0109	9.1500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.0759	13.0759	2.5000e-004	2.4000e-004	13.1536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.00366192	4.0000e-005	3.6000e-004	3.0000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.4308	0.4308	1.0000e-005	1.0000e-005	0.4334
Strip Mall	0.0235792	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.7740	2.7740	5.0000e-005	5.0000e-005	2.7905
Total		**0.0177**	**0.1608**	**0.1351**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.9723**	**192.9723**	**3.6900e-003**	**3.5400e-003**	**194.1190**

6.0 Area Detail

6.1 Mitigation Measures Area

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Unmitigated	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2234					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Total	**0.2533**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.5100e-003**	**5.5100e-003**	**1.0000e-005**		**5.8800e-003**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2234					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Total	**0.2533**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.5100e-003**	**5.5100e-003**	**1.0000e-005**		**5.8800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Costco Culver City - Existing Operation

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Gasoline/Service Station	16.00	Pump	0.64	2,258.80	0
Parking Lot	0.70	Acre	0.70	30,492.00	0
Fast Food Restaurant w/o Drive Thru	1.59	1000sqft	0.04	1,590.00	0
Fast Food Restaurant w/o Drive Thru	0.79	1000sqft	0.02	790.00	0
Strip Mall	5.28	1000sqft	0.12	5,280.00	0
Strip Mall	0.82	1000sqft	0.02	820.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project-specific data

Construction Phase - Default construction

Vehicle Trips - Mobile emissions calculated separately

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.05	0.64

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	696.00	0.00
tblVehicleTrips	ST_TR	182.17	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	500.00	0.00
tblVehicleTrips	SU_TR	166.88	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	346.23	0.00
tblVehicleTrips	WD_TR	172.01	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.1829	21.3782	15.2233	0.0254	7.1944	1.1536	8.1854	3.4544	1.0771	4.3661	0.0000	2,457.5985	2,457.5985	0.6493	0.0274	2,473.8770
2021	11.0337	14.1071	13.6713	0.0251	0.2237	0.6916	0.9153	0.0603	0.6677	0.7281	0.0000	2,314.2348	2,314.2348	0.4153	0.0265	2,331.3195
Maximum	**11.0337**	**21.3782**	**15.2233**	**0.0254**	**7.1944**	**1.1536**	**8.1854**	**3.4544**	**1.0771**	**4.3661**	**0.0000**	**2,457.5985**	**2,457.5985**	**0.6493**	**0.0274**	**2,473.8770**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.1829	21.3782	15.2233	0.0254	7.1944	1.1536	8.1854	3.4544	1.0771	4.3661	0.0000	2,457.5985	2,457.5985	0.6493	0.0274	2,473.8770
2021	11.0337	14.1071	13.6713	0.0251	0.2237	0.6916	0.9153	0.0603	0.6677	0.7281	0.0000	2,314.2348	2,314.2348	0.4153	0.0265	2,331.3195
Maximum	**11.0337**	**21.3782**	**15.2233**	**0.0254**	**7.1944**	**1.1536**	**8.1854**	**3.4544**	**1.0771**	**4.3661**	**0.0000**	**2,457.5985**	**2,457.5985**	**0.6493**	**0.0274**	**2,473.8770**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Energy	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2710**	**0.1608**	**0.1377**	**9.6000e-004**	**0.0000**	**0.0122**	**0.0122**	**0.0000**	**0.0122**	**0.0122**		**192.9778**	**192.9778**	**3.7100e-003**	**3.5400e-003**	**194.1249**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Energy	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2710**	**0.1608**	**0.1377**	**9.6000e-004**	**0.0000**	**0.0122**	**0.0122**	**0.0000**	**0.0122**	**0.0122**		**192.9778**	**192.9778**	**3.7100e-003**	**3.5400e-003**	**194.1249**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2020	7/28/2020	5	20	
2	Site Preparation	Site Preparation	7/29/2020	7/30/2020	5	2	
3	Grading	Grading	7/31/2020	8/5/2020	5	4	
4	Building Construction	Building Construction	8/6/2020	5/12/2021	5	200	
5	Paving	Paving	5/13/2021	5/26/2021	5	10	
6	Architectural Coating	Architectural Coating	5/27/2021	6/9/2021	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 16,108; Non-Residential Outdoor: 5,369; Striped Parking Area: 1,830 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	16.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0567	0.0473	0.5661	1.3400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		135.2858	135.2858	4.6400e-003	4.1600e-003	136.6407
Total	**0.0567**	**0.0473**	**0.5661**	**1.3400e-003**	**0.1453**	**1.0700e-003**	**0.1464**	**0.0385**	**9.9000e-004**	**0.0395**		**135.2858**	**135.2858**	**4.6400e-003**	**4.1600e-003**	**136.6407**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0567	0.0473	0.5661	1.3400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		135.2858	135.2858	4.6400e-003	4.1600e-003	136.6407
Total	**0.0567**	**0.0473**	**0.5661**	**1.3400e-003**	**0.1453**	**1.0700e-003**	**0.1464**	**0.0385**	**9.9000e-004**	**0.0395**		**135.2858**	**135.2858**	**4.6400e-003**	**4.1600e-003**	**136.6407**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**6.2662**	**0.8210**	**7.0872**	**3.0041**	**0.7553**	**3.7594**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0349	0.0291	0.3484	8.2000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.2528	83.2528	2.8500e-003	2.5600e-003	84.0866
Total	**0.0349**	**0.0291**	**0.3484**	**8.2000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.2528**	**83.2528**	**2.8500e-003**	**2.5600e-003**	**84.0866**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**6.2662**	**0.8210**	**7.0872**	**3.0041**	**0.7553**	**3.7594**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0349	0.0291	0.3484	8.2000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		83.2528	83.2528	2.8500e-003	2.5600e-003	84.0866
Total	**0.0349**	**0.0291**	**0.3484**	**8.2000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**83.2528**	**83.2528**	**2.8500e-003**	**2.5600e-003**	**84.0866**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**7.0826**	**0.9902**	**8.0728**	**3.4247**	**0.9110**	**4.3357**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0364	0.4355	1.0300e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		104.0660	104.0660	3.5700e-003	3.2000e-003	105.1082
Total	**0.0437**	**0.0364**	**0.4355**	**1.0300e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**104.0660**	**104.0660**	**3.5700e-003**	**3.2000e-003**	**105.1082**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**7.0826**	**0.9902**	**8.0728**	**3.4247**	**0.9110**	**4.3357**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0437	0.0364	0.4355	1.0300e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		104.0660	104.0660	3.5700e-003	3.2000e-003	105.1082
Total	**0.0437**	**0.0364**	**0.4355**	**1.0300e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**104.0660**	**104.0660**	**3.5700e-003**	**3.2000e-003**	**105.1082**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.4662	0.1510	1.4400e-003	0.0448	7.4200e-003	0.0523	0.0129	7.1000e-003	0.0200		154.3714	154.3714	5.2300e-003	0.0223	161.1353
Worker	0.0698	0.0583	0.6967	1.6500e-003	0.1788	1.3200e-003	0.1802	0.0474	1.2100e-003	0.0486		166.5056	166.5056	5.7100e-003	5.1200e-003	168.1731
Total	**0.0925**	**0.5245**	**0.8477**	**3.0900e-003**	**0.2237**	**8.7400e-003**	**0.2324**	**0.0603**	**8.3100e-003**	**0.0687**		**320.8769**	**320.8769**	**0.0109**	**0.0274**	**329.3085**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.4662	0.1510	1.4400e-003	0.0448	7.4200e-003	0.0523	0.0129	7.1000e-003	0.0200		154.3714	154.3714	5.2300e-003	0.0223	161.1353
Worker	0.0698	0.0583	0.6967	1.6500e-003	0.1788	1.3200e-003	0.1802	0.0474	1.2100e-003	0.0486		166.5056	166.5056	5.7100e-003	5.1200e-003	168.1731
Total	**0.0925**	**0.5245**	**0.8477**	**3.0900e-003**	**0.2237**	**8.7400e-003**	**0.2324**	**0.0603**	**8.3100e-003**	**0.0687**		**320.8769**	**320.8769**	**0.0109**	**0.0274**	**329.3085**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0193	0.4202	0.1394	1.4100e-003	0.0448	6.0700e-003	0.0509	0.0129	5.8100e-003	0.0187		151.3727	151.3727	5.1300e-003	0.0218	158.0083
Worker	0.0641	0.0508	0.6326	1.6000e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		161.6421	161.6421	5.0900e-003	4.6600e-003	163.1595
Total	**0.0834**	**0.4710**	**0.7720**	**3.0100e-003**	**0.2237**	**7.3000e-003**	**0.2310**	**0.0603**	**6.9400e-003**	**0.0673**		**313.0148**	**313.0148**	**0.0102**	**0.0265**	**321.1678**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0193	0.4202	0.1394	1.4100e-003	0.0448	6.0700e-003	0.0509	0.0129	5.8100e-003	0.0187		151.3727	151.3727	5.1300e-003	0.0218	158.0083
Worker	0.0641	0.0508	0.6326	1.6000e-003	0.1788	1.2300e-003	0.1801	0.0474	1.1300e-003	0.0486		161.6421	161.6421	5.0900e-003	4.6600e-003	163.1595
Total	**0.0834**	**0.4710**	**0.7720**	**3.0100e-003**	**0.2237**	**7.3000e-003**	**0.2310**	**0.0603**	**6.9400e-003**	**0.0673**		**313.0148**	**313.0148**	**0.0102**	**0.0265**	**321.1678**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9573**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0521	0.0413	0.5139	1.3000e-003	0.1453	1.0000e-003	0.1463	0.0385	9.2000e-004	0.0395		131.3342	131.3342	4.1400e-003	3.7900e-003	132.5671
Total	**0.0521**	**0.0413**	**0.5139**	**1.3000e-003**	**0.1453**	**1.0000e-003**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**131.3342**	**131.3342**	**4.1400e-003**	**3.7900e-003**	**132.5671**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9573**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0521	0.0413	0.5139	1.3000e-003	0.1453	1.0000e-003	0.1463	0.0385	9.2000e-004	0.0395		131.3342	131.3342	4.1400e-003	3.7900e-003	132.5671
Total	**0.0521**	**0.0413**	**0.5139**	**1.3000e-003**	**0.1453**	**1.0000e-003**	**0.1463**	**0.0385**	**9.2000e-004**	**0.0395**		**131.3342**	**131.3342**	**4.1400e-003**	**3.7900e-003**	**132.5671**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**11.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0120	9.5300e-003	0.1186	3.0000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.1000e-004	9.1000e-003		30.3079	30.3079	9.6000e-004	8.7000e-004	30.5924
Total	**0.0120**	**9.5300e-003**	**0.1186**	**3.0000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.1000e-004**	**9.1000e-003**		**30.3079**	**30.3079**	**9.6000e-004**	**8.7000e-004**	**30.5924**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.8028					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**11.0217**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0120	9.5300e-003	0.1186	3.0000e-004	0.0335	2.3000e-004	0.0338	8.8900e-003	2.1000e-004	9.1000e-003		30.3079	30.3079	9.6000e-004	8.7000e-004	30.5924
Total	**0.0120**	**9.5300e-003**	**0.1186**	**3.0000e-004**	**0.0335**	**2.3000e-004**	**0.0338**	**8.8900e-003**	**2.1000e-004**	**9.1000e-003**		**30.3079**	**30.3079**	**9.6000e-004**	**8.7000e-004**	**30.5924**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant w/o Drive Thru	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	0.00	0.00	0.00		
Gasoline/Service Station	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant w/o Drive Thru	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Gasoline/Service Station	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Parking Lot	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425
Strip Mall	0.548812	0.060892	0.186048	0.127862	0.022726	0.005730	0.010818	0.008022	0.000956	0.000624	0.023397	0.000686	0.003425

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190
NaturalGas Unmitigated	0.0177	0.1608	0.1351	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.9723	192.9723	3.7000e-003	3.5400e-003	194.1190

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	498.522	5.3800e-003	0.0489	0.0411	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003		58.6497	58.6497	1.1200e-003	1.0800e-003	58.9982
Fast Food Restaurant w/o Drive Thru	1003.36	0.0108	0.0984	0.0826	5.9000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		118.0418	118.0418	2.2600e-003	2.1600e-003	118.7433
Gasoline/Service Station	111.145	1.2000e-003	0.0109	9.1500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.0759	13.0759	2.5000e-004	2.4000e-004	13.1536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	23.5792	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.7740	2.7740	5.0000e-005	5.0000e-005	2.7905
Strip Mall	3.66192	4.0000e-005	3.6000e-004	3.0000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.4308	0.4308	1.0000e-005	1.0000e-005	0.4334
Total		**0.0177**	**0.1608**	**0.1351**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.9723**	**192.9723**	**3.6900e-003**	**3.5400e-003**	**194.1190**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	0.498522	5.3800e-003	0.0489	0.0411	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003		58.6497	58.6497	1.1200e-003	1.0800e-003	58.9982
Fast Food Restaurant w/o Drive Thru	1.00336	0.0108	0.0984	0.0826	5.9000e-004		7.4800e-003	7.4800e-003		7.4800e-003	7.4800e-003		118.0418	118.0418	2.2600e-003	2.1600e-003	118.7433
Gasoline/Service Station	0.111145	1.2000e-003	0.0109	9.1500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.0759	13.0759	2.5000e-004	2.4000e-004	13.1536
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.00366192	4.0000e-005	3.6000e-004	3.0000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.4308	0.4308	1.0000e-005	1.0000e-005	0.4334
Strip Mall	0.0235792	2.5000e-004	2.3100e-003	1.9400e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.7740	2.7740	5.0000e-005	5.0000e-005	2.7905
Total		**0.0177**	**0.1608**	**0.1351**	**9.6000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**		**192.9723**	**192.9723**	**3.6900e-003**	**3.5400e-003**	**194.1190**

6.0 Area Detail

6.1 Mitigation Measures Area

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Unmitigated	0.2533	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2234					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Total	**0.2533**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.5100e-003**	**5.5100e-003**	**1.0000e-005**		**5.8800e-003**

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0296					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2234					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.5100e-003	5.5100e-003	1.0000e-005		5.8800e-003
Total	**0.2533**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.5100e-003**	**5.5100e-003**	**1.0000e-005**		**5.8800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Costco Culver City - Existing Operation - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B
MOBILE SOURCE EMISSION CALCULATIONS (PROJECT)

Table B-1. Trip Lengths and Vehicle Miles Traveled by Operational Mobile Sources (Project)
Culver City Costco Fuel Station
Culver City, California

Land Use	Trip Type		Average One-Way Trip Length[1,2]	Peak Daily Trips (one-way trips/day)[3]	Peak Daily VMT[4]
Gasoline/Service Station	Passenger Vehicles	Primary	8.3	1,416	11,723
		Diverted	2.1	2,017	4,175
		Pass-By	0.2	2,017	414
		Internal	0.1	2,807	172
	Fuel Delivery Trucks	Primary	17	16	272

Notes:

[1] Passenger vehicles represent vehicles used by patrons of the fuel station. Average trip length for primary and diverted trip types is assumed to be equal to the CalEEMod® default trip lengths for Los Angeles County - South Coast. Pass-by and internal trip lengths were measured in Google Earth.

[2] Fuel delivery truck trip length is assumed to be 17 miles based on data from Kittelson & Associates, Inc.

[3] Trip rates based Project-specific data provided by Kittelson & Associates.

[4] Estimated as a product of average trip length and number of trips.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

VMT - vehicle miles traveled

Table B-2. Operational Mobile Source Fleet Mixes (Project)
Culver City Costco Fuel Station
Culver City, California

CalEEMod® Default[1]	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	54.5%	6.28%	18.7%	12.7%	2.31%	0.61%	1.05%	0.80%	0.09%	0.06%	2.44%	0.07%	0.34%

Passenger Vehicles[2]	LDA	LDT1	LDT2	MDV
	59.1%	6.8%	20.3%	13.8%

Notes:

[1] CalEEMod® default for Los Angeles County - South Coast calendar year 2023.

[2] Passenger cars represent vehicles used by patrons of the fuel station. Fleet mix for passenger vehicles are estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
LDA - Light Duty Automobile
LDT - Light-Duty Truck
LHD - Light-Heavy Duty truck
HHDT - Heavy-Heavy Duty truck
MDV - Medium-Duty Vehicle
MH - Motor Home
MHD - Medium-Heavy Duty truck
OBUS - Other Buses
UBUS - Urban Buses
MCY - Motorcycle
SBUS - School Bus

Table B-3. Operational Mobile Source CAP Emission Factors - Running Exhaust, Running Loss, Tire Wear, and Brake Wear (Project)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	EMFAC VMT Output[1] (miles/day)	EMFAC Emissions Output[1,2] (tons/day)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
Passenger Vehicles[5]								
LDA	Gas	133,132,108	5.96	7.06	128.56	0.43	2.70	0.96
LDA	Phe	3,983,694	0.02	0.02	1.09	0.01	0.06	0.02
LDT1	Gas	11,498,861	1.57	2.52	27.33	0.04	0.28	0.11
LDT1	Phe	15,799	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gas	63,204,641	2.98	6.07	72.47	0.25	1.40	0.50
LDT2	Phe	559,556	0.00	0.00	0.15	0.00	0.01	0.00
MDV	Gas	35,296,866	2.52	5.63	52.52	0.17	0.79	0.29
MDV	Phe	281,038	0.00	0.00	0.08	0.00	0.00	0.00
Fuel Delivery Trucks[5]								
HHDT	Dsl	6,491,637	0.10	13.70	0.61	0.11	1.01	0.43

EMFAC Vehicle Class	Fuel	Project Specific Fleet Mix[6]	Running Exhaust, Running Loss, Tire Wear and Brake Wear Emission Factors[7] (grams/mile)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
Passenger Vehicles[5]								
LDA	Gas	57.3%	0.041	0.048	0.876	0.003	0.018	0.007
LDA	Phe	1.7%	0.005	0.004	0.248	0.002	0.013	0.004
LDT1	Gas	6.8%	0.124	0.199	2.156	0.003	0.022	0.008
LDT1	Phe	0.0%	0.003	0.003	0.227	0.001	0.013	0.004
LDT2	Gas	20.1%	0.043	0.087	1.040	0.004	0.020	0.007
LDT2	Phe	0.2%	0.004	0.003	0.235	0.001	0.013	0.004
MDV	Gas	13.7%	0.065	0.145	1.350	0.004	0.020	0.007
MDV	Phe	0.1%	0.004	0.003	0.242	0.001	0.013	0.004
Weighted Emission Factor[8]			**0.049**	**0.079**	**1.048**	**0.003**	**0.019**	**0.007**
Fuel Delivery Trucks[5]								
HHDT	Dsl	100.0%	0.01	1.91	0.09	0.015	0.14	0.06

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] Sum of running exhaust, running loss, tire wear, and brake wear emissions obtained from EMFAC2021 for default emissions activity.

[3] For purposes of this analysis VOC is assumed to be equal to ROG.

[4] PM emissions are a sum of exhaust, tire wear, and brake wear.

[5] Passenger vehicles are assumed to be plug-in hybrids and gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[6] Data obtained from Table B-2.

[7] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC VMT output.

[8] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate VMT-based emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
Dsl - Diesel
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
NO_x - nitrogen oxide compounds (NO + NO_2)
Phe - Plug-in hybrid
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table B-4. Operational Mobile Source CAP Emission Factors - Starting Exhaust, Hot Soak, Diurnal Loss, and Resting Loss (Project)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	EMFAC Vehicle Trips Output[1] (trips/day)	EMFAC Emissions Output[1] (tons/day)								
			VOC[2]				NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
			Starting Exhaust	Hot Soak	Diurnal	Resting Loss	Starting Exhaust				
Passenger Vehicles[3]											
LDA	Gas	15,650,235	5.71	1.67	5.70	0.00	4.42	54.89	0.01	0.04	0.03
LDA	Phe	350,878	0.06	0.02	0.04	0.00	0.04	0.48	0.00	0.00	0.00
LDT1	Gas	1,394,224	0.97	0.32	1.21	0.00	0.67	9.31	0.00	0.01	0.00
LDT1	Phe	1,263	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gas	7,216,720	3.10	0.69	2.50	0.00	2.75	29.01	0.01	0.02	0.02
LDT2	Phe	46,213	0.01	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00
MDV	Gas	4,305,992	2.61	0.51	1.94	0.00	2.24	19.59	0.01	0.01	0.01
MDV	Phe	25,771	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
Fuel Delivery Trucks[3]											
HHDT	Dsl	778,752	0.00	0.00	0.00	0.00	2.36	0.00	0.00	0.00	0.00

Vehicle Class	Fuel	Project Specific Fleet Mix[4]	Starting Exhaust, Hot Soak, Diurnal, and Resting Loss Emission Factors[5] (grams/trip)								
			VOC[2]				NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
			Starting Exhaust	Hot Soak	Diurnal	Resting Loss	Starting Exhaust				
Passenger Vehicles[3]											
LDA	Gas	57.3%	0.331	0.097	0.331	0.000	0.256	3.182	0.001	0.002	0.002
LDA	Phe	1.7%	0.163	0.041	0.114	0.000	0.111	1.239	0.001	0.002	0.002
LDT1	Gas	6.8%	0.633	0.210	0.790	0.000	0.438	6.056	0.001	0.003	0.003
LDT1	Phe	0.0%	0.163	0.025	0.073	0.000	0.111	1.239	0.001	0.002	0.001
LDT2	Gas	20.1%	0.390	0.087	0.315	0.000	0.345	3.647	0.001	0.002	0.002
LDT2	Phe	0.2%	0.163	0.026	0.080	0.000	0.111	1.239	0.001	0.002	0.002
MDV	Gas	13.7%	0.551	0.108	0.408	0.000	0.472	4.127	0.001	0.002	0.002
MDV	Phe	0.1%	0.163	0.030	0.090	0.000	0.111	1.239	0.001	0.002	0.002
Weighted Emission Factor[6]			0.390	0.103	0.365	0.000	0.313	3.561	0.001	0.002	0.002
Fuel Delivery Trucks[3]											
HHDT	Dsl	100.0%	0.00	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] For purposes of this analysis VOC is assumed to be equal to ROG.

[3] Passenger vehicles are assumed to be plug-in hybrids and gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[4] Data obtained from Table B-2.

[5] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC trip output.

[6] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate trip-based emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
Dsl - Diesel
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
NO_x - nitrogen oxide compounds (NO + NO_2)
Phe - Plug-in hybrid
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table B-5. Operational Mobile Source CAP Emission Factors - Idling (Project)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	Project Specific Fleet Mix[1]	Idling Emission Factors for Fuel Trucks[2] (grams/idle-minute)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Passenger Vehicles[4]								
LDA	Gas	57.3%	3.04E-03	3.64E-03	6.08E-02	2.77E-04	4.00E-04	3.67E-04
LDA	Phe	1.7%	5.56E-04	5.34E-04	4.03E-02	1.69E-04	2.08E-04	1.92E-04
LDT1	Gas	6.8%	1.13E-02	1.57E-02	1.60E-01	3.31E-04	6.63E-04	6.09E-04
LDT1	Phe	0.0%	5.07E-04	4.87E-04	3.67E-02	1.54E-04	1.26E-04	1.16E-04
LDT2	Gas	20.1%	3.99E-03	6.71E-03	7.28E-02	3.44E-04	4.15E-04	3.81E-04
LDT2	Phe	0.2%	5.27E-04	5.06E-04	3.82E-02	1.60E-04	1.60E-04	1.47E-04
MDV	Gas	13.7%	6.53E-03	1.09E-02	9.74E-02	4.22E-04	4.30E-04	3.95E-04
MDV	Phe	0.1%	5.42E-04	5.21E-04	3.93E-02	1.65E-04	2.00E-04	1.84E-04
Weighted Emission Factor[5]			4.22E-03	6.02E-03	7.45E-02	3.12E-04	4.21E-04	3.87E-04
Fuel Delivery Trucks[4]								
HHDT	Dsl	100.0%	0.045	0.953	0.623	0.002	0.001	0.001

Notes:

[1] Data obtained from Table B-2.

[2] Data obtained from EMFAC2021 project-level output. Passenger vehicle emission rates are equivalent to the running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

[3] For purposes of this analysis VOC is assumed to be equal to ROG.

[4] Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[5] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate idling emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
mph - miles per hour
NO_x - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds

Conversion Factor:

60 minutes per hour

Table B-6. Entrained Road Dust Emission Factors for Operational Mobile Sources
Culver City Costco Fuel Station
Culver City, California

Vehicle Type	Entrained Road Dust Emission Factor[1] (lb/VMT)	
	PM_{10}	$PM_{2.5}$
Passenger Vehicles	0.00066	0.00016
Fuel Delivery Trucks		

Notes:

[1] Emission factor calculated following guidance in the CalEEMod User's Guide, Appendix A, which is based on AP-42, Section 13.2.1 for vehicles traveling on paved roads. The equation is:

$EF = k \times (sL)^{0.91} \times (W)^{1.02}$, where:

0.0022 = k_{PM10} (lb/VMT), PM_{10} particle size multiplier

0.00054 = $k_{PM2.5}$ (lb/VMT), $PM_{2.5}$ particle size multiplier

0.1 = sL (g/m^2), silt loading (CalEEMod Default)

2.4 = W (tons), mean vehicle weight (CalEEMod Default)

[3] Assumes 100% of on-road travel occurs on paved roads.

Abbreviations:

CalEEMod - California Emissions Estimator Model

EF - emission factor

lb - pounds

PM_{10} - particulate matter less than 10 microns in aerodynamic diameter

$PM_{2.5}$ - particulate matter less than 2.5 microns in aerodynamic diameter

VMT - vehicle miles traveled

Table B-7. Maximum Daily Criteria Air Pollutant Emission Estimates for Operational Mobile Sources (Project)
Culver City Costco Fuel Station
Culver City, California

Land Use	Mobile Source Activity	Trip Type	Trip Distance[1] (miles)	Peak Daily Trips[1] (one-way trips/day)	Peak Daily VMT[2] (miles/day)	Idle Duration[3] (minutes/ round trip)	Maximum Daily Emissions (lb/day)					
							VOC[4]	NO_x[5]	CO[5]	SO_x[5]	PM_{10}[6]	$PM_{2.5}$[6]
Gasoline/ Service Station	Passenger Vehicles (Off-Site)	Primary[7]	8.1	1,416	11,432	--	2.6	2.5	32.0	0.1	8.0	2.0
		Diverted[8]	1.9	2,017	3,760	--	0.4	0.7	8.7	0.0	2.6	0.7
	Passenger Vehicles (On-Site)	Primary[9]	0.2	1,416	291	12	0.9	0.7	7.6	0.0	0.2	0.1
		Diverted[9]	0.2	2,017	414	12	1.3	0.9	10.9	0.0	0.3	0.1
		Pass-By[9]	0.2	2,017	414	12	1.3	0.9	10.9	0.0	0.3	0.1
		Internal[9]	0.06	2,807	172	12	1.7	1.2	14.2	0.0	0.1	0.1
	Fuel Delivery Trucks (Off-Site)	Primary[7]	16.9	16	270	--	0.0	1.2	0.1	0.0	0.3	0.1
	Fuel Delivery Trucks (On-Site)	Primary[10]	0.14	16	2	5	0.0	0.1	0.1	0.0	0.0	0.0
On-Site Emissions							5.1	3.9	43.6	0.1	1.0	0.3
Total Emissions							**8.1**	**8.2**	**84.3**	**0.2**	**11.9**	**3.1**

[1] Data obtained from Table B-1. The off-site trip distance is equivalent to the average trip length minus the on-site trip distance.

[2] VMT is calculated as the product of the trip distance and peak daily trips shown in this table.

[3] Idle duration for passenger vehicles is estimated using a maximum queue length of 3 vehicles and a transaction time of 4 minutes. Fuel delivery truck idle duration is 5 minutes based on the CARB Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Available at: https://ww2.arb.ca.gov/our-work/programs/atcm-to-limit-vehicle-idling/about. Accessed: September 2021.

[4] VOC emissions include running exhaust, running loss, hot soak, diurnal, resting loss, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables B-3, B-4, B-5, and B-6 along with peak daily VMT and peak daily trips.

[5] NO_X, CO, and SO_X emissions include running exhaust, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables B-3, B-4, and B-5 along with peak daily VMT and peak daily trips.

[6] PM_{10} and $PM_{2.5}$ emissions include running exhaust, tire wear, brake wear, fugitive dust, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables B-3, B-4, B-5, and B-6 along with peak daily VMT and peak daily trips.

[7] Off-site primary trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), off-site evaporative emissions (hot soak, diurnal, and resting loss) using the number of round trips (i.e., half of the one-way trips), and off-site starts using the number of round trips.

[8] Off-site diverted trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust).

[9] On-site passenger vehicle trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), on-site evaporative emissions (hot soak) using the number of round trips (i.e., half of the one-way trips), on-site starts using the number of round trips, and idling exhaust using the number of round trips. Since passenger vehicles turn off their engines for approximately 4 minutes while fueling on-site, they will not emit diurnal and resting loss emissions; these types of emissions occur after the engine has been turned off for more than 30 minutes.

[10] On-site fuel delivery truck trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), on-site evaporative emissions (hot soak, diurnal, and resting loss) using the number of round trips (i.e., half of the one-way trips), on-site starts using the number of round trips, and idling exhaust using the number of round trips.

Abbreviations:

CO - carbon monoxide
lb - pounds
NO - nitrogen monoxide
NO_2 - nitrogen dioxide
NO_x - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

APPENDIX C
MOBILE SOURCE EMISSION CALCULATIONS (EXISTING)

Table C-1. Trip Lengths and Vehicle Miles Traveled by Operational Mobile Sources (Existing)
Culver City Costco Fuel Station
Culver City, California

Land Use	Trip Type		Average One-Way Trip Length[1,2]	Peak Daily Trips (one-way trips/day)[3]	Peak Daily VMT[4]
Gasoline/Service Station	Passenger Vehicles	Primary	8.3	961	7,956
		Diverted	2.1	1,369	2,833
		Pass-By	0.07	1,369	94
		Internal	0.03	1,906	59
	Fuel Delivery Trucks	Primary	17	10	170
Coffee Shop[5]	Passenger Vehicles	Primary	8.2	143	1,178
		Pass-By	0.08	1,161	93
Other Retail[6]	Passenger Vehicles	Primary	9.5	643	6,093
		Pass-By	0.08	332	27

Notes:

[1] Passenger vehicles represent vehicles used by patrons of the fuel station. Average trip length for primary and diverted trip types is assumed to be equal to the CalEEMod® default trip lengths for Los Angeles County - South Coast. Pass-by and internal trip lengths were measured in Google Earth.

[2] Fuel delivery truck trip length is assumed to be 17 miles based on data from Kittelson & Associates, Inc.

[3] Trip rates based Project-specific data provided by Kittelson & Associates.

[4] Estimated as a product of average trip length and number of trips.

[5] Coffee shop land use includes the existing Starbucks tenant. This land use is represented as a "Fast Food w/o Drive Thru" land use type in CalEEMod.

[6] Other retail land uses include the existing GNC, Verizon, and Subway tenants. The GNC and Verizon tenants are represented as a "Strip Mall" land use in CalEEMod while the Subway is represented as "Fast Food w/o Drive Thru".

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

VMT - vehicle miles traveled

Table C-2. Operational Mobile Source Fleet Mixes (Existing)
Culver City Costco Fuel Station
Culver City, California

CalEEMod® Default[1]	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	54.9%	6.09%	18.6%	12.8%	2.27%	0.57%	1.08%	0.80%	0.10%	0.06%	2.34%	0.07%	0.34%

Passenger Vehicles[2]	LDA	LDT1	LDT2	MDV
	59.4%	6.6%	20.1%	13.8%

Notes:

[1] CalEEMod® default for Los Angeles County - South Coast calendar year 2021.

[2] Passenger cars represent vehicles used by patrons of the fuel station. Fleet mix for passenger vehicles are estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
LDA - Light Duty Automobile
LDT - Light-Duty Truck
LHD - Light-Heavy Duty truck
HHDT - Heavy-Heavy Duty truck
MDV - Medium-Duty Vehicle
MH - Motor Home
MHD - Medium-Heavy Duty truck
OBUS - Other Buses
UBUS - Urban Buses
MCY - Motorcycle
SBUS - School Bus

Table C-3. Operational Mobile Source CAP Emission Factors - Running Exhaust, Running Loss, Tire Wear, and Brake Wear (Existing)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	EMFAC VMT Output[1] (miles/day)	EMFAC Emissions Output[1,2] (tons/day)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
Passenger Vehicles[5]								
LDA	Gas	136,360,882	6.88	9.11	151.01	0.45	2.78	1.00
LDA	Phe	3,238,803	0.02	0.01	0.93	0.01	0.05	0.02
LDT1	Gas	11,701,013	1.88	3.13	33.31	0.05	0.29	0.11
LDT1	Phe	4,011	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gas	59,324,522	3.29	7.57	80.69	0.25	1.32	0.48
LDT2	Phe	286,898	0.00	0.00	0.08	0.00	0.00	0.00
MDV	Gas	33,487,507	3.01	7.34	65.38	0.17	0.77	0.28
MDV	Phe	171,555	0.00	0.00	0.05	0.00	0.00	0.00
Fuel Delivery Trucks[5]								
HHDT	Dsl	6,225,329	0.34	20.63	1.36	0.11	1.07	0.50

EMFAC Vehicle Class	Fuel	Project Specific Fleet Mix[6]	Running Exhaust, Running Loss, Tire Wear and Brake Wear Emission Factors[7] (grams/mile)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}[4]	$PM_{2.5}$[4]
Passenger Vehicles[5]								
LDA	Gas	58.0%	0.046	0.061	1.005	0.003	0.019	0.007
LDA	Phe	1.4%	0.005	0.004	0.259	0.002	0.013	0.004
LDT1	Gas	6.6%	0.146	0.243	2.582	0.004	0.022	0.009
LDT1	Phe	0.0%	0.004	0.004	0.249	0.002	0.013	0.004
LDT2	Gas	20.0%	0.050	0.116	1.234	0.004	0.020	0.007
LDT2	Phe	0.1%	0.004	0.004	0.252	0.002	0.013	0.004
MDV	Gas	13.8%	0.082	0.199	1.771	0.005	0.021	0.008
MDV	Phe	0.1%	0.005	0.004	0.259	0.002	0.013	0.004
Weighted Emission Factor[8]			**0.058**	**0.102**	**1.249**	**0.003**	**0.019**	**0.007**
Fuel Delivery Trucks[5]								
HHDT	Dsl	100.0%	0.05	3.01	0.20	0.016	0.16	0.07

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] Sum of running exhaust, running loss, tire wear, and brake wear emissions obtained from EMFAC2021 for default emissions activity.

[3] For purposes of this analysis VOC is assumed to be equal to ROG.

[4] PM emissions are a sum of exhaust, tire wear, and brake wear.

[5] Passenger vehicles are assumed to be plug-in hybrids and gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[6] Data obtained from Table C-2.

[7] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC VMT output.

[8] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate VMT-based emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
Dsl - Diesel
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
NO_x - nitrogen oxide compounds (NO + NO_2)
Phe - Plug-in hybrid
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table C-4. Operational Mobile Source CAP Emission Factors - Off-Site Starting Exhaust, Hot Soak, Diurnal Loss, and Resting Loss (Existing)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	EMFAC Vehicle Trips Output[1] (trips/day)	EMFAC Emissions Output[1] (tons/day)								
			VOC[2]				NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
			Starting Exhaust	Hot Soak	Diurnal	Resting Loss	Starting Exhaust				
Passenger Vehicles[3]											
LDA	Gas	16,160,605	6.76	1.83	6.13	0.00	5.06	63.95	0.01	0.04	0.04
LDA	Phe	283,537	0.05	0.01	0.04	0.00	0.03	0.39	0.00	0.00	0.00
LDT1	Gas	1,442,206	1.17	0.37	1.35	0.00	0.79	11.21	0.00	0.01	0.01
LDT1	Phe	318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LDT2	Gas	6,893,289	3.49	0.73	2.59	0.00	3.18	31.91	0.01	0.02	0.02
LDT2	Phe	23,389	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
MDV	Gas	4,168,529	3.10	0.55	1.94	0.00	2.66	22.44	0.01	0.01	0.01
MDV	Phe	15,722	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Fuel Delivery Trucks[3]											
HHDT	Dsl	726,131	0.00	0.00	0.00	0.00	1.77	0.00	0.00	0.00	0.00

Vehicle Class	Fuel	Project Specific Fleet Mix[4]	Starting Exhaust, Hot Soak, Diurnal, and Resting Loss Emission Factors[5] (grams/trip)								
			VOC[2]				NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
			Starting Exhaust	Hot Soak	Diurnal	Resting Loss	Starting Exhaust				
Passenger Vehicles[3]											
LDA	Gas	58.0%	0.380	0.103	0.344	0.000	0.284	3.590	0.001	0.002	0.002
LDA	Phe	1.4%	0.163	0.040	0.120	0.000	0.111	1.239	0.001	0.003	0.002
LDT1	Gas	6.6%	0.735	0.232	0.851	0.000	0.494	7.053	0.001	0.004	0.004
LDT1	Phe	0.0%	0.163	0.027	0.087	0.000	0.111	1.239	0.001	0.002	0.002
LDT2	Gas	20.0%	0.460	0.096	0.341	0.000	0.418	4.199	0.001	0.002	0.002
LDT2	Phe	0.1%	0.163	0.028	0.093	0.000	0.111	1.239	0.001	0.002	0.002
MDV	Gas	13.8%	0.674	0.120	0.423	0.000	0.578	4.883	0.001	0.003	0.002
MDV	Phe	0.1%	0.163	0.031	0.104	0.000	0.111	1.239	0.001	0.003	0.003
Weighted Emission Factor[6]			0.456	0.111	0.384	0.000	0.363	4.082	0.001	0.003	0.002
Fuel Delivery Trucks[3]											
HHDT	Dsl	100.0%	0.00	0.00	0.00	0.00	2.21	0.00	0.00	0.00	0.00

Notes:

[1] Data obtained from EMFAC2021 for default emissions activity.

[2] For purposes of this analysis VOC is assumed to be equal to ROG.

[3] Passenger vehicles are assumed to be plug-in hybrids and gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[4] Data obtained from Table C-2.

[5] Emission factors for EMFAC vehicle classes are estimated as a ratio of the EMFAC emissions output and EMFAC trip output.

[6] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate trip-based emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
Dsl - Diesel
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
NO_x - nitrogen oxide compounds (NO + NO_2)
Phe - Plug-in hybrid
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

Conversion Factor:

907184.74 grams per ton

Table C-5. Operational Mobile Source CAP Emission Factors - Idling (Existing)
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	Fuel	Project Specific Fleet Mix[1]	Idling Emission Factors for Fuel Trucks[2] (grams/idle-minute)					
			VOC[3]	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Passenger Vehicles[4]								
LDA	Gas	58.0%	3.90E-03	4.57E-03	7.00E-02	2.86E-04	4.33E-04	3.98E-04
LDA	Phe	1.4%	5.85E-04	5.62E-04	4.24E-02	1.78E-04	2.50E-04	2.30E-04
LDT1	Gas	6.6%	1.39E-02	1.91E-02	1.95E-01	3.41E-04	7.55E-04	6.94E-04
LDT1	Phe	0.0%	5.61E-04	5.39E-04	4.06E-02	1.71E-04	1.60E-04	1.47E-04
LDT2	Gas	20.0%	5.09E-03	8.90E-03	8.69E-02	3.59E-04	4.57E-04	4.20E-04
LDT2	Phe	0.1%	5.69E-04	5.47E-04	4.12E-02	1.73E-04	2.14E-04	1.97E-04
MDV	Gas	13.8%	9.40E-03	1.47E-02	1.35E-01	4.40E-04	4.88E-04	4.49E-04
MDV	Phe	0.1%	5.84E-04	5.61E-04	4.23E-02	1.78E-04	2.71E-04	2.50E-04
Weighted Emission Factor[5]			5.50E-03	7.72E-03	9.02E-02	3.24E-04	4.64E-04	4.26E-04
Fuel Delivery Trucks[4]								
HHDT	Dsl	100.0%	0.061	1.076	0.614	0.002	0.002	0.002

Notes:

[1] Data obtained from Table C-2.

[2] Data obtained from EMFAC2021 project-level output. Passenger vehicle emission rates are equivalent to the running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

[3] For purposes of this analysis VOC is assumed to be equal to ROG.

[4] Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[5] Emission factors for EMFAC vehicle classes are weighted based on project-specific fleet mix to estimate idling emission factors for passenger vehicles.

Abbreviations:

CAP - criteria air pollutant
CO - carbon monoxide
EMFAC - EMission FACtors model
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
mph - miles per hour
NO_x - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds

Conversion Factor:

60 minutes per hour

Table C-6. Maximum Daily Criteria Air Pollutant Emission Estimates for Operational Mobile Sources (Existing)
Culver City Costco Fuel Station
Culver City, California

Land Use	Mobile Source Activity	Trip Type	Trip Distance[1] (miles)	Peak Daily Trips[1] (one-way trips/day)	Peak Daily VMT[2] (miles/day)	Idle Duration[3] (minutes/ round trip)	Maximum Daily Emissions (lb/day)					
							VOC[4]	NO_x[5]	CO[5]	SO_x[5]	PM_{10}[6]	$PM_{2.5}$[6]
Gasoline/ Service Station	Passenger Vehicles (Off-Site)	Primary[7]	8.2	961	7,890	--	2.0	2.2	26.0	0.1	5.6	1.4
		Diverted[8]	2.0	1,369	2,739	--	0.3	0.6	7.5	0.0	1.9	0.5
	Passenger Vehicles (On-Site)	Primary[9]	0.07	961	66	16	0.7	0.5	6.0	0.0	0.1	0.0
		Diverted[9]	0.07	1,369	94	16	1.0	0.8	8.6	0.0	0.1	0.0
		Pass-By[9]	0.07	1,369	94	16	1.0	0.8	8.6	0.0	0.1	0.0
		Internal[9]	0.03	1,906	59	16	1.4	1.0	11.8	0.0	0.1	0.0
	Fuel Delivery Trucks (Off-Site)	Primary[7]	16.9	10	169	--	0.0	1.1	0.1	0.0	0.2	0.1
	Fuel Delivery Trucks (On-Site)	Primary[10]	0.07	10	1	5	0.0	0.1	0.0	0.0	0.0	0.0
Coffee Shop	Passenger Vehicles (Off-Site)	Primary[7]	8.2	143	1,167	--	0.3	0.3	3.9	0.0	0.8	0.2
	Passenger Vehicles (On-Site)	Primary[9]	0.08	143	11	0	0.1	0.1	0.7	0.0	0.0	0.0
		Pass-By[9]	0.08	1,161	93	0	0.7	0.5	5.5	0.0	0.1	0.0
Other Retail	Passenger Vehicles (Off-Site)	Primary[7]	9.4	643	6,042	--	1.4	1.6	19.5	0.0	4.3	1.1
	Passenger Vehicles (On-Site)	Primary[9]	0.08	643	51	0	0.4	0.3	3.0	0.0	0.0	0.0
		Pass-By[9]	0.08	332	27	0	0.2	0.1	1.6	0.0	0.0	0.0
On-Site Emissions							5.5	4.1	45.8	0.0	0.4	0.2
Total Emissions							**9.7**	**10.0**	**102.8**	**0.2**	**13.1**	**3.4**

Notes

[1] Data obtained from Table C-1. The off-site trip distance is equivalent to the average trip length minus the on-site trip distance.

[2] VMT is calculated as the product of the trip distance and peak daily trips shown in this table.

[3] Idle duration for passenger vehicles visiting the gas station is estimated using a maximum queue length of 4 vehicles and a transaction time of 4 minutes per vehicle. Fuel delivery truck idle duration is 5 minutes based on the CARB Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Available at: https://ww2.arb.ca.gov/our-work/programs/atcm-to-limit-vehicle-idling/about. Accessed: September 2021.

[4] VOC emissions include running exhaust, running loss, hot soak, diurnal, resting loss, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables C-3, C-4, and C-5 along with peak daily VMT and peak daily trips.

[5] NO_X, CO, and SO_X emissions include running exhaust, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables C-3, C-4, and C-5 along with peak daily VMT and peak daily trips.

[6] PM_{10} and $PM_{2.5}$ emissions include running exhaust, tire wear, brake wear, fugitive dust, starting exhaust, and idling exhaust. Emissions were estimated using emission factors from Tables C-3, C-4, C-5, and B-6 along with peak daily VMT and peak daily trips.

[7] Off-site primary trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), off-site evaporative emissions (hot soak, diurnal, and resting loss) using the number of round trips (i.e., half of the one-way trips), and off-site starts using the number of round trips.

[8] Off-site diverted trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust).

[9] On-site passenger vehicle trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), on-site evaporative emissions (hot soak) using the number of round trips (i.e., half of the one-way trips), on-site starts using the number of round trips, and idling exhaust using the number of round trips. Since passenger vehicles turn off their engines for approximately 4 minutes while fueling on-site, they will not emit diurnal and resting loss emissions; these types of emissions occur after the engine has been turned off for more than 30 minutes.

[10] On-site fuel delivery truck trip emissions include travel emissions (running exhaust, running loss, tire wear, brake wear, and fugitive dust), on-site evaporative emissions (hot soak, diurnal, and resting loss) using the number of round trips (i.e., half of the one-way trips), on-site starts using the number of round trips, and idling exhaust using the number of round trips.

Abbreviations:

CO - carbon monoxide
lb - pounds
NO - nitrogen monoxide
NO_2 - nitrogen dioxide
NO_x - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
PM_{10} - particulate matter less than 10 microns in diameter
ROG - reactive organic gases
SO_x - sulfur oxide compounds
VOC - volatile organic compounds
VMT - vehicle miles traveled

APPENDIX D
HEALTH RISK ASSESSMENT EMISSION CALCULATIONS

Table D-1. Traffic Volumes and Vehicle Miles Traveled on Modeled Roadways
Culver City Costco Fuel Station
Culver City, California

Modeled Roadway Links[1]		Source Group ID	Peak Hour Trip Rates[2] (one-way trips/hour)					Annual Trip Rates[2] (one-way trips/year)					Segment Length[3] (miles)	Peak Hour VMT[4] (miles/ hour)	Annual VMT[4] (miles/ year)
			Internal[5]	External			Total[7]	Internal[5]	External			Total[7]			
				Primary	Diverted	Pass-by[6]			Primary	Diverted	Pass-by[6]				
Fuel Delivery	Washington Blvd (Between Entry A and Entry B)	FDT_4	0	2	0	0	2	0	5,840	0	0	5,840	0.10	0.19	564
	Washington Blvd (East of Entry B)	FDT_5	0	2	0	0	2	0	5,840	0	0	5,840	0.29	0.57	1,666
	Entry A	FDT_A	0	2	0	0	2	0	5,840	0	0	5,840	0.04	0.07	216
	All Traffic on Entry A + Entry B	FDT_C	0	2	0	0	2	0	5,840	0	0	5,840	0.20	0.40	1,176
	On-Site Idling	FDT_IDLE	0	2	0	0	2	0	5,840	0	0	5,840	-	-	-
Passenger Cars[8]	Washington Blvd (West of Lincoln Blvd)	PV_1	0	8	0	0	8	0	27,942	0	0	27,942	0.20	1.62	5,664
	Washington Blvd (Between Lincoln Blvd and Walnut Ave)	PV_2	0	46	0	0	46	0	165,103	0	0	165,103	0.04	1.96	7,017
	Washington Blvd (Between Walnut Ave and Entry A)	PV_3	0	46	52	48	146	0	165,103	221,190	0	386,293	0.07	9.92	26,259
	Washington Blvd (Between Entry A and Entry B)	PV_4	0	84	123	92	299	0	311,660	517,042	0	828,702	0.10	28.89	80,072
	Washington Blvd (East of Entry B)	PV_5	0	88	123	98	309	0	328,450	517,042	0	845,492	0.29	88.13	241,142
	Lincoln Blvd (South of Washington Blvd)	PV_6	0	8	0	0	8	0	27,942	0	0	27,942	0.25	1.96	6,851
	Lincoln Blvd (North of Washington Blvd)	PV_7	0	30	0	0	30.0	0	109,480	0	0	109,480	0.38	11.44	41,742
	Entry A	PV_A	0	130	175	140	445	0	476,763	737,971	625,330	1,840,064	0.04	16.45	68,030
	Entry B	PV_B	0	20	0	22	42	0	75,910	0	96,572	172,482	0.15	6.15	25,251
	All Traffic on Entry A + Entry B	PV_C	263	150	175	162	750	1,048,683	552,673	737,971	721,902	3,061,229	0.06	42.18	172,145
	On-Site Idling, Starting, and Evaporative	PV_IDLE	263	150	175	162	750	1,048,683	551,472	737,765	720,189	3,058,109	-	-	-

Notes:

[1] See Figure 1 for a graphic representation of the modeled sources.

[2] Trip rates based Project-specific data and peak hour trip rates prepared by traffic counts collected by Kittelson & Associates and data provided in the *Culver City Costco Fuel Station Relocation Project Memorandum*. Fuel delivery truck round trip rates assume one truck per hour and eight trucks per day.

[3] Segment length based on modeled source length in AERMOD.

[4] VMT is calculated as the product of the segment length and the total number of trips in the respective averaging period.

[5] Internal trips account for patrons visiting both the warehouse and the fuel station during a single visit to the Costco site. Project-related emissions from internal trips are assumed to occur on the project driveway road segments and during idling.

[6] Pass-by trips include vehicles already on the roadway that make an additional stop at the fuel station while on their current route. Project-related emissions from pass-by trips are assumed to occur on the project driveway road segments and during idling.

[7] Total trips are the sum of all internal and external trips for each modeled source.

[8] Passenger cars represent vehicles used by patrons of the fuel station.

Abbreviations:

AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model

CalEEMod® - CALifornia Emissions Estimator MODel

VMT - vehicle miles traveled

Table D-2. Operational Mobile Source Fleet Mixes
Culver City Costco Fuel Station
Culver City, California

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
CalEEMod® Default[1]	54.5%	6.3%	18.7%	12.7%	2.3%	0.6%	1.0%	0.8%	0.1%	0.1%	2.4%	0.1%	0.3%

	LDA	LDT1	LDT2	MDV
Passenger Vehicles[2]	59.1%	6.8%	20.3%	13.8%

Notes:

[1] CalEEMod® default for Gasoline Service Station land use subtype in Los Angeles - South Coast.

[2] Passenger cars represent vehicles used by patrons of the fuel station. Fleet mix for passenger vehicles are estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
LDA - Light-Duty Automobile
LDT - Light-Duty Truck
LHD - Light Heavy-Duty truck
HHDT - Heavy Heavy-Duty truck
MDV - Medium-Duty Vehicle
MH - Motor Home
MHDT - Medium Heavy-Duty truck
OBUS - Other Buses
UBUS - Urban Buses
MCY - Motorcycle
SBUS - School Bus

Table D-3. Reactive Organic Gas Emission Factors
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	EMFAC VMT Output[1] (miles/day)	EMFAC Vehicle Trips Output[1] (trips/day)	ROG Emission Factor					
			Off-site Running Exhaust[2] (g/mile)	On-site Running Exhaust[3] (g/mile)	Running Loss[4,5] (g/mile)	Hot Soak[5,6] (g/trip)	Starting Exhaust[7] (g/trip)	Idle Exhaust[8] (g/idle-minute)
Passenger Vehicles[9]								
LDA	133,132,108	15,650,235	0.012	0.073	0.028	0.097	0.032	0.003
LDA	3,983,694	350,878	0.002	0.013	0.003	0.017	0.012	0.001
LDT1	11,498,861	1,394,224	0.050	0.272	0.074	0.210	0.064	0.011
LDT1	15,799	1,263	0.002	0.012	0.002	0.010	0.011	0.001
LDT2	63,204,641	7,216,720	0.017	0.096	0.026	0.087	0.040	0.004
LDT2	559,556	46,213	0.002	0.013	0.002	0.011	0.011	0.001
MDV	35,296,866	4,305,992	0.028	0.157	0.037	0.108	0.056	0.007
MDV	281,038	25,771	0.002	0.013	0.003	0.012	0.011	0.001
Weighted Emission Factor[10]			**0.018**	**0.102**	**0.032**	**0.103**	**0.039**	**0.004**
Fuel Delivery Trucks[9]								
HHDT	6,491,637	778,752	0.014	0.136	-	-	-	0.039

Notes:

[1] Data obtained from EMFAC2021 output for default emissions activity.

[2] Off-site running exhaust emission factor is based on EMFAC2021 default activity output for aggregated speeds.

[3] On-site running exhaust emission factor is based on EMFAC2021 project-level emission rate output for a speed of 5 mph.

[4] Running loss emission factor is based on EMFAC2021 output for default emissions activity.

[5] Running loss, hot soak, and starting exhaust emissions for HHDT are zero, as reported by EMFAC2021.

[6] Hot soak emission factor is based on EMFAC2021 project-level emission rate output.

[7] EMFAC2021 default emission factor for starting exhaust emissions.

[8] Passenger vehicle idle exhaust emission factors are equivalent to the EMFAC2021 project-level running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

[9] Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[10] Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table D-2 to estimate emission factors for passenger vehicles.

Abbreviations:

EMFAC - EMission FACtors model
g - gram
LDA - Light Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
mph - miles per hour
ROG - reactive organic gases
VMT - vehicle miles travelled

Conversion Factors

60 minutes/hour
907,185 g/ton

Table D-4. $PM_{2.5}$ Emission Factors
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	EMFAC VMT Output[1] (miles/day)	EMFAC Vehicle Trips Output[1] (trips/day)	$PM_{2.5}$ Emission Factor			
			Off-site Running Exhaust[2] (g/mile)	On-site Running Exhaust[3] (g/mile)	Starting Exhaust[4] (g/trip)	Idle Exhaust[5] (g/idle-minute)
Passenger Vehicles[6]						
LDA	133,132,108	15,650,235	0.001	0.009	0.002	0.0004
LDA	3,983,694	350,878	0.001	0.005	0.002	0.0002
LDT1	11,498,861	1,394,224	0.003	0.015	0.003	0.0006
LDT1	15,799	1,263	0.000	0.003	0.001	0.0001
LDT2	63,204,641	7,216,720	0.002	0.009	0.002	0.0004
LDT2	559,556	46,213	0.001	0.004	0.002	0.0001
MDV	35,296,866	4,305,992	0.002	0.009	0.002	0.0004
MDV	281,038	25,771	0.001	0.004	0.002	0.0002
Weighted Average Emission Factor[7]			**0.002**	**0.009**	**0.002**	**0.0004**
Fuel Delivery Trucks[6]						
HHDT	6,491,637	778,752	0.023	0.015	-	0.0003

Notes:

[1] Data obtained from EMFAC2021 output for default emissions activity.

[2] Off-site running exhaust emission factor is based on EMFAC2021 default activity output for aggregated speeds.

[3] On-site running exhaust emission factor is based on EMFAC2021 project-level emission rate output for a speed of 5 mph.

[4] EMFAC2021 default emission factor for starting exhaust emissions.

[5] Passenger vehicle idle exhaust emission factors are equivalent to the EMFAC2021 project-level running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

[6] Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

[7] Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table D-2 to estimate emission factors for passenger vehicles.

Abbreviations:

EMFAC - EMission FACtors model
g - gram
LDA - Light-Duty Automobile
LDT - Light-Duty Truck
HHDT - Heavy-Heavy Duty truck
MDV - medium-duty vehicle
mph - miles per hour
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
VMT - vehicle miles travelled

Conversion Factors

60 minutes/hour
907,185 g/ton

Table D-5. Diesel Particulate Matter Emission Factors
Culver City Costco Fuel Station
Culver City, California

EMFAC Vehicle Class	EMFAC VMT Output[1] (miles/day)	DPM Emission Factor[2]		
		Off-site Running Exhaust[3] (g/mile)	On-site Running Exhaust[4] (g/mile)	Idle Exhaust (g/idle-minute)
Fuel Delivery Trucks[6]				
HHDT	6,491,637	0.024	0.015	0.0003

Notes:

[1] Data obtained from EMFAC2021 output for HHDT diesel vehicle default emissions activity.

[2] For purposes of this analysis, DPM emissions are assumed to be equal to PM_{10} exhaust emissions from diesel vehicles.

[3] Off-site running exhaust emission factor is based on EMFAC2021 default activity output for aggregated speeds.

[4] On-site running exhaust emission factor is based on EMFAC2021 project-level emission rate output for a speed of 5 mph.

Abbreviations:

DPM - diesel particulate matter
g - gram
EMFAC - EMission FACtors model
HHDT - Heavy Heavy-Duty truck
mph - miles per hour
PM_{10} - particulate matter less than 10 microns in diameter
VMT - vehicle miles travelled

Conversion Factors:

60 minutes/hour
907,185 g/ton

Table D-6. Passenger Vehicle Emissions
Culver City Costco Fuel Station
Culver City, California

Source Group ID[1]	Modeled Roadway Link	Project VMT[2] (miles)		Project Trips[2] (one-way trips)		Idle Duration (minutes/ round trip)	ROG Starting Exhaust Emissions[3]		ROG Running and Idling Exhaust Emissions[3]		ROG Evaporative Emissions[3]	
		Peak Hour	Annual	Peak Hour	Annual		Peak Hour (lb/hour)	Annual (lb/year)	Peak Hour (lb/hour)	Annual (lb/year)	Peak Hour (lb/hour)	Annual (lb/year)
PV_1	Washington Blvd (West of Lincoln Blvd)	1.62	5,664	8	27,942	-	1.38E-04	4.81E-01	6.39E-05	2.23E-01	1.13E-04	3.95E-01
PV_2	Washington Blvd (Between Lincoln Blvd and Walnut Ave)	1.96	7,017	46	165,103	-	1.66E-04	5.96E-01	7.70E-05	2.76E-01	1.36E-04	4.90E-01
PV_3	Washington Blvd (Between Walnut Ave and Entry A)	9.92	26,259	146	386,293	-	8.42E-04	2.23E+00	3.91E-04	1.03E+00	6.93E-04	1.83E+00
PV_4	Washington Blvd (Between Entry A and Entry B)	28.89	80,072	299	828,702	-	2.45E-03	6.80E+00	1.14E-03	3.15E+00	2.02E-03	5.59E+00
PV_5	Washington Blvd (East of Entry B)	88.13	241,142	309	845,492	-	7.48E-03	2.05E+01	3.47E-03	9.50E+00	6.15E-03	1.68E+01
PV_6	Lincoln Blvd (South of Washington Blvd)	1.96	6,851	8	27,942	-	1.67E-04	5.82E-01	7.73E-05	2.70E-01	1.37E-04	4.78E-01
PV_7	Lincoln Blvd (North of Washington Blvd)	11.44	41,742	30	109,480	-	9.71E-04	3.54E+00	4.50E-04	1.64E+00	7.98E-04	2.91E+00
PV_A	Entry A	16.45	68,030	445	1,840,064	-	1.40E-03	5.77E+00	6.48E-04	2.68E+00	1.15E-03	4.75E+00
PV_B	Entry B	6.15	25,251	42	172,482	-	5.22E-04	2.14E+00	2.42E-04	9.94E-01	4.29E-04	1.76E+00
PV_C	All Traffic on Entry A + Entry B	42.18	172,145	750	3,061,229	-	3.58E-03	1.46E+01	1.66E-03	6.78E+00	2.94E-03	1.20E+01
PV_IDLE	On-Site Idling, Starting, and Evaporative[5]	-	-	750	3,058,109	12	3.18E-02	1.30E+02	4.20E-02	1.71E+02	8.48E-02	3.46E+02

Notes:

[1] See Figure 1 for a graphic representation of the modeled sources.

[2] Data obtained from Table D-1.

[3] ROG emissions calculated using emission factors from Table D-3 along with Project VMT trips. Evaporative emissions include running loss and hotsoak emissions.

[4] $PM_{2.5}$ emissions calculated using emission factors from Table D-4 along with Project VMT and trips.

[5] Includes emissions from on-site vehicle idling, on-site starts, and hotsoak emission estimated using the number of round trips (i.e., half of the one-way trips).

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
g - gram
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases
VMT - vehicle miles traveled

Conversion Factor:

453.59 g/lb

Table D-6. Passenger Vehicle Emissions
Culver City Costco Fuel Station
Culver City, California

Source Group ID[1]	Modeled Roadway Link	Project VMT[2] (miles)		Project Trips[2] (one-way trips)		Idle Duration (minutes/ round trip)	$PM_{2.5}$ Running and Idling Exhaust Emissions[4]		$PM_{2.5}$ Starting Exhaust Emissions[4]	
		Peak Hour	Annual	Peak Hour	Annual		Peak Hour (lb/hour)	Annual (lb/year)	Peak Hour (lb/hour)	Annual (lb/year)
PV_1	Washington Blvd (West of Lincoln Blvd)	1.62	5,664	8	27,942	-	5.58E-06	1.95E-02	7.58E-06	2.65E-02
PV_2	Washington Blvd (Between Lincoln Blvd and Walnut Ave)	1.96	7,017	46	165,103	-	6.73E-06	2.41E-02	9.14E-06	3.28E-02
PV_3	Washington Blvd (Between Walnut Ave and Entry A)	9.92	26,259	146	386,293	-	3.41E-05	9.03E-02	4.64E-05	1.23E-01
PV_4	Washington Blvd (Between Entry A and Entry B)	28.89	80,072	299	828,702	-	9.94E-05	2.75E-01	1.35E-04	3.75E-01
PV_5	Washington Blvd (East of Entry B)	88.13	241,142	309	845,492	-	3.03E-04	8.30E-01	4.12E-04	1.13E+00
PV_6	Lincoln Blvd (South of Washington Blvd)	1.96	6,851	8	27,942	-	6.75E-06	2.36E-02	9.17E-06	3.20E-02
PV_7	Lincoln Blvd (North of Washington Blvd)	11.44	41,742	30	109,480	-	3.94E-05	1.44E-01	5.35E-05	1.95E-01
PV_A	Entry A	16.45	68,030	445	1,840,064	-	5.66E-05	2.34E-01	7.70E-05	3.18E-01
PV_B	Entry B	6.15	25,251	42	172,482	-	2.12E-05	8.69E-02	2.88E-05	1.18E-01
PV_C	All Traffic on Entry A + Entry B	42.18	172,145	750	3,061,229	-	1.45E-04	5.92E-01	1.97E-04	8.05E-01
PV_IDLE	On-Site Idling, Starting, and Evaporative[5]	-	-	750	3,058,109	12	3.85E-03	1.57E+01	1.75E-03	7.15E+00

Notes:

[1] See Figure 1 for a graphic representation of the modeled sources.

[2] Data obtained from Table D-1.

[3] ROG emissions calculated using emission factors from Table D-3 along with Project VMT trips. Evaporative emissions include running loss and hotsoak emissions.

[4] $PM_{2.5}$ emissions calculated using emission factors from Table D-4 along with Project VMT and trips.

[5] Includes emissions from on-site vehicle idling, on-site starts, and hotsoak emission estimated using the number of round trips (i.e., half of the one-way trips).

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
g - gram
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases
VMT - vehicle miles traveled

Conversion Factor:

453.59 g/lb

Table D-7. Fuel Delivery Truck Emissions
Culver City Costco Fuel Station
Culver City, California

Source Group ID[1]	Modeled Roadway Link	Project VMT[2] (miles)		Project Trips[2] (one-way trips)		Idle Duration (minutes/ round trip)	DPM Exhaust Emissions[3]	ROG Exhaust Emissions[4]		$PM_{2.5}$ Exhaust Emissions[5]	
		Peak Hour	Annual	Peak Hour	Annual		Annual (lb/year)	Peak Hour (lb/hour)	Annual (lb/year)	Peak Hour (lb/hour)	Annual (lb/year)
FDT_4	Washington Blvd (Between Entry A and Entry B)	0.19	564	2	5,840	-	3.05E-02	6.01E-06	1.76E-02	9.98E-06	2.91E-02
FDT_5	Washington Blvd (East of Entry B)	0.57	1,666	2	5,840	-	8.99E-02	1.77E-05	5.18E-02	2.95E-05	8.60E-02
FDT_A	Entry A	0.07	216	2	5,840	-	7.33E-03	2.22E-05	6.49E-02	2.40E-06	7.02E-03
FDT_C	All Traffic on Entry A + Entry B	0.40	1,176	2	5,840	-	3.99E-02	1.21E-04	3.53E-01	1.31E-05	3.82E-02
FDT_IDLE	On-Site Idling[6]	-	-	2	5,840	5	9.14E-03	4.35E-04	1.27E+00	3.00E-06	8.75E-03

Notes:
[1] See Figure 1 for a graphic representation of the modeled sources.
[2] Data obtained from Table D-1.
[3] DPM emissions calculated using emission factors from Table D-5 along with Project VMT and trips.
[4] ROG emissions calculated using emission factors from Table D-3 along with Project VMT and trips.
[5] $PM_{2.5}$ emissions calculated using emission factors from Table D-4 along with Project VMT and trips.
[6] Includes emissions from on-site vehicle idling that is estimated using the number of round trips (i.e. half of the one-way trips).

Abbreviations:
CalEEMod® - CALifornia Emissions Estimator MODel
DPM - diesel particulate matter
g - gram
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases
VMT - vehicle miles traveled

Conversion Factor:
453.59 g/lb

Table D-8. Speciation Profiles Used to Calculate Mobile Source Air Toxic (MSAT) Emissions
Culver City Costco Fuel Station
Culver City, California

		Gasoline-Fueled Passenger Vehicles					Diesel-Fueled Fuel Delivery Trucks	
		ROG Weight Fraction			$PM_{2.5}$ Weight Fraction		ROG Weight Fraction	$PM_{2.5}$ Weight Fraction
Chemical Name	CAS Number	Starting Exhaust[1]	Running and Idling Exhaust[2]	Evaporative[3]	Starting Exhaust[4]	Running and Idling Exhaust[4]	Running and Idling Exhaust[5]	Running and Idling Exhaust[5]
1,3-Butadiene	106990	6.48E-03	1.66E-03	--	--	--	--	--
Benzene	71432	2.59E-02	2.67E-02	1.17E-02	--	--	--	--
Formaldehyde	50000	1.62E-02	1.47E-02	--	--	--	2.66E-02	--
Acrolein (2-Propenal)	107028	6.33E-05	3.33E-05	--	--	--	3.60E-03	--
Naphthalene	91203	2.07E-03	2.53E-03	--	7.16E-05	7.19E-05	5.84E-04	3.01E-06
Acetaldehyde	75070	1.12E-02	9.82E-03	--	--	--	4.17E-02	--
Ethyl Benzene	100414	1.29E-02	7.67E-03	7.55E-03	--	--	1.12E-02	--
POM (15 Pollutants)								
Acenaphthene	83329	3.99E-05	3.99E-05	--	--	--	1.56E-05	--
Acenaphthylene	208968	1.81E-04	1.81E-04	--	2.14E-05	2.13E-05	1.49E-05	2.88E-07
Anthracene	120127	3.35E-05	3.35E-05	--	2.21E-05	2.21E-05	6.47E-06	7.12E-07
Benz(a)anthracene	56553	5.40E-06	5.40E-06	--	2.03E-04	2.03E-04	6.92E-07	4.34E-06
Benzo(a)pyrene	50328	2.94E-07	2.94E-07	--	5.07E-04	5.09E-04	--	--
Benzo(b)fluoranthene	205992	4.01E-06	4.01E-06	--	2.48E-04	2.48E-04	--	--
Benzo(g,h,i)perylene	191242	--	--	--	1.38E-03	1.38E-03	--	--
Benzo(k)fluoranthene	207089	4.01E-06	4.01E-06	--	2.48E-04	2.48E-04	--	--
Chrysene	218019	6.05E-06	6.05E-06	--	1.71E-04	1.72E-04	2.51E-07	1.19E-06
Dibenz(a,h)anthracene	53703	--	--	--	1.19E-05	1.19E-05	--	--
Fluoranthene	206440	5.60E-05	5.60E-05	--	7.80E-05	7.80E-05	6.41E-06	1.49E-06
Fluorene	86737	8.08E-05	8.08E-05	--	--	--	3.35E-05	--
Indeno(1,2,3-c,d)pyrene	193395	--	--	--	5.16E-04	5.17E-04	--	--
Phenanthrene	85018	2.14E-04	2.14E-04	--	7.72E-05	7.74E-05	9.62E-05	5.83E-06
Pyrene	129000	6.40E-05	6.40E-05	--	8.44E-05	8.47E-05	4.72E-06	1.04E-06

Notes:

[1] The ROG starting exhaust speciation profile for gasoline vehicles represents the maximum of CARB profiles OG2301 and OG2302 and EPA MOVES profiles. See Table 1 for further details.

[2] The ROG running and idling exhaust speciation profile for gasoline vehicles represents the maximum of CARB profiles OG2303 and OG2304 and EPA MOVES profiles. See Table 1 for further details.

[3] The ROG evaporative speciation profile for gasoline vehicles represents CARB profile OG2315. See Table 1 for further details.

[4] The $PM_{2.5}$ starting, running, and idling exhaust speciation profiles for gasoline vehicles represent EPA MOVES profiles. See Table 1 for further details.

[5] The ROG and $PM_{2.5}$ running and idling exhaust speciation profiles for diesel vehicles represents the EPA MOVES profiles for post-2007 model year vehicles. See Table 1 for further details.

Abbreviations:

CARB - California Air Resources Board
CAS - Chemical Abstract Service
EPA - Environmental Projection Agency
MOVES - MOtor Vehicle Emission Simulator
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
POM - polycyclic organic matter
ROG - reactive organic gases

Table D-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Peak Hour Emissions (lb/hr)										
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
ROG Starting Exhaust	1,3-Butadiene	8.92E-07	1.08E-06	5.46E-06	1.59E-05	4.85E-05	1.08E-06	6.30E-06	9.06E-06	3.38E-06	2.32E-05	2.06E-04
	Benzene	3.56E-06	4.30E-06	2.18E-05	6.35E-05	1.94E-04	4.31E-06	2.51E-05	3.62E-05	1.35E-05	9.27E-05	8.24E-04
	Formaldehyde	2.22E-06	2.68E-06	1.36E-05	3.96E-05	1.21E-04	2.69E-06	1.57E-05	2.26E-05	8.44E-06	5.79E-05	5.14E-04
	Acrolein (2-Propenal)	8.71E-09	1.05E-08	5.33E-08	1.55E-07	4.73E-07	1.05E-08	6.14E-08	8.84E-08	3.30E-08	2.27E-07	2.01E-06
	Naphthalene	2.85E-07	3.44E-07	1.74E-06	5.08E-06	1.55E-05	3.45E-07	2.01E-06	2.89E-06	1.08E-06	7.41E-06	6.59E-05
	Acetaldehyde	1.55E-06	1.86E-06	9.47E-06	2.76E-05	8.41E-05	1.87E-06	1.09E-05	1.57E-05	5.86E-06	4.02E-05	3.58E-04
	Ethyl Benzene	1.78E-06	2.15E-06	1.09E-05	3.17E-05	9.68E-05	2.15E-06	1.26E-05	1.81E-05	6.75E-06	4.63E-05	4.12E-04
	Acenaphthene	5.49E-09	6.62E-09	3.36E-08	9.79E-08	2.98E-07	6.64E-09	3.87E-08	5.57E-08	2.08E-08	1.43E-07	1.27E-06
	Acenaphthylene	2.49E-08	3.00E-08	1.52E-07	4.44E-07	1.35E-06	3.01E-08	1.76E-07	2.53E-07	9.45E-08	6.48E-07	5.76E-06
	Anthracene	4.61E-09	5.56E-09	2.82E-08	8.22E-08	2.51E-07	5.58E-09	3.25E-08	4.68E-08	1.75E-08	1.20E-07	1.07E-06
	Benz(a)anthracene	7.43E-10	8.96E-10	4.55E-09	1.32E-08	4.04E-08	8.99E-10	5.24E-09	7.54E-09	2.82E-09	1.93E-08	1.72E-07
	Benzo(a)pyrene	4.05E-11	4.88E-11	2.48E-10	7.21E-10	2.20E-09	4.90E-11	2.85E-10	4.11E-10	1.53E-10	1.05E-09	9.36E-09
	Benzo(b)fluoranthene	5.52E-10	6.65E-10	3.38E-09	9.83E-09	3.00E-08	6.68E-10	3.89E-09	5.60E-09	2.09E-09	1.44E-08	1.28E-07
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	5.52E-10	6.65E-10	3.38E-09	9.83E-09	3.00E-08	6.68E-10	3.89E-09	5.60E-09	2.09E-09	1.44E-08	1.28E-07
	Chrysene	8.33E-10	1.00E-09	5.10E-09	1.48E-08	4.53E-08	1.01E-09	5.87E-09	8.45E-09	3.16E-09	2.17E-08	1.93E-07
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	7.71E-09	9.29E-09	4.72E-08	1.37E-07	4.19E-07	9.32E-09	5.44E-08	7.82E-08	2.92E-08	2.00E-07	1.78E-06
	Fluorene	1.11E-08	1.34E-08	6.81E-08	1.98E-07	6.04E-07	1.35E-08	7.85E-08	1.13E-07	4.22E-08	2.89E-07	2.57E-06
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	2.95E-08	3.55E-08	1.80E-07	5.25E-07	1.60E-06	3.56E-08	2.08E-07	2.99E-07	1.12E-07	7.66E-07	6.81E-06
	Pyrene	8.81E-09	1.06E-08	5.39E-08	1.57E-07	4.79E-07	1.07E-08	6.21E-08	8.94E-08	3.34E-08	2.29E-07	2.04E-06
ROG Running and Idling Exhaust	1,3-Butadiene	1.06E-07	1.28E-07	6.50E-07	1.89E-06	5.77E-06	1.29E-07	7.49E-07	1.08E-06	4.03E-07	2.76E-06	6.99E-05
	Benzene	1.70E-06	2.05E-06	1.04E-05	3.03E-05	9.26E-05	2.06E-06	1.20E-05	1.73E-05	6.46E-06	4.43E-05	1.12E-03
	Formaldehyde	9.40E-07	1.13E-06	5.76E-06	1.68E-05	5.11E-05	1.14E-06	6.63E-06	9.54E-06	3.57E-06	2.45E-05	6.19E-04
	Acrolein (2-Propenal)	2.13E-09	2.56E-09	1.30E-08	3.79E-08	1.16E-07	2.57E-09	1.50E-08	2.16E-08	8.06E-09	5.53E-08	1.40E-06
	Naphthalene	1.61E-07	1.94E-07	9.87E-07	2.87E-06	8.77E-06	1.95E-07	1.14E-06	1.64E-06	6.12E-07	4.20E-06	1.06E-04
	Acetaldehyde	6.27E-07	7.56E-07	3.84E-06	1.12E-05	3.41E-05	7.59E-07	4.42E-06	6.36E-06	2.38E-06	1.63E-05	4.13E-04
	Ethyl Benzene	4.90E-07	5.91E-07	3.00E-06	8.73E-06	2.66E-05	5.92E-07	3.45E-06	4.97E-06	1.86E-06	1.27E-05	3.22E-04
	Acenaphthene	2.55E-09	3.07E-09	1.56E-08	4.54E-08	1.38E-07	3.08E-09	1.80E-08	2.59E-08	9.66E-09	6.63E-08	1.68E-06
	Acenaphthylene	1.16E-08	1.39E-08	7.07E-08	2.06E-07	6.28E-07	1.40E-08	8.15E-08	1.17E-07	4.38E-08	3.01E-07	7.61E-06
	Anthracene	2.14E-09	2.58E-09	1.31E-08	3.81E-08	1.16E-07	2.59E-09	1.51E-08	2.17E-08	8.11E-09	5.56E-08	1.41E-06
	Benz(a)anthracene	3.45E-10	4.16E-10	2.11E-09	6.14E-09	1.87E-08	4.17E-10	2.43E-09	3.50E-09	1.31E-09	8.97E-09	2.27E-07
	Benzo(a)pyrene	1.88E-11	2.26E-11	1.15E-10	3.35E-10	1.02E-09	2.27E-11	1.32E-10	1.90E-10	7.12E-11	4.88E-10	1.24E-08
	Benzo(b)fluoranthene	2.56E-10	3.09E-10	1.57E-09	4.56E-09	1.39E-08	3.10E-10	1.81E-09	2.60E-09	9.71E-10	6.66E-09	1.69E-07
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	2.56E-10	3.09E-10	1.57E-09	4.56E-09	1.39E-08	3.10E-10	1.81E-09	2.60E-09	9.71E-10	6.66E-09	1.69E-07
	Chrysene	3.86E-10	4.66E-10	2.36E-09	6.88E-09	2.10E-08	4.67E-10	2.73E-09	3.92E-09	1.47E-09	1.00E-08	2.54E-07
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	3.58E-09	4.31E-09	2.19E-08	6.37E-08	1.94E-07	4.33E-09	2.52E-08	3.63E-08	1.36E-08	9.30E-08	2.35E-06
	Fluorene	5.16E-09	6.22E-09	3.16E-08	9.19E-08	2.80E-07	6.24E-09	3.64E-08	5.24E-08	1.96E-08	1.34E-07	3.40E-06
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	1.37E-08	1.65E-08	8.36E-08	2.43E-07	7.43E-07	1.65E-08	9.64E-08	1.39E-07	5.18E-08	3.55E-07	9.00E-06
	Pyrene	4.09E-09	4.93E-09	2.50E-08	7.28E-08	2.22E-07	4.94E-09	2.88E-08	4.15E-08	1.55E-08	1.06E-07	2.69E-06

Table D-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Peak Hour Emissions (lb/hr)										
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
ROG Evaporative Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	1.32E-06	1.59E-06	8.07E-06	2.35E-05	7.17E-05	1.60E-06	9.30E-06	1.34E-05	5.00E-06	3.43E-05	9.89E-04
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	8.54E-07	1.03E-06	5.23E-06	1.52E-05	4.64E-05	1.03E-06	6.02E-06	8.66E-06	3.24E-06	2.22E-05	6.40E-04
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benz(a)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$PM_{2.5}$ Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	4.01E-10	4.83E-10	2.45E-09	7.14E-09	2.18E-08	4.85E-10	2.83E-09	4.07E-09	1.52E-09	1.04E-08	2.76E-07
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	1.19E-10	1.43E-10	7.28E-10	2.12E-09	6.47E-09	1.44E-10	8.39E-10	1.21E-09	4.51E-10	3.10E-09	8.21E-08
	Anthracene	1.23E-10	1.49E-10	7.55E-10	2.20E-09	6.70E-09	1.49E-10	8.70E-10	1.25E-09	4.68E-10	3.21E-09	8.51E-08
	Benz(a)anthracene	1.13E-09	1.36E-09	6.92E-09	2.02E-08	6.15E-08	1.37E-09	7.98E-09	1.15E-08	4.29E-09	2.94E-08	7.80E-07
	Benzo(a)pyrene	2.84E-09	3.42E-09	1.74E-08	5.05E-08	1.54E-07	3.43E-09	2.00E-08	2.88E-08	1.08E-08	7.38E-08	1.96E-06
	Benzo(b)fluoranthene	1.38E-09	1.67E-09	8.46E-09	2.46E-08	7.52E-08	1.67E-09	9.75E-09	1.40E-08	5.24E-09	3.60E-08	9.53E-07
	Benzo(g,h,i)perylene	7.67E-09	9.25E-09	4.70E-08	1.37E-07	4.17E-07	9.28E-09	5.41E-08	7.79E-08	2.91E-08	2.00E-07	5.29E-06
	Benzo(k)fluoranthene	1.38E-09	1.67E-09	8.46E-09	2.46E-08	7.52E-08	1.67E-09	9.75E-09	1.40E-08	5.24E-09	3.60E-08	9.53E-07
	Chrysene	9.57E-10	1.15E-09	5.86E-09	1.71E-08	5.20E-08	1.16E-09	6.75E-09	9.71E-09	3.63E-09	2.49E-08	6.60E-07
	Dibenz(a,h)anthracene	6.62E-11	7.98E-11	4.05E-10	1.18E-09	3.60E-09	8.01E-11	4.67E-10	6.72E-10	2.51E-10	1.72E-09	4.56E-08
	Fluoranthene	4.35E-10	5.24E-10	2.66E-09	7.75E-09	2.36E-08	5.26E-10	3.07E-09	4.41E-09	1.65E-09	1.13E-08	3.00E-07
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	2.88E-09	3.48E-09	1.76E-08	5.14E-08	1.57E-07	3.49E-09	2.03E-08	2.93E-08	1.09E-08	7.50E-08	1.99E-06
	Phenanthrene	4.32E-10	5.21E-10	2.64E-09	7.70E-09	2.35E-08	5.22E-10	3.05E-09	4.38E-09	1.64E-09	1.12E-08	2.98E-07
	Pyrene	4.72E-10	5.69E-10	2.89E-09	8.41E-09	2.57E-08	5.71E-10	3.33E-09	4.79E-09	1.79E-09	1.23E-08	3.26E-07

Table D-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Peak Hour Emissions (lb/hr)										
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
$PM_{2.5}$ Starting Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	5.43E-10	6.55E-10	3.33E-09	9.68E-09	2.95E-08	6.57E-10	3.83E-09	5.51E-09	2.06E-09	1.41E-08	1.26E-07
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	1.62E-10	1.95E-10	9.92E-10	2.89E-09	8.81E-09	1.96E-10	1.14E-09	1.64E-09	6.14E-10	4.21E-09	3.75E-08
	Anthracene	1.68E-10	2.02E-10	1.03E-09	2.99E-09	9.12E-09	2.03E-10	1.18E-09	1.70E-09	6.36E-10	4.37E-09	3.88E-08
	Benz(a)anthracene	1.54E-09	1.86E-09	9.42E-09	2.74E-08	8.37E-08	1.86E-09	1.09E-08	1.56E-08	5.84E-09	4.00E-08	3.56E-07
	Benzo(a)pyrene	3.85E-09	4.64E-09	2.36E-08	6.86E-08	2.09E-07	4.66E-09	2.71E-08	3.90E-08	1.46E-08	1.00E-07	8.90E-07
	Benzo(b)fluoranthene	1.88E-09	2.27E-09	1.15E-08	3.35E-08	1.02E-07	2.27E-09	1.33E-08	1.91E-08	7.12E-09	4.89E-08	4.35E-07
	Benzo(g,h,i)perylene	1.04E-08	1.26E-08	6.39E-08	1.86E-07	5.68E-07	1.26E-08	7.37E-08	1.06E-07	3.96E-08	2.72E-07	2.42E-06
	Benzo(k)fluoranthene	1.88E-09	2.27E-09	1.15E-08	3.35E-08	1.02E-07	2.27E-09	1.33E-08	1.91E-08	7.12E-09	4.89E-08	4.35E-07
	Chrysene	1.30E-09	1.57E-09	7.96E-09	2.32E-08	7.07E-08	1.57E-09	9.17E-09	1.32E-08	4.93E-09	3.38E-08	3.01E-07
	Dibenz(a,h)anthracene	9.02E-11	1.09E-10	5.52E-10	1.61E-09	4.90E-09	1.09E-10	6.36E-10	9.15E-10	3.42E-10	2.35E-09	2.09E-08
	Fluoranthene	5.92E-10	7.14E-10	3.62E-09	1.05E-08	3.22E-08	7.16E-10	4.17E-09	6.00E-09	2.24E-09	1.54E-08	1.37E-07
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	3.91E-09	4.72E-09	2.40E-08	6.97E-08	2.13E-07	4.73E-09	2.76E-08	3.97E-08	1.48E-08	1.02E-07	9.05E-07
	Phenanthrene	5.85E-10	7.06E-10	3.58E-09	1.04E-08	3.18E-08	7.08E-10	4.13E-09	5.94E-09	2.22E-09	1.52E-08	1.35E-07
	Pyrene	6.40E-10	7.72E-10	3.92E-09	1.14E-08	3.48E-08	7.75E-10	4.52E-09	6.50E-09	2.43E-09	1.67E-08	1.48E-07
Total	**1,3-Butadiene**	**9.99E-07**	**1.20E-06**	**6.11E-06**	**1.78E-05**	**5.43E-05**	**1.21E-06**	**7.04E-06**	**1.01E-05**	**3.79E-06**	**2.60E-05**	**2.76E-04**
	Benzene	**6.59E-06**	**7.94E-06**	**4.03E-05**	**1.17E-04**	**3.58E-04**	**7.97E-06**	**4.65E-05**	**6.68E-05**	**2.50E-05**	**1.71E-04**	**2.93E-03**
	Formaldehyde	**3.16E-06**	**3.82E-06**	**1.94E-05**	**5.64E-05**	**1.72E-04**	**3.83E-06**	**2.23E-05**	**3.21E-05**	**1.20E-05**	**8.23E-05**	**1.13E-03**
	Acrolein (2-Propenal)	**1.08E-08**	**1.31E-08**	**6.63E-08**	**1.93E-07**	**5.89E-07**	**1.31E-08**	**7.64E-08**	**1.10E-07**	**4.11E-08**	**2.82E-07**	**3.41E-06**
	Naphthalene	**4.47E-07**	**5.39E-07**	**2.74E-06**	**7.97E-06**	**2.43E-05**	**5.41E-07**	**3.15E-06**	**4.54E-06**	**1.70E-06**	**1.16E-05**	**1.72E-04**
	Acetaldehyde	**2.17E-06**	**2.62E-06**	**1.33E-05**	**3.87E-05**	**1.18E-04**	**2.63E-06**	**1.53E-05**	**2.21E-05**	**8.24E-06**	**5.65E-05**	**7.71E-04**
	Ethyl Benzene	**3.12E-06**	**3.77E-06**	**1.91E-05**	**5.57E-05**	**1.70E-04**	**3.78E-06**	**2.20E-05**	**3.17E-05**	**1.18E-05**	**8.13E-05**	**1.37E-03**
	Acenaphthene	**8.04E-09**	**9.69E-09**	**4.92E-08**	**1.43E-07**	**4.37E-07**	**9.73E-09**	**5.67E-08**	**8.16E-08**	**3.05E-08**	**2.09E-07**	**2.95E-06**
	Acenaphthylene	**3.68E-08**	**4.43E-08**	**2.25E-07**	**6.55E-07**	**2.00E-06**	**4.45E-08**	**2.59E-07**	**3.73E-07**	**1.39E-07**	**9.56E-07**	**1.35E-05**
	Anthracene	**7.04E-09**	**8.49E-09**	**4.31E-08**	**1.25E-07**	**3.83E-07**	**8.52E-09**	**4.97E-08**	**7.14E-08**	**2.67E-08**	**1.83E-07**	**2.60E-06**
	Benz(a)anthracene	**3.76E-09**	**4.53E-09**	**2.30E-08**	**6.70E-08**	**2.04E-07**	**4.55E-09**	**2.65E-08**	**3.81E-08**	**1.43E-08**	**9.78E-08**	**1.53E-06**
	Benzo(a)pyrene	**6.74E-09**	**8.13E-09**	**4.13E-08**	**1.20E-07**	**3.67E-07**	**8.16E-09**	**4.76E-08**	**6.84E-08**	**2.56E-08**	**1.75E-07**	**2.87E-06**
	Benzo(b)fluoranthene	**4.07E-09**	**4.91E-09**	**2.49E-08**	**7.25E-08**	**2.21E-07**	**4.92E-09**	**2.87E-08**	**4.13E-08**	**1.54E-08**	**1.06E-07**	**1.68E-06**
	Benzo(g,h,i)perylene	**1.81E-08**	**2.18E-08**	**1.11E-07**	**3.23E-07**	**9.85E-07**	**2.19E-08**	**1.28E-07**	**1.84E-07**	**6.87E-08**	**4.71E-07**	**7.71E-06**
	Benzo(k)fluoranthene	**4.07E-09**	**4.91E-09**	**2.49E-08**	**7.25E-08**	**2.21E-07**	**4.92E-09**	**2.87E-08**	**4.13E-08**	**1.54E-08**	**1.06E-07**	**1.68E-06**
	Chrysene	**3.48E-09**	**4.19E-09**	**2.13E-08**	**6.19E-08**	**1.89E-07**	**4.21E-09**	**2.45E-08**	**3.53E-08**	**1.32E-08**	**9.04E-08**	**1.41E-06**
	Dibenz(a,h)anthracene	**1.56E-10**	**1.89E-10**	**9.57E-10**	**2.79E-09**	**8.50E-09**	**1.89E-10**	**1.10E-09**	**1.59E-09**	**5.93E-10**	**4.07E-09**	**6.65E-08**
	Fluoranthene	**1.23E-08**	**1.48E-08**	**7.54E-08**	**2.19E-07**	**6.69E-07**	**1.49E-08**	**8.68E-08**	**1.25E-07**	**4.67E-08**	**3.20E-07**	**4.57E-06**
	Fluorene	**1.63E-08**	**1.96E-08**	**9.97E-08**	**2.90E-07**	**8.85E-07**	**1.97E-08**	**1.15E-07**	**1.65E-07**	**6.17E-08**	**4.23E-07**	**5.97E-06**
	Indeno(1,2,3-c,d)pyrene	**6.80E-09**	**8.19E-09**	**4.16E-08**	**1.21E-07**	**3.69E-07**	**8.22E-09**	**4.79E-08**	**6.90E-08**	**2.58E-08**	**1.77E-07**	**2.89E-06**
	Phenanthrene	**4.41E-08**	**5.32E-08**	**2.70E-07**	**7.86E-07**	**2.40E-06**	**5.34E-08**	**3.11E-07**	**4.48E-07**	**1.67E-07**	**1.15E-06**	**1.62E-05**
	Pyrene	**1.40E-08**	**1.69E-08**	**8.57E-08**	**2.50E-07**	**7.61E-07**	**1.69E-08**	**9.88E-08**	**1.42E-07**	**5.31E-08**	**3.64E-07**	**5.20E-06**

Notes:
[1] Speciated emissions are calculated using the speciation profiles in Table D-8 and the criteria pollutant emissions in Table D-6.

Abbreviations:
hr - hour
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases

Table D-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Annual Emissions (lb/yr)							Annual Emissions (lb/yr)			
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
ROG Starting Exhaust	1,3-Butadiene	3.12E-03	3.86E-03	1.45E-02	4.41E-02	1.33E-01	3.77E-03	2.30E-02	3.74E-02	1.39E-02	9.47E-02	8.42E-01
	Benzene	1.25E-02	1.54E-02	5.77E-02	1.76E-01	5.30E-01	1.51E-02	9.18E-02	1.50E-01	5.55E-02	3.78E-01	3.36E+00
	Formaldehyde	7.77E-03	9.63E-03	3.60E-02	1.10E-01	3.31E-01	9.40E-03	5.73E-02	9.33E-02	3.46E-02	2.36E-01	2.10E+00
	Acrolein (2-Propenal)	3.04E-05	3.77E-05	1.41E-04	4.30E-04	1.30E-03	3.68E-05	2.24E-04	3.65E-04	1.36E-04	9.25E-04	8.21E-03
	Naphthalene	9.95E-04	1.23E-03	4.61E-03	1.41E-02	4.24E-02	1.20E-03	7.33E-03	1.20E-02	4.44E-03	3.02E-02	2.69E-01
	Acetaldehyde	5.40E-03	6.69E-03	2.50E-02	7.64E-02	2.30E-01	6.53E-03	3.98E-02	6.49E-02	2.41E-02	1.64E-01	1.46E+00
	Ethyl Benzene	6.22E-03	7.71E-03	2.88E-02	8.80E-02	2.65E-01	7.53E-03	4.59E-02	7.47E-02	2.77E-02	1.89E-01	1.68E+00
	Acenaphthene	1.92E-05	2.38E-05	8.89E-05	2.71E-04	8.17E-04	2.32E-05	1.41E-04	2.30E-04	8.55E-05	5.83E-04	5.18E-03
	Acenaphthylene	8.70E-05	1.08E-04	4.03E-04	1.23E-03	3.71E-03	1.05E-04	6.41E-04	1.05E-03	3.88E-04	2.64E-03	2.35E-02
	Anthracene	1.61E-05	2.00E-05	7.47E-05	2.28E-04	6.86E-04	1.95E-05	1.19E-04	1.93E-04	7.18E-05	4.90E-04	4.35E-03
	Benz(a)anthracene	2.60E-06	3.22E-06	1.20E-05	3.67E-05	1.11E-04	3.14E-06	1.91E-05	3.12E-05	1.16E-05	7.89E-05	7.01E-04
	Benzo(a)pyrene	1.41E-07	1.75E-07	6.55E-07	2.00E-06	6.02E-06	1.71E-07	1.04E-06	1.70E-06	6.30E-07	4.30E-06	3.82E-05
	Benzo(b)fluoranthene	1.93E-06	2.39E-06	8.94E-06	2.73E-05	8.21E-05	2.33E-06	1.42E-05	2.32E-05	8.60E-06	5.86E-05	5.20E-04
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	1.93E-06	2.39E-06	8.94E-06	2.73E-05	8.21E-05	2.33E-06	1.42E-05	2.32E-05	8.60E-06	5.86E-05	5.20E-04
	Chrysene	2.91E-06	3.60E-06	1.35E-05	4.11E-05	1.24E-04	3.52E-06	2.14E-05	3.49E-05	1.30E-05	8.84E-05	7.85E-04
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	2.69E-05	3.34E-05	1.25E-04	3.81E-04	1.15E-03	3.26E-05	1.98E-04	3.23E-04	1.20E-04	8.18E-04	7.27E-03
	Fluorene	3.88E-05	4.81E-05	1.80E-04	5.49E-04	1.65E-03	4.70E-05	2.86E-04	4.67E-04	1.73E-04	1.18E-03	1.05E-02
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	1.03E-04	1.27E-04	4.77E-04	1.45E-03	4.38E-03	1.24E-04	7.58E-04	1.24E-03	4.59E-04	3.13E-03	2.78E-02
	Pyrene	3.08E-05	3.81E-05	1.43E-04	4.35E-04	1.31E-03	3.72E-05	2.27E-04	3.70E-04	1.37E-04	9.35E-04	8.31E-03
ROG Running and Idling Exhaust	1,3-Butadiene	3.71E-04	4.60E-04	1.72E-03	5.25E-03	1.58E-02	4.49E-04	2.73E-03	4.46E-03	1.65E-03	1.13E-02	2.85E-01
	Benzene	5.95E-03	7.37E-03	2.76E-02	8.41E-02	2.53E-01	7.19E-03	4.38E-02	7.14E-02	2.65E-02	1.81E-01	4.57E+00
	Formaldehyde	3.28E-03	4.07E-03	1.52E-02	4.64E-02	1.40E-01	3.97E-03	2.42E-02	3.94E-02	1.46E-02	9.98E-02	2.52E+00
	Acrolein (2-Propenal)	7.42E-06	9.20E-06	3.44E-05	1.05E-04	3.16E-04	8.98E-06	5.47E-05	8.92E-05	3.31E-05	2.26E-04	5.71E-03
	Naphthalene	5.63E-04	6.98E-04	2.61E-03	7.96E-03	2.40E-02	6.81E-04	4.15E-03	6.77E-03	2.51E-03	1.71E-02	4.33E-01
	Acetaldehyde	2.19E-03	2.71E-03	1.02E-02	3.10E-02	9.33E-02	2.65E-03	1.61E-02	2.63E-02	9.77E-03	6.66E-02	1.68E+00
	Ethyl Benzene	1.71E-03	2.12E-03	7.93E-03	2.42E-02	7.28E-02	2.07E-03	1.26E-02	2.05E-02	7.63E-03	5.20E-02	1.31E+00
	Acenaphthene	8.90E-06	1.10E-05	4.13E-05	1.26E-04	3.79E-04	1.08E-05	6.56E-05	1.07E-04	3.97E-05	2.71E-04	6.84E-03
	Acenaphthylene	4.04E-05	5.00E-05	1.87E-04	5.71E-04	1.72E-03	4.88E-05	2.98E-04	4.85E-04	1.80E-04	1.23E-03	3.10E-02
	Anthracene	7.47E-06	9.26E-06	3.46E-05	1.06E-04	3.18E-04	9.04E-06	5.51E-05	8.98E-05	3.33E-05	2.27E-04	5.74E-03
	Benz(a)anthracene	1.20E-06	1.49E-06	5.58E-06	1.70E-05	5.13E-05	1.46E-06	8.88E-06	1.45E-05	5.37E-06	3.66E-05	9.26E-04
	Benzo(a)pyrene	6.56E-08	8.12E-08	3.04E-07	9.27E-07	2.79E-06	7.93E-08	4.83E-07	7.88E-07	2.92E-07	1.99E-06	5.04E-05
	Benzo(b)fluoranthene	8.94E-07	1.11E-06	4.15E-06	1.26E-05	3.81E-05	1.08E-06	6.59E-06	1.07E-05	3.99E-06	2.72E-05	6.88E-04
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	8.94E-07	1.11E-06	4.15E-06	1.26E-05	3.81E-05	1.08E-06	6.59E-06	1.07E-05	3.99E-06	2.72E-05	6.88E-04
	Chrysene	1.35E-06	1.67E-06	6.26E-06	1.91E-05	5.75E-05	1.63E-06	9.95E-06	1.62E-05	6.02E-06	4.10E-05	1.04E-03
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	1.25E-05	1.55E-05	5.79E-05	1.77E-04	5.32E-04	1.51E-05	9.21E-05	1.50E-04	5.57E-05	3.80E-04	9.60E-03
	Fluorene	1.80E-05	2.23E-05	8.36E-05	2.55E-04	7.67E-04	2.18E-05	1.33E-04	2.16E-04	8.04E-05	5.48E-04	1.39E-02
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	4.77E-05	5.91E-05	2.21E-04	6.75E-04	2.03E-03	5.77E-05	3.52E-04	5.73E-04	2.13E-04	1.45E-03	3.67E-02
	Pyrene	1.43E-05	1.77E-05	6.62E-05	2.02E-04	6.08E-04	1.73E-05	1.05E-04	1.71E-04	6.36E-05	4.34E-04	1.10E-02

Table D-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Annual Emissions (lb/yr)							Annual Emissions (lb/yr)			
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
ROG Evaporative Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	4.61E-03	5.71E-03	2.14E-02	6.51E-02	1.96E-01	5.57E-03	3.40E-02	5.53E-02	2.05E-02	1.40E-01	4.03E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	2.98E-03	3.69E-03	1.38E-02	4.22E-02	1.27E-01	3.61E-03	2.20E-02	3.58E-02	1.33E-02	9.06E-02	2.61E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benz(a)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$PM_{2.5}$ Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	1.40E-06	1.73E-06	6.49E-06	1.98E-05	5.96E-05	1.69E-06	1.03E-05	1.68E-05	6.24E-06	4.26E-05	1.13E-03
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	4.16E-07	5.15E-07	1.93E-06	5.88E-06	1.77E-05	5.03E-07	3.06E-06	4.99E-06	1.85E-06	1.26E-05	3.35E-04
	Anthracene	4.31E-07	5.34E-07	2.00E-06	6.09E-06	1.83E-05	5.21E-07	3.18E-06	5.18E-06	1.92E-06	1.31E-05	3.47E-04
	Benz(a)anthracene	3.95E-06	4.89E-06	1.83E-05	5.59E-05	1.68E-04	4.78E-06	2.91E-05	4.75E-05	1.76E-05	1.20E-04	3.18E-03
	Benzo(a)pyrene	9.91E-06	1.23E-05	4.59E-05	1.40E-04	4.22E-04	1.20E-05	7.30E-05	1.19E-04	4.42E-05	3.01E-04	7.98E-03
	Benzo(b)fluoranthene	4.83E-06	5.98E-06	2.24E-05	6.83E-05	2.06E-04	5.84E-06	3.56E-05	5.80E-05	2.15E-05	1.47E-04	3.89E-03
	Benzo(g,h,i)perylene	2.68E-05	3.32E-05	1.24E-04	3.79E-04	1.14E-03	3.24E-05	1.98E-04	3.22E-04	1.20E-04	8.15E-04	2.16E-02
	Benzo(k)fluoranthene	4.83E-06	5.98E-06	2.24E-05	6.83E-05	2.06E-04	5.84E-06	3.56E-05	5.80E-05	2.15E-05	1.47E-04	3.89E-03
	Chrysene	3.34E-06	4.14E-06	1.55E-05	4.73E-05	1.42E-04	4.04E-06	2.46E-05	4.02E-05	1.49E-05	1.02E-04	2.69E-03
	Dibenz(a,h)anthracene	2.31E-07	2.86E-07	1.07E-06	3.27E-06	9.84E-06	2.80E-07	1.70E-06	2.78E-06	1.03E-06	7.03E-06	1.86E-04
	Fluoranthene	1.52E-06	1.88E-06	7.04E-06	2.15E-05	6.47E-05	1.84E-06	1.12E-05	1.83E-05	6.77E-06	4.62E-05	1.22E-03
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	1.01E-05	1.25E-05	4.67E-05	1.42E-04	4.29E-04	1.22E-05	7.42E-05	1.21E-04	4.49E-05	3.06E-04	8.11E-03
	Phenanthrene	1.51E-06	1.87E-06	6.99E-06	2.13E-05	6.42E-05	1.82E-06	1.11E-05	1.81E-05	6.73E-06	4.59E-05	1.21E-03
	Pyrene	1.65E-06	2.04E-06	7.65E-06	2.33E-05	7.02E-05	2.00E-06	1.22E-05	1.98E-05	7.35E-06	5.01E-05	1.33E-03

Table D-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Annual Emissions (lb/yr)							Annual Emissions (lb/yr)			
		PV_1	PV_2	PV_3	PV_4	PV_5	PV_6	PV_7	PV_A	PV_B	PV_C	PV_IDLE
$PM_{2.5}$ Starting Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	1.90E-06	2.35E-06	8.80E-06	2.68E-05	8.08E-05	2.30E-06	1.40E-05	2.28E-05	8.46E-06	5.77E-05	5.12E-04
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	5.66E-07	7.01E-07	2.62E-06	8.00E-06	2.41E-05	6.85E-07	4.17E-06	6.80E-06	2.52E-06	1.72E-05	1.53E-04
	Anthracene	5.86E-07	7.26E-07	2.72E-06	8.29E-06	2.50E-05	7.09E-07	4.32E-06	7.04E-06	2.61E-06	1.78E-05	1.58E-04
	Benz(a)anthracene	5.38E-06	6.66E-06	2.49E-05	7.60E-05	2.29E-04	6.50E-06	3.96E-05	6.46E-05	2.40E-05	1.63E-04	1.45E-03
	Benzo(a)pyrene	1.34E-05	1.67E-05	6.23E-05	1.90E-04	5.72E-04	1.63E-05	9.91E-05	1.61E-04	5.99E-05	4.09E-04	3.63E-03
	Benzo(b)fluoranthene	6.56E-06	8.13E-06	3.04E-05	9.28E-05	2.79E-04	7.94E-06	4.84E-05	7.88E-05	2.93E-05	1.99E-04	1.77E-03
	Benzo(g,h,i)perylene	3.65E-05	4.52E-05	1.69E-04	5.16E-04	1.55E-03	4.41E-05	2.69E-04	4.38E-04	1.63E-04	1.11E-03	9.85E-03
	Benzo(k)fluoranthene	6.56E-06	8.13E-06	3.04E-05	9.28E-05	2.79E-04	7.94E-06	4.84E-05	7.88E-05	2.93E-05	1.99E-04	1.77E-03
	Chrysene	4.54E-06	5.63E-06	2.11E-05	6.42E-05	1.93E-04	5.49E-06	3.35E-05	5.45E-05	2.02E-05	1.38E-04	1.23E-03
	Dibenz(a,h)anthracene	3.15E-07	3.90E-07	1.46E-06	4.46E-06	1.34E-05	3.81E-07	2.32E-06	3.79E-06	1.41E-06	9.58E-06	8.51E-05
	Fluoranthene	2.07E-06	2.56E-06	9.58E-06	2.92E-05	8.80E-05	2.50E-06	1.52E-05	2.48E-05	9.22E-06	6.28E-05	5.58E-04
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	1.37E-05	1.69E-05	6.34E-05	1.93E-04	5.82E-04	1.65E-05	1.01E-04	1.64E-04	6.09E-05	4.15E-04	3.69E-03
	Phenanthrene	2.04E-06	2.53E-06	9.48E-06	2.89E-05	8.70E-05	2.47E-06	1.51E-05	2.46E-05	9.12E-06	6.21E-05	5.52E-04
	Pyrene	2.24E-06	2.77E-06	1.04E-05	3.16E-05	9.52E-05	2.71E-06	1.65E-05	2.69E-05	9.97E-06	6.80E-05	6.04E-04
Total	**1,3-Butadiene**	**3.49E-03**	**4.32E-03**	**1.62E-02**	**4.93E-02**	**1.49E-01**	**4.22E-03**	**2.57E-02**	**4.19E-02**	**1.56E-02**	**1.06E-01**	**1.13E+00**
	Benzene	**2.30E-02**	**2.85E-02**	**1.07E-01**	**3.25E-01**	**9.79E-01**	**2.78E-02**	**1.70E-01**	**2.76E-01**	**1.03E-01**	**6.99E-01**	**1.20E+01**
	Formaldehyde	**1.11E-02**	**1.37E-02**	**5.13E-02**	**1.56E-01**	**4.71E-01**	**1.34E-02**	**8.15E-02**	**1.33E-01**	**4.93E-02**	**3.36E-01**	**4.62E+00**
	Acrolein (2-Propenal)	**3.78E-05**	**4.69E-05**	**1.75E-04**	**5.35E-04**	**1.61E-03**	**4.58E-05**	**2.79E-04**	**4.55E-04**	**1.69E-04**	**1.15E-03**	**1.39E-02**
	Naphthalene	**1.56E-03**	**1.94E-03**	**7.24E-03**	**2.21E-02**	**6.65E-02**	**1.89E-03**	**1.15E-02**	**1.88E-02**	**6.96E-03**	**4.75E-02**	**7.03E-01**
	Acetaldehyde	**7.59E-03**	**9.41E-03**	**3.52E-02**	**1.07E-01**	**3.23E-01**	**9.18E-03**	**5.60E-02**	**9.12E-02**	**3.38E-02**	**2.31E-01**	**3.14E+00**
	Ethyl Benzene	**1.09E-02**	**1.35E-02**	**5.06E-02**	**1.54E-01**	**4.65E-01**	**1.32E-02**	**8.04E-02**	**1.31E-01**	**4.87E-02**	**3.32E-01**	**5.60E+00**
	Acenaphthene	**2.81E-05**	**3.48E-05**	**1.30E-04**	**3.97E-04**	**1.20E-03**	**3.40E-05**	**2.07E-04**	**3.37E-04**	**1.25E-04**	**8.54E-04**	**1.20E-02**
	Acenaphthylene	**1.28E-04**	**1.59E-04**	**5.95E-04**	**1.81E-03**	**5.47E-03**	**1.55E-04**	**9.46E-04**	**1.54E-03**	**5.72E-04**	**3.90E-03**	**5.50E-02**
	Anthracene	**2.46E-05**	**3.05E-05**	**1.14E-04**	**3.48E-04**	**1.05E-03**	**2.98E-05**	**1.81E-04**	**2.95E-04**	**1.10E-04**	**7.48E-04**	**1.06E-02**
	Benz(a)anthracene	**1.31E-05**	**1.63E-05**	**6.09E-05**	**1.86E-04**	**5.59E-04**	**1.59E-05**	**9.68E-05**	**1.58E-04**	**5.85E-05**	**3.99E-04**	**6.26E-03**
	Benzo(a)pyrene	**2.36E-05**	**2.92E-05**	**1.09E-04**	**3.33E-04**	**1.00E-03**	**2.85E-05**	**1.74E-04**	**2.83E-04**	**1.05E-04**	**7.16E-04**	**1.17E-02**
	Benzo(b)fluoranthene	**1.42E-05**	**1.76E-05**	**6.59E-05**	**2.01E-04**	**6.05E-04**	**1.72E-05**	**1.05E-04**	**1.71E-04**	**6.34E-05**	**4.32E-04**	**6.87E-03**
	Benzo(g,h,i)perylene	**6.33E-05**	**7.84E-05**	**2.93E-04**	**8.95E-04**	**2.69E-03**	**7.66E-05**	**4.66E-04**	**7.60E-04**	**2.82E-04**	**1.92E-03**	**3.14E-02**
	Benzo(k)fluoranthene	**1.42E-05**	**1.76E-05**	**6.59E-05**	**2.01E-04**	**6.05E-04**	**1.72E-05**	**1.05E-04**	**1.71E-04**	**6.34E-05**	**4.32E-04**	**6.87E-03**
	Chrysene	**1.21E-05**	**1.50E-05**	**5.63E-05**	**1.72E-04**	**5.17E-04**	**1.47E-05**	**8.95E-05**	**1.46E-04**	**5.41E-05**	**3.69E-04**	**5.74E-03**
	Dibenz(a,h)anthracene	**5.46E-07**	**6.77E-07**	**2.53E-06**	**7.72E-06**	**2.33E-05**	**6.61E-07**	**4.03E-06**	**6.56E-06**	**2.44E-06**	**1.66E-05**	**2.71E-04**
	Fluoranthene	**4.30E-05**	**5.33E-05**	**1.99E-04**	**6.08E-04**	**1.83E-03**	**5.20E-05**	**3.17E-04**	**5.17E-04**	**1.92E-04**	**1.31E-03**	**1.87E-02**
	Fluorene	**5.69E-05**	**7.05E-05**	**2.64E-04**	**8.04E-04**	**2.42E-03**	**6.88E-05**	**4.19E-04**	**6.83E-04**	**2.54E-04**	**1.73E-03**	**2.43E-02**
	Indeno(1,2,3-c,d)pyrene	**2.37E-05**	**2.94E-05**	**1.10E-04**	**3.36E-04**	**1.01E-03**	**2.87E-05**	**1.75E-04**	**2.85E-04**	**1.06E-04**	**7.22E-04**	**1.18E-02**
	Phenanthrene	**1.54E-04**	**1.91E-04**	**7.15E-04**	**2.18E-03**	**6.56E-03**	**1.86E-04**	**1.14E-03**	**1.85E-03**	**6.87E-04**	**4.69E-03**	**6.62E-02**
	Pyrene	**4.89E-05**	**6.06E-05**	**2.27E-04**	**6.92E-04**	**2.08E-03**	**5.92E-05**	**3.61E-04**	**5.88E-04**	**2.18E-04**	**1.49E-03**	**2.12E-02**

Notes:
[1] Speciated emissions are calculated using the speciation profiles in Table A-8 and the criteria pollutant emissions in Table A-6.

Abbreviations:
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases
yr - year

Table D-11. Peak Hour Speciated MSAT Emissions for Fuel Delivery Trucks
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Peak Hour Emissions (lb/hr)				
		FDT_4	FDT_5	FDT_A	FDT_C	FDT_IDLE
ROG Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	1.60E-07	4.72E-07	5.91E-07	3.22E-06	1.16E-05
	Acrolein (2-Propenal)	2.16E-08	6.39E-08	8.00E-08	4.35E-07	1.57E-06
	Naphthalene	3.51E-09	1.04E-08	1.30E-08	7.06E-08	2.54E-07
	Acetaldehyde	2.51E-07	7.40E-07	9.26E-07	5.04E-06	1.81E-05
	Ethyl Benzene	6.73E-08	1.99E-07	2.49E-07	1.35E-06	4.87E-06
	Acenaphthene	9.38E-11	2.77E-10	3.47E-10	1.89E-09	6.79E-09
	Acenaphthylene	8.96E-11	2.64E-10	3.31E-10	1.80E-09	6.48E-09
	Anthracene	3.89E-11	1.15E-10	1.44E-10	7.83E-10	2.82E-09
	Benz(a)anthracene	4.16E-12	1.23E-11	1.54E-11	8.37E-11	3.01E-10
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	1.51E-12	4.45E-12	5.58E-12	3.04E-11	1.09E-10
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	3.85E-11	1.14E-10	1.42E-10	7.75E-10	2.79E-09
	Fluorene	2.01E-10	5.94E-10	7.44E-10	4.05E-09	1.46E-08
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	5.78E-10	1.71E-09	2.14E-09	1.16E-08	4.19E-08
	Pyrene	2.84E-11	8.37E-11	1.05E-10	5.71E-10	2.05E-09
$PM_{2.5}$ Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	3.01E-11	8.88E-11	7.24E-12	3.94E-11	9.03E-12
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	2.87E-12	8.48E-12	6.92E-13	3.77E-12	8.63E-13
	Anthracene	7.11E-12	2.10E-11	1.71E-12	9.32E-12	2.13E-12
	Benz(a)anthracene	4.33E-11	1.28E-10	1.04E-11	5.67E-11	1.30E-11
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	1.19E-11	3.50E-11	2.85E-12	1.55E-11	3.56E-12
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	1.49E-11	4.40E-11	3.59E-12	1.95E-11	4.47E-12
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	5.82E-11	1.72E-10	1.40E-11	7.63E-11	1.75E-11
	Pyrene	1.04E-11	3.07E-11	2.51E-12	1.36E-11	3.12E-12

Table D-11. Peak Hour Speciated MSAT Emissions for Fuel Delivery Trucks
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Peak Hour Emissions (lb/hr)				
		FDT_4	FDT_5	FDT_A	FDT_C	FDT_IDLE
Total	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	1.60E-07	4.72E-07	5.91E-07	3.22E-06	1.16E-05
	Acrolein (2-Propenal)	2.16E-08	6.39E-08	8.00E-08	4.35E-07	1.57E-06
	Naphthalene	3.54E-09	1.04E-08	1.30E-08	7.07E-08	2.54E-07
	Acetaldehyde	2.51E-07	7.40E-07	9.26E-07	5.04E-06	1.81E-05
	Ethyl Benzene	6.73E-08	1.99E-07	2.49E-07	1.35E-06	4.87E-06
	Acenaphthene	9.38E-11	2.77E-10	3.47E-10	1.89E-09	6.79E-09
	Acenaphthylene	9.24E-11	2.73E-10	3.32E-10	1.81E-09	6.48E-09
	Anthracene	4.60E-11	1.36E-10	1.45E-10	7.92E-10	2.82E-09
	Benz(a)anthracene	4.74E-11	1.40E-10	2.58E-11	1.40E-10	3.14E-10
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	1.34E-11	3.94E-11	8.43E-12	4.59E-11	1.13E-10
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	5.34E-11	1.58E-10	1.46E-10	7.95E-10	2.79E-09
	Fluorene	2.01E-10	5.94E-10	7.44E-10	4.05E-09	1.46E-08
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	6.36E-10	1.88E-09	2.15E-09	1.17E-08	4.19E-08
	Pyrene	3.88E-11	1.14E-10	1.07E-10	5.85E-10	2.06E-09

Notes:

[1] Speciated emissions are calculated using the speciation profiles in Table D-8 and the criteria pollutant emissions in Table D-7.

Abbreviations:

hr - hour

lb - pound

Table D-12. Annual Average Speciated MSAT Emissions for Fuel Delivery Trucks
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Annual Emissions (lb/yr)				
		FDT_4	FDT_5	FDT_A	FDT_C	FDT_IDLE
ROG Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	4.67E-04	1.38E-03	1.73E-03	9.40E-03	3.38E-02
	Acrolein (2-Propenal)	6.32E-05	1.86E-04	2.34E-04	1.27E-03	4.57E-03
	Naphthalene	1.02E-05	3.03E-05	3.79E-05	2.06E-04	7.42E-04
	Acetaldehyde	7.32E-04	2.16E-03	2.70E-03	1.47E-02	5.30E-02
	Ethyl Benzene	1.97E-04	5.80E-04	7.26E-04	3.96E-03	1.42E-02
	Acenaphthene	2.74E-07	8.08E-07	1.01E-06	5.51E-06	1.98E-05
	Acenaphthylene	2.62E-07	7.72E-07	9.66E-07	5.26E-06	1.89E-05
	Anthracene	1.14E-07	3.35E-07	4.20E-07	2.29E-06	8.22E-06
	Benz(a)anthracene	1.21E-08	3.58E-08	4.49E-08	2.44E-07	8.79E-07
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	4.41E-09	1.30E-08	1.63E-08	8.87E-08	3.19E-07
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	1.12E-07	3.32E-07	4.16E-07	2.26E-06	8.15E-06
	Fluorene	5.88E-07	1.74E-06	2.17E-06	1.18E-05	4.26E-05
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	1.69E-06	4.98E-06	6.24E-06	3.40E-05	1.22E-04
	Pyrene	8.28E-08	2.45E-07	3.06E-07	1.67E-06	6.00E-06
$PM_{2.5}$ Running and Idling Exhaust	1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-Propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	8.78E-08	2.59E-07	2.12E-08	1.15E-07	2.64E-08
	Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	8.39E-09	2.48E-08	2.02E-09	1.10E-08	2.52E-09
	Anthracene	2.08E-08	6.13E-08	5.00E-09	2.72E-08	6.23E-09
	Benz(a)anthracene	1.26E-07	3.73E-07	3.04E-08	1.66E-07	3.79E-08
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	3.46E-08	1.02E-07	8.34E-09	4.54E-08	1.04E-08
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	4.35E-08	1.28E-07	1.05E-08	5.70E-08	1.31E-08
	Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Phenanthrene	1.70E-07	5.01E-07	4.09E-08	2.23E-07	5.10E-08
	Pyrene	3.04E-08	8.97E-08	7.32E-09	3.98E-08	9.12E-09

Table D-12. Annual Average Speciated MSAT Emissions for Fuel Delivery Trucks
Culver City Costco Fuel Station
Culver City, California

Process	Pollutant	Annual Emissions (lb/yr)				
		FDT_4	FDT_5	FDT_A	FDT_C	FDT_IDLE
DPM Running and Idling Exhaust	DieselExhPM	3.05E-02	8.99E-02	7.33E-03	3.99E-02	9.14E-03
Total	**1,3-Butadiene**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Benzene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Formaldehyde	**4.67E-04**	**1.38E-03**	**1.73E-03**	**9.40E-03**	**3.38E-02**
	Acrolein (2-Propenal)	**6.32E-05**	**1.86E-04**	**2.34E-04**	**1.27E-03**	**4.57E-03**
	Naphthalene	**1.03E-05**	**3.05E-05**	**3.79E-05**	**2.06E-04**	**7.42E-04**
	Acetaldehyde	**7.32E-04**	**2.16E-03**	**2.70E-03**	**1.47E-02**	**5.30E-02**
	Ethyl Benzene	**1.97E-04**	**5.80E-04**	**7.26E-04**	**3.96E-03**	**1.42E-02**
	Acenaphthene	**2.74E-07**	**8.08E-07**	**1.01E-06**	**5.51E-06**	**1.98E-05**
	Acenaphthylene	**2.70E-07**	**7.97E-07**	**9.68E-07**	**5.27E-06**	**1.89E-05**
	Anthracene	**1.34E-07**	**3.96E-07**	**4.25E-07**	**2.31E-06**	**8.23E-06**
	Benz(a)anthracene	**1.39E-07**	**4.09E-07**	**7.53E-08**	**4.10E-07**	**9.17E-07**
	Benzo(a)pyrene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Benzo(b)fluoranthene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Benzo(g,h,i)perylene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Benzo(k)fluoranthene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Chrysene	**3.90E-08**	**1.15E-07**	**2.46E-08**	**1.34E-07**	**3.29E-07**
	Dibenz(a,h)anthracene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Fluoranthene	**1.56E-07**	**4.60E-07**	**4.26E-07**	**2.32E-06**	**8.16E-06**
	Fluorene	**5.88E-07**	**1.74E-06**	**2.17E-06**	**1.18E-05**	**4.26E-05**
	Indeno(1,2,3-c,d)pyrene	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	Phenanthrene	**1.86E-06**	**5.48E-06**	**6.28E-06**	**3.42E-05**	**1.22E-04**
	Pyrene	**1.13E-07**	**3.34E-07**	**3.13E-07**	**1.71E-06**	**6.01E-06**
	DieselExhPM	**3.05E-02**	**8.99E-02**	**7.33E-03**	**3.99E-02**	**9.14E-03**

Notes:

[1] Speciated emissions are calculated using the speciation profiles in Table D-8 and the criteria pollutant emissions in Table D-7.

Abbreviations:
DPM - diesel particulate matter
lb - pound
$PM_{2.5}$ - particulate matter less than 2.5 microns in diameter

Table D-13. Gasoline Transfer and Dispensing Emissions
Culver City Costco Fuel Station
Culver City, California

		Source Group ID					
		LOADING	BREATH	REFILL			SPILL
		Loading	Breathing	Refueling	Hose Permeation	Total	Spillage
VOC Emission Factor (lb/1,000 gallons)		0.15	0.024	0.32	0.009	--	0.24
Weight Percent	Benzene	0.455%	0.455%	0.455%	0.455%	--	0.707%
	Ethyl Benzene	0.107%	0.107%	0.107%	0.107%	--	1.290%
	Naphthalene	0.0004%	0.0004%	0.0004%	0.0004%	--	0.174%
Emissions (lb/hr)	Benzene	3.07E-03	4.91E-04	6.55E-03	1.84E-04	6.74E-03	7.64E-03
	Ethyl Benzene	7.22E-04	1.16E-04	1.54E-03	4.33E-05	1.58E-03	1.39E-02
	Naphthalene	2.70E-06	4.32E-07	5.76E-06	1.62E-07	5.92E-06	1.88E-03
Emissions (lb/year)	Benzene	1.82E+01	2.91E+00	3.88E+01	1.09E+00	3.99E+01	4.52E+01
	Ethyl Benzene	4.28E+00	6.84E-01	9.12E+00	2.57E-01	9.38E+00	8.25E+01
	Naphthalene	1.60E-02	2.56E-03	3.41E-02	9.59E-04	3.51E-02	1.11E+01

Throughput:

Maximum Hourly	4,500	gallons/hr
Annual	26.6	million gallons/year

Notes:

[1] Emission factors obtained from Table X-1 of SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: August 2021.

[2] Maximum hourly throughput is based on a maximum of 15 vehicles per dispensing position per hour, with an average fill up of 10 gallons per vehicle.

Abbreviations:

hr - hour

lb - pounds

SCAQMD - South Coast Air Quality Management District

VOC - volatile organic compounds

Table D-14. Off-Road Equipment DPM Emissions (Construction)
Culver City Costco Fuel Station
Culver City, California

Year	Phase	Source Group	Phase Duration[1] (days)	Emission Source Category[1]	Mitigated Exhaust PM_{10} Emissions[1] (tons/yr)
2023	Phase 1 Demolition	EQP_P1	28	Off-Road	5.20E-04
2023	Phase 1 SP, Grading, and Utilities	EQP_P1	35	Off-Road	5.90E-04
2023	Phase 1 Paving	EQP_P1	5	Off-Road	8.00E-05
2023	Phase 1 Parking and Lane Striping	EQP_P1	3	Off-Road	1.00E-05
2023	Phase 2 and 3 Building Construction	EQP_P3C	86	Off-Road	8.04E-03
2023	Phase 2 and 3 Paving	EQP_P3C	2	Off-Road	3.00E-05
2023	Phase 2 and 3 Lane Striping	EQP_P3C	1	Off-Road	0.00E+00
2024	Phase 4 Demolition	EQP_P4	9	Off-Road	1.70E-04
2024	Phase 4 Demolition Material Export	EQP_P4	9	Off-Road	0.00E+00
2024	Phase 4 SP, Grading, and Utilities	EQP_P4	55	Off-Road	9.20E-04
2024	Phase 4 Paving	EQP_P4	3	Off-Road	5.00E-05
2024	Phase 4 Parking and Lane Striping	EQP_P4	3	Off-Road	1.00E-05

Notes:
[1] Mitigated PM_{10} emissions are presented in Appendix A.

Abbreviations:
CalEEMod® - California Emissions Estimator Model
PM_{10} - particulate matter less than 10 microns in diameter

Table D-15. Vendor and Haul Truck DPM Emissions (Construction)
Culver City Costco Fuel Station
Culver City, California

Year	Modeled Roadway Links[1]	Source Group ID	Percent of Incoming Trips	Percent of Outgoing Trips	Annual Trip Rates[2] (one-way trips/year)	Segment Length[3] (miles)	Annual VMT[4] (miles/ year)	DPM Emissions[5] (tons/yr)
2023	Hauling Truck Routes	HT_1	100%	0%	19.5	0.25	5	1.06E-07
2023		HT_2	100%	0%	19.5	0.10	2	4.42E-08
2023		HT_3	0%	100%	19.5	0.11	2	4.60E-08
2023		HT_4	0%	100%	19.5	0.25	5	1.06E-07
2023		HT_A1	100%	0%	19.5	0.03	1	1.46E-08
2023		HT_A2	0%	100%	19.5	0.03	1	1.46E-08
2023	Vendor Truck Routes	VT_1	100%	0%	1,483.5	0.25	366.2	4.94E-06
2023		VT_2	100%	0%	1,483.5	0.10	152.5	2.06E-06
2023		VT_3	0%	100%	1,483.5	0.11	158.7	2.14E-06
2023		VT_4	0%	100%	1,483.5	0.25	366.0	4.93E-06
2023		VT_A1	100%	0%	1,483.5	0.03	50	6.80E-07
2023		VT_A2	0%	100%	1,483.5	0.03	50	6.80E-07
2024	Hauling Truck Routes	HT_1	100%	0%	162.0	0.25	40	8.81E-07
2024		HT_2	100%	0%	162.0	0.10	17	3.67E-07
2024		HT_3	0%	100%	162.0	0.11	17	3.82E-07
2024		HT_4	0%	100%	162.0	0.25	40	8.81E-07
2024		HT_A1	100%	0%	162.0	0.03	6	1.21E-07
2024		HT_A2	0%	100%	162.0	0.03	6	1.21E-07

Notes:
[1] See Figure 4 for a graphic representation of the modeled sources.
[2] Total annual one-way trips are calculated as the sum of inbound and outbound one-way trips. Annual one-way haul truck and vendor truck trips per construction phase are estimated using CalEEMod®.
[3] Segment length based on modeled source length in AERMOD.
[4] Annual VMT is calculated as the product of segment length and total annual one-way trips.
[5] DPM emissions are calculated as the product of annual VMT and PM_{10} emission factor per vehicle type. For purposes of this analysis, DPM emissions are assumed to be equal to PM_{10} exhaust emissions from diesel vehicles.

Abbreviations:
AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model
CalEEMod® - CALifornia Emissions Estimator MODel
VMT - vehicle miles traveled

Table D-16. Back-up Generator HRA Emissions Calculations (Operation)
Culver City Costco Fuel Station
Culver City, California

Operating Parameters	
Parameter	**Value**
Engine Make	LTD
Engine Model	444 TA4-81 I3A
Number of Generators	1
Gross Engine Power Output (bhp)[1]	109

Schedule[2]	**engine/yr**
Maximum	1,488

Emissions

Pollutant	**Combustion Emission Factors[3] (g/bhp-hr)**	**Emissions (lbs/hr)**	**Emissions[2] (lbs/yr)**
Diesel Particulate Matter	0.008	0.002	2.86

Notes:

[1] The gross engine power output for the Isuzu BR-4JJ1X generator was extracted from the unit's Statewide Portable Equipment Registration form.

[2] The stationary back-up generator is assumed to operate 24 hours per day, 7 days per week, for the first 2 months of project operation, per Project-specific information.

[3] Combustion emission factor is based on project-specific information.

Conversion Factors

453.59 grams/lb

Abbreviations/Acronyms

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimator Model
g - gram
bhp - brake-horsepower
hr - hour
lb(s) - pound(s)
PM_{10} - particulate matter of 10 microns or less in diameter
yr - year

Table D-17. Back-up Generator HRA Emissions Calculations (Construction)
Culver City Costco Fuel Station
Culver City, California

Operating Parameters	
Parameter	**Value**
Engine Make	Isuzu
Engine Model	BR-4JJ1X
Number of Generators	1
Gross Engine Power Output (bhp)[1]	95

Emissions

Pollutant	**Combustion Emission Factors[3] (g/bhp-hr)**	**Emissions (lbs/hr)**
Diesel Particulate Matter	0.008	0.002

Notes:

[1] The gross engine power output for the Isuzu BR-4JJ1X generator was extracted from the unit's Statewide Portable Equipment Registration form.

[2] The stationary back-up generator is assumed to operate up to 12 hours per day, 6 days per week for the entire construction duration, per Project-specific information.

[3] Combustion emission factor is based on project-specific information.

Conversion Factors

453.59 grams/lb

Abbreviations/Acronyms

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimator Model
g - gram
bhp - brake-horsepower
hr - hour
lb(s) - pound(s)
PM_{10} - particulate matter of 10 microns or less in diameter
yr - year

APPENDIX E
AERMOD INPUTS

Table E-1 Modeled Source Parameters - Construction Sources
Culver City Costco Fuel Station
Culver City, California

Source Parameters	Hauling Truck Travel	Generator	Fugitive Dust	Construction Equipment
Source Type	Line-Area	Point	Areapoly	Areapoly
Width[1] (m)	3.3 per lane	N/A	N/A	N/A
Initial Vertical Dimension[2] (m)	6.8	N/A	N/A	N/A
Initial Vertical Dispersion Coefficient[3,4,5] (m)	3.16	N/A	1.00	1.40
Release Height[4,5,6] (m)	3.4	3.66	0.0	5.0
Stack Diameter[6] (m)	N/A	0.183	N/A	N/A
Exit Temperature[6] (°C)	N/A	467	N/A	N/A
Exit Velocity[6] (m/s)	N/A	45.3	N/A	N/A

Notes:

[1] Road width is estimated as a product of the number of lanes and width of a lane. The width of the lane is defined as 3.3 meters based on the USEPA Transportation Conformity Guidance.

[2] The initial vertical dimension for hauling truck exhaust is assumed to be equal to 1.7 times the vehicle height. Vehicle height is based on the USEPA Transportation Conformity Guidance.

[3] The initial vertical dispersion coefficient for vehicle travel is estimated as the initial vertical dimension divided by 2.15 based on the USEPA Transportation Conformity Guidance.

[4] Release height for hauling truck is estimated as half of the initial vertical dimension based on the USEPA Transportation Conformity Guidance.

[5] Vertical dimension and release height of Fugitive Dust and Construction Equipment sources are based on SCAQMD LST Methodology.

[6] Generator parameters are based on BAAQMD default modeling parameters for common stationary sources (as these parameters are not presented within the SCAQMD Risk Assessment Procedures).

Abbreviations:

AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model

BAAQMD - Bay Area Air Quality Management District

C - Celsius

ft - feet

LST - Local Significance Threshold

m - meters

N/A - not applicable

PM - particulate matter

s - seconds

SCAQMD - South Coast Air Quality Management District

USEPA - United States Environmental Protection Agency

References:

USEPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendices. November. Available at: https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf. Accessed: March 2022.

USEPA. 2019. User's Guide for the AMS/EPA Regulatory Model. August. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf. Accessed: March 2022.

SCAQMD, 2008, Final Localized Significance Threshold Methodology. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed: March 2022.

BAAQMD, 2022, Air Quality Guidelines Appendix E: Recommended Methods For Screening and Modeling Local Risks and Hazards Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/appendix-e-recommended-methods-for-screening-and-modeling-local-risks-and-hazards_final-pdf.pdf?la=en. Accessed: February 2024.

Table E-2. Modeled Source Parameters - Operational Mobile Sources
Culver City Costco Fuel Station
Culver City, California

Source Parameters	Fuel Delivery Truck Travel	Passenger Vehicle Travel	Fuel Delivery Truck Idling	Passenger Vehicle Idling
Source Type	Line-Area	Line-Area	Areapoly	Areapoly
Width (m)	3.3 per lane	3.3 per lane	N/A	N/A
Initial Vertical Dimension[2] (m)	6.8	2.6	6.8	2.60
Initial Vertical Dispersion Coefficient[3,4] (m)	3.16	1.21	0.79	0.30
Release Height[5] (m)	3.4	1.3	3.4	1.3

Notes:

[1] Road width is estimated as a product of the number of lanes and width of a lane. The width of the lane is defined as 3.3 meters based on the USEPA Transportation Conformity Guidance.

[2] The initial vertical dimension for truck exhaust is assumed to be equal to 1.7 times the vehicle height. Vehicle height is based on the USEPA Transportation Conformity Guidance.

[3] The initial vertical dispersion coefficient for vehicle travel is estimated as the initial vertical dimension divided by 2.15 based on the USEPA Transportation Conformity Guidance.

[4] For on-site idling emission sources, the initial vertical dispersion coefficient is estimated as the initial vertical dimension divided by 4.3, based on the USEPA AERMOD User Guide.

[5] Release height is estimated as half of the initial vertical dimension based on the USEPA Transportation Conformity Guidance.

Abbreviations:

AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model

ft - feet

m - meters

N/A - not applicable

PM - particulate matter

USEPA - United States Environmental Protection Agency

References:

USEPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendices. November. Available at: https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf. Accessed: September 2021.

USEPA. 2021. User's Guide for the AMS/EPA Regulatory Model. August. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf. Accessed: September 2021.

Table E-3. Modeled Emission Rates - Operational Mobile Sources
Culver City Costco Fuel Station
Culver City, California

Modeled Roadway Links[1]	Roadway Link Description	Source Group ID[1]	Total Area of Source in Source Group (m^2)	Source ID[2]	Modeled Emission Rate ($g/s/m^2$)
Passenger Vehicle Off-Site Travel	Washington Blvd (West of Lincoln Blvd)	PV_1	7,536	A0000001	1.327E-04
				A0000002	1.327E-04
	Washington Blvd (Between Lincoln Blvd and Walnut Ave)	PV_2	1,581	A0000003	6.325E-04
	Washington Blvd (Between Walnut Ave and Entry A)	PV_3	2,527	A0000004	3.957E-04
	Washington Blvd (Between Entry A and Entry B)	PV_4	3,593	A0000036	2.783E-04
	Washington Blvd (East of Entry B)	PV_5	10,604	A0000005	9.431E-05
				A0000006	9.431E-05
	Lincoln Blvd (South of Washington Blvd)	PV_6	10,417	A0000009	9.600E-05
				A0000010	9.600E-05
	Lincoln Blvd (North of Washington Blvd)	PV_7	16,200	A0000011	6.173E-05
				A0000012	6.173E-05
				A0000013	6.173E-05
				A0000014	6.173E-05
Passenger Vehicle On-Site Driveway Travel	Entry A	PV_A	785	A0000015	1.273E-03
	Entry B	PV_B	2,333	A0000017	4.287E-04
				A0000018	4.287E-04
				A0000019	4.287E-04
				A0000020	4.287E-04
				A0000021	4.287E-04
	All Traffic on Entry A + Entry B	PV_C	597	A0000022	1.674E-03
				A0000023	1.674E-03
Fuel Delivery Truck Off-Site Travel	Washington Blvd (Between Entry A and Entry B)	FDT_4	3,593	A0000037	2.783E-04
	Washington Blvd (East of Entry B)	FDT_5	10,604	A0000007	9.431E-05
				A0000008	9.431E-05
Fuel Delivery Truck On-Site Driveway Travel	Entry A	FDT_A	785	A0000016	1.273E-03
	All Traffic on Entry A + Entry B	FDT_C	1,069	A0000024	9.355E-04
				A0000025	9.355E-04
				A0000026	9.355E-04
				A0000027	9.355E-04
				A0000028	9.355E-04
				A0000029	9.355E-04
				A0000030	9.355E-04
				A0000031	9.355E-04
				A0000032	9.355E-04
				A0000033	9.355E-04
				A0000034	9.355E-04
				A0000035	9.355E-04

Table E-3. Modeled Emission Rates - Operational Mobile Sources
Culver City Costco Fuel Station
Culver City, California

Modeled Roadway Links[1]	Roadway Link Description	Source Group ID[1]	Total Area of Source in Source Group (m^2)	Source ID[2]	Modeled Emission Rate ($g/s/m^2$)
Passenger Vehicle Idling, Starting, and Evaporative Emissions	On-Site Idling, Starting, and Evaporative	PV_IDLE	4,347	PV_IDLE	2.300E-04
Fuel Delivery Truck Idling	On-Site Idling	FDT_IDLE	4,347	FDT_IDLE	2.300E-04

Notes:
[1] Refer to Figure 1 for spatial location of modeled roadways.
[2] Since the roadways are not always a straight line, they are represented by a series of line (area) sources.

Abbreviations:
Ave - avenue
btwn - between
$g/s/m^2$ - grams per second per square meter
e/o - east of
m^2 - square meters
n/o - north of
Rd - road
s/o - south of
St - street

Table E-4. Modeled Source Parameters - Operational Point Sources
Culver City Costco Fuel Station
Culver City, California

Model ID	Description	Stack Height[1] (m)	Stack Temperature[1] (K)	Exit Velocity[2] (m/s)	Stack Diameter[1] (m)	Emission Rate (g/s)
LOADING	GDF loading emissions	3.66	291.48	0.00063	0.051	1
BREATH	GDF breathing emissions	3.66	288.71	0.00010	0.051	1
GEN[3]	Generator emissions	3.66	740.15	45.3000	0.183	1

Notes:

[1] Stack parameters are based on SCAQMD Risk Assessment Procedures, Appendix X and Appendix XIII - Exhibit X. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: September 2021.

[2] Exit velocity based on SCAQMD Risk Assessment Procedures, Appendix X and Appendix XIII - Exhibit X. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: March 2022.

[3] Generator parameters are based on BAAQMD default modeling parameters for common stationary sources (as these parameters are not presented within the SCAQMD Risk Assessment Procedures).

Abbreviations:

BAAQMD - Bay Area Air Quality Management District

CAPCOA- California Air Pollution Control Officers Association

GDF - gasoline dispensing facility

K - Kelvin

m - meters

SCAQMD - South Coast Air Quality Management District

s - second

Table E-5. Modeled Source Parameters - Operational Volume Sources
Culver City Costco Fuel Station
Culver City, California

Model ID	Description	Release Height[1] (m)	Initial Lateral Dimension, Sigma Y[2] (m)	Initial Vertical Dimension, Sigma Z[1] (m)	Emission Rate (g/s)
REFILL	Refueling and Hose Permeation	1.00	8.38	2.33	1
SPILL	Spillage	0.00	8.38	2.33	1

Notes:

[1] Release height and Sigma Z are based on SCAQMD Risk Assessment Procedures, Appendix X. Available at: http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12. Accessed: September 2021.

[2] Initial lateral dimension is based on the dimensions of the gas station canopy.

Abbreviations:

m - meters

SCAQMD - South Coast Air Quality Management District

APPENDIX F
HARP2 OUTPUTS AND HEALTH RISK CALCULATIONS

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1	366270	3762132	Worker	0.66	1.97E-02	6.08E-02
2	366275	3762132	Resident	6.51	2.17E-02	6.58E-02
3	366280	3762132	Worker	0.81	2.39E-02	7.18E-02
4	366285	3762132	Worker	0.90	2.65E-02	7.88E-02
5	366290	3762132	Worker	1.01	2.96E-02	8.69E-02
6	366295	3762132	Worker	1.15	3.34E-02	9.78E-02
7	366300	3762132	Worker	1.31	3.81E-02	1.11E-01
8	366270	3762137	Resident	5.89	1.98E-02	5.92E-02
9	366275	3762137	Resident	6.50	2.18E-02	6.41E-02
10	366280	3762137	Resident	7.21	2.40E-02	6.97E-02
11	366285	3762137	Resident	8.07	2.67E-02	7.63E-02
12	366290	3762137	Worker	1.01	2.99E-02	8.40E-02
13	366295	3762137	Worker	1.15	3.37E-02	9.32E-02
14	366300	3762137	Worker	1.32	3.84E-02	1.05E-01
15	366270	3762142	Resident	5.86	1.98E-02	5.83E-02
16	366275	3762142	Resident	6.46	2.18E-02	6.30E-02
17	366280	3762142	Resident	7.16	2.40E-02	6.83E-02
18	366285	3762142	Resident	8.01	2.67E-02	7.45E-02
19	366290	3762142	Resident	9.03	2.99E-02	8.18E-02
20	366295	3762142	Worker	1.15	3.37E-02	9.05E-02
21	366300	3762142	Worker	1.32	3.85E-02	1.01E-01
22	366270	3762147	Resident	5.79	1.98E-02	5.84E-02
23	366275	3762147	Resident	6.38	2.17E-02	6.31E-02
24	366280	3762147	Resident	7.07	2.39E-02	6.85E-02
25	366285	3762147	Resident	7.90	2.66E-02	7.48E-02
26	366290	3762147	Resident	8.89	2.97E-02	8.22E-02
27	366295	3762147	Resident	10.11	3.35E-02	9.09E-02
28	366300	3762147	Resident	11.66	3.81E-02	1.02E-01
29	366270	3762152	Resident	5.71	1.96E-02	5.84E-02
30	366275	3762152	Resident	6.28	2.15E-02	6.29E-02
31	366280	3762152	Resident	6.95	2.37E-02	6.80E-02
32	366285	3762152	Resident	7.74	2.63E-02	7.42E-02
33	366290	3762152	Resident	8.69	2.93E-02	8.14E-02
34	366295	3762152	Resident	9.85	3.30E-02	9.01E-02
35	366300	3762152	Worker	1.26	3.74E-02	1.01E-01
36	366270	3762157	Resident	5.61	1.94E-02	5.85E-02
37	366275	3762157	Resident	6.16	2.12E-02	6.32E-02
38	366280	3762157	Resident	6.80	2.34E-02	6.85E-02
39	366285	3762157	Resident	7.56	2.59E-02	7.44E-02
40	366290	3762157	Resident	8.45	2.88E-02	8.21E-02
41	366295	3762157	Resident	9.54	3.23E-02	9.11E-02
42	366300	3762157	Worker	1.23	3.65E-02	1.02E-01
43	366048.73	3762295.77	Worker	0.07	2.05E-03	1.27E-02
44	366048.73	3762320.77	Worker	0.07	2.05E-03	1.33E-02
45	366048.73	3762345.77	Worker	0.06	1.87E-03	1.20E-02
46	366048.73	3762370.77	Resident	0.48	1.71E-03	9.81E-03
47	366048.73	3762395.77	Resident	0.44	1.59E-03	7.86E-03
48	366048.73	3762420.77	Worker	0.05	1.47E-03	6.95E-03
49	366048.73	3762445.77	Worker	0.04	1.37E-03	6.41E-03
50	366073.73	3762220.77	Resident	0.73	2.63E-03	1.17E-02
51	366073.73	3762245.77	Worker	0.08	2.53E-03	1.15E-02
52	366073.73	3762270.77	Worker	0.08	2.42E-03	1.35E-02
53	366073.73	3762295.77	Worker	0.08	2.39E-03	1.50E-02
54	366073.73	3762320.77	Worker	0.07	2.23E-03	1.43E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
55	366073.73	3762345.77	Worker	0.07	2.02E-03	1.20E-02
56	366073.73	3762370.77	Resident	0.51	1.86E-03	9.35E-03
57	366073.73	3762395.77	Worker	0.05	1.72E-03	8.03E-03
58	366073.73	3762420.77	Resident	0.43	1.59E-03	7.23E-03
59	366073.73	3762445.77	Resident	0.40	1.47E-03	6.70E-03
60	366073.73	3762470.77	Resident	0.37	1.37E-03	6.41E-03
61	366098.73	3762170.77	Resident	0.91	3.25E-03	1.32E-02
62	366098.73	3762195.77	Worker	0.10	3.16E-03	1.35E-02
63	366098.73	3762220.77	Worker	0.10	3.05E-03	1.32E-02
64	366098.73	3762245.77	Worker	0.09	2.91E-03	1.43E-02
65	366098.73	3762270.77	Worker	0.09	2.85E-03	1.65E-02
66	366098.73	3762295.77	Worker	0.09	2.68E-03	1.69E-02
67	366098.73	3762320.77	Worker	0.08	2.42E-03	1.48E-02
68	366098.73	3762345.77	Worker	0.07	2.21E-03	1.16E-02
69	366098.73	3762370.77	Resident	0.56	2.03E-03	9.41E-03
70	366098.73	3762395.77	Resident	0.51	1.87E-03	8.27E-03
71	366098.73	3762420.77	Resident	0.46	1.72E-03	7.58E-03
72	366098.73	3762445.77	Worker	0.05	1.58E-03	7.33E-03
73	366098.73	3762470.77	Resident	0.39	1.46E-03	6.89E-03
74	366098.73	3762495.77	Resident	0.36	1.35E-03	6.32E-03
75	366123.73	3762095.77	Resident	1.11	3.85E-03	1.57E-02
76	366123.73	3762120.77	Worker	0.13	3.91E-03	1.53E-02
77	366123.73	3762145.77	Resident	1.11	3.91E-03	1.50E-02
78	366123.73	3762170.77	Resident	1.08	3.85E-03	1.51E-02
79	366123.73	3762195.77	Worker	0.12	3.74E-03	1.56E-02
80	366123.73	3762220.77	Worker	0.12	3.58E-03	1.52E-02
81	366123.73	3762245.77	Worker	0.11	3.47E-03	1.79E-02
82	366123.73	3762270.77	Worker	0.11	3.27E-03	1.97E-02
83	366123.73	3762295.77	Worker	0.10	2.95E-03	1.83E-02
84	366123.73	3762320.77	Worker	0.09	2.68E-03	1.47E-02
85	366123.73	3762345.77	Resident	0.67	2.45E-03	1.14E-02
86	366123.73	3762370.77	Resident	0.61	2.23E-03	9.71E-03
87	366123.73	3762395.77	Resident	0.55	2.04E-03	8.77E-03
88	366123.73	3762420.77	Resident	0.50	1.86E-03	8.45E-03
89	366123.73	3762445.77	Resident	0.46	1.70E-03	7.87E-03
90	366123.73	3762470.77	Resident	0.42	1.56E-03	7.13E-03
91	366123.73	3762495.77	Worker	0.05	1.43E-03	6.95E-03
92	366123.73	3762520.77	Resident	0.35	1.32E-03	7.02E-03
93	366148.73	3762045.77	Resident	1.24	4.20E-03	1.99E-02
94	366148.73	3762070.77	Resident	1.31	4.45E-03	2.11E-02
95	366148.73	3762095.77	Resident	1.35	4.63E-03	1.89E-02
96	366148.73	3762120.77	Worker	0.16	4.73E-03	1.82E-02
97	366148.73	3762145.77	Resident	1.35	4.74E-03	1.78E-02
98	366148.73	3762170.77	Worker	0.15	4.66E-03	1.77E-02
99	366148.73	3762195.77	Worker	0.15	4.51E-03	1.84E-02
100	366148.73	3762220.77	Worker	0.14	4.35E-03	1.92E-02
101	366148.73	3762245.77	Worker	0.13	4.08E-03	2.23E-02
102	366148.73	3762270.77	Worker	0.12	3.68E-03	2.25E-02
103	366148.73	3762295.77	Worker	0.11	3.33E-03	1.90E-02
104	366148.73	3762320.77	Resident	0.82	3.02E-03	1.41E-02
105	366148.73	3762345.77	Resident	0.74	2.72E-03	1.17E-02
106	366148.73	3762370.77	Resident	0.66	2.46E-03	1.04E-02
107	366148.73	3762395.77	Resident	0.60	2.23E-03	9.89E-03
108	366148.73	3762420.77	Resident	0.54	2.02E-03	9.10E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
109	366148.73	3762445.77	Worker	0.06	1.83E-03	8.25E-03
110	366148.73	3762470.77	Worker	0.05	1.67E-03	8.28E-03
111	366148.73	3762495.77	Resident	0.41	1.52E-03	8.33E-03
112	366148.73	3762520.77	Resident	0.37	1.39E-03	8.08E-03
113	366148.73	3762545.77	Resident	0.34	1.28E-03	7.57E-03
114	366173.73	3761995.77	Worker	0.14	4.14E-03	1.94E-02
115	366173.73	3762020.77	Resident	1.37	4.57E-03	1.98E-02
116	366173.73	3762045.77	Worker	0.17	5.01E-03	2.27E-02
117	366173.73	3762070.77	Resident	1.59	5.39E-03	2.49E-02
118	366173.73	3762095.77	Resident	1.66	5.69E-03	2.38E-02
119	366173.73	3762120.77	Worker	0.19	5.86E-03	2.21E-02
120	366173.73	3762145.77	Worker	0.19	5.88E-03	2.14E-02
121	366173.73	3762170.77	Worker	0.19	5.80E-03	2.16E-02
122	366173.73	3762195.77	Worker	0.19	5.61E-03	2.19E-02
123	366173.73	3762220.77	Worker	0.17	5.21E-03	2.48E-02
124	366173.73	3762245.77	Worker	0.15	4.73E-03	2.73E-02
125	366173.73	3762270.77	Worker	0.14	4.26E-03	2.46E-02
126	366173.73	3762295.77	Resident	1.04	3.82E-03	1.86E-02
127	366173.73	3762320.77	Resident	0.92	3.41E-03	1.44E-02
128	366173.73	3762345.77	Worker	0.10	3.04E-03	1.26E-02
129	366173.73	3762370.77	Resident	0.73	2.72E-03	1.18E-02
130	366173.73	3762395.77	Resident	0.65	2.43E-03	1.06E-02
131	366173.73	3762420.77	Worker	0.07	2.19E-03	9.97E-03
132	366173.73	3762445.77	Resident	0.53	1.97E-03	1.00E-02
133	366173.73	3762470.77	Resident	0.48	1.78E-03	9.86E-03
134	366173.73	3762495.77	Resident	0.43	1.62E-03	9.26E-03
135	366173.73	3762520.77	Worker	0.05	1.47E-03	8.40E-03
136	366173.73	3762545.77	Resident	0.36	1.35E-03	7.43E-03
137	366198.73	3761970.77	Worker	0.14	4.14E-03	1.89E-02
138	366198.73	3761995.77	Worker	0.16	4.79E-03	2.31E-02
139	366198.73	3762020.77	Worker	0.18	5.40E-03	2.33E-02
140	366198.73	3762045.77	Resident	1.82	6.06E-03	2.61E-02
141	366198.73	3762070.77	Worker	0.22	6.67E-03	2.94E-02
142	366198.73	3762095.77	Worker	0.24	7.17E-03	3.01E-02
143	366198.73	3762120.77	Worker	0.25	7.48E-03	2.74E-02
144	366198.73	3762145.77	Worker	0.25	7.60E-03	2.65E-02
145	366198.73	3762170.77	Worker	0.25	7.43E-03	2.68E-02
146	366198.73	3762195.77	Worker	0.23	6.93E-03	2.69E-02
147	366198.73	3762220.77	Worker	0.20	6.32E-03	3.23E-02
148	366198.73	3762245.77	Worker	0.18	5.66E-03	3.21E-02
149	366198.73	3762270.77	Resident	1.36	5.02E-03	2.52E-02
150	366198.73	3762295.77	Worker	0.14	4.42E-03	1.83E-02
151	366198.73	3762320.77	Resident	1.04	3.88E-03	1.57E-02
152	366198.73	3762345.77	Resident	0.91	3.41E-03	1.43E-02
153	366198.73	3762370.77	Worker	0.09	3.01E-03	1.27E-02
154	366198.73	3762395.77	Worker	0.08	2.66E-03	1.24E-02
155	366198.73	3762420.77	Resident	0.63	2.37E-03	1.22E-02
156	366198.73	3762445.77	Resident	0.57	2.11E-03	1.15E-02
157	366198.73	3762470.77	Resident	0.51	1.89E-03	1.05E-02
158	366198.73	3762495.77	Resident	0.46	1.71E-03	9.21E-03
159	366198.73	3762520.77	Resident	0.42	1.55E-03	8.39E-03
160	366198.73	3762545.77	Resident	0.38	1.41E-03	8.03E-03
161	366223.73	3761945.77	Resident	1.18	3.99E-03	1.46E-02
162	366223.73	3761970.77	Worker	0.16	4.66E-03	1.87E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
163	366223.73	3761995.77	Worker	0.19	5.49E-03	2.41E-02
164	366223.73	3762020.77	Worker	0.22	6.44E-03	2.94E-02
165	366223.73	3762045.77	Worker	0.25	7.43E-03	2.99E-02
166	366223.73	3762070.77	Worker	0.29	8.45E-03	3.55E-02
167	366223.73	3762095.77	Worker	0.32	9.37E-03	3.88E-02
168	366223.73	3762120.77	Worker	0.34	9.99E-03	3.50E-02
169	366223.73	3762145.77	Worker	0.34	1.01E-02	3.35E-02
170	366223.73	3762170.77	Worker	0.32	9.64E-03	3.38E-02
171	366223.73	3762195.77	Worker	0.29	8.89E-03	3.74E-02
172	366223.73	3762220.77	Resident	2.19	7.93E-03	4.15E-02
173	366223.73	3762245.77	Resident	1.89	6.93E-03	3.52E-02
174	366223.73	3762270.77	Resident	1.62	5.98E-03	2.45E-02
175	366223.73	3762295.77	Resident	1.38	5.14E-03	2.01E-02
176	366223.73	3762320.77	Resident	1.19	4.42E-03	1.77E-02
177	366223.73	3762345.77	Worker	0.12	3.82E-03	1.58E-02
178	366223.73	3762370.77	Worker	0.10	3.32E-03	1.58E-02
179	366223.73	3762395.77	Resident	0.78	2.90E-03	1.49E-02
180	366223.73	3762420.77	Resident	0.68	2.55E-03	1.34E-02
181	366223.73	3762445.77	Resident	0.61	2.26E-03	1.16E-02
182	366223.73	3762470.77	Resident	0.54	2.01E-03	1.07E-02
183	366223.73	3762495.77	Resident	0.49	1.80E-03	1.01E-02
184	366223.73	3762520.77	Worker	0.05	1.63E-03	9.49E-03
185	366223.73	3762545.77	Worker	0.05	1.47E-03	8.90E-03
186	366223.73	3762570.77	Resident	0.36	1.34E-03	8.31E-03
187	366248.73	3761920.77	Resident	1.08	3.72E-03	1.58E-02
188	366248.73	3761945.77	Resident	1.28	4.38E-03	1.69E-02
189	366248.73	3761970.77	Worker	0.18	5.22E-03	1.86E-02
190	366248.73	3761995.77	Worker	0.21	6.29E-03	2.40E-02
191	366248.73	3762020.77	Worker	0.26	7.67E-03	3.21E-02
192	366248.73	3762045.77	Worker	0.32	9.26E-03	3.90E-02
193	366248.73	3762070.77	Worker	0.38	1.11E-02	4.35E-02
194	366248.73	3762095.77	Worker	0.43	1.27E-02	5.00E-02
195	366248.73	3762120.77	Worker	0.46	1.38E-02	4.69E-02
196	366248.73	3762145.77	Worker	0.46	1.40E-02	4.40E-02
197	366248.73	3762170.77	Resident	3.77	1.33E-02	4.43E-02
198	366248.73	3762195.77	Resident	3.32	1.19E-02	5.29E-02
199	366248.73	3762220.77	Resident	2.82	1.03E-02	5.04E-02
200	366248.73	3762245.77	Resident	2.34	8.63E-03	3.58E-02
201	366248.73	3762270.77	Resident	1.94	7.20E-03	2.68E-02
202	366248.73	3762295.77	Worker	0.19	6.01E-03	2.28E-02
203	366248.73	3762395.77	Worker	0.10	3.15E-03	1.54E-02
204	366248.73	3762420.77	Resident	0.74	2.74E-03	1.40E-02
205	366248.73	3762445.77	Resident	0.65	2.41E-03	1.30E-02
206	366248.73	3762470.77	Resident	0.57	2.13E-03	1.21E-02
207	366248.73	3762495.77	Worker	0.06	1.90E-03	1.11E-02
208	366248.73	3762520.77	Resident	0.46	1.70E-03	1.02E-02
209	366248.73	3762545.77	Resident	0.41	1.53E-03	9.25E-03
210	366248.73	3762570.77	Resident	0.38	1.39E-03	8.35E-03
211	366273.73	3761920.77	Resident	1.15	3.99E-03	1.80E-02
212	366273.73	3761945.77	Resident	1.38	4.77E-03	2.06E-02
213	366273.73	3761970.77	Worker	0.19	5.80E-03	2.32E-02
214	366273.73	3761995.77	Worker	0.24	7.19E-03	2.54E-02
215	366273.73	3762020.77	Worker	0.31	9.09E-03	3.25E-02
216	366273.73	3762045.77	Worker	0.41	1.18E-02	4.58E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
217	366273.73	3762070.77	Worker	0.50	1.47E-02	5.51E-02
218	366273.73	3762095.77	Worker	0.61	1.80E-02	6.63E-02
219	366273.73	3762120.77	Worker	0.70	2.06E-02	6.86E-02
220	366273.73	3762145.77	Resident	6.24	2.12E-02	6.19E-02
221	366273.73	3762170.77	Resident	5.60	1.97E-02	6.67E-02
222	366273.73	3762195.77	Resident	4.70	1.68E-02	7.32E-02
223	366273.73	3762220.77	Worker	0.44	1.37E-02	5.57E-02
224	366273.73	3762245.77	Worker	0.35	1.09E-02	3.78E-02
225	366273.73	3762395.77	Resident	0.92	3.40E-03	1.76E-02
226	366273.73	3762420.77	Resident	0.79	2.93E-03	1.58E-02
227	366273.73	3762445.77	Worker	0.08	2.55E-03	1.41E-02
228	366273.73	3762470.77	Resident	0.61	2.24E-03	1.26E-02
229	366273.73	3762495.77	Resident	0.54	1.98E-03	1.12E-02
230	366273.73	3762520.77	Resident	0.48	1.77E-03	9.95E-03
231	366273.73	3762545.77	Worker	0.05	1.59E-03	8.83E-03
232	366273.73	3762570.77	Resident	0.39	1.44E-03	7.83E-03
233	366298.73	3761895.77	Resident	1.01	3.56E-03	1.53E-02
234	366298.73	3761920.77	Resident	1.21	4.24E-03	1.85E-02
235	366298.73	3761945.77	Worker	0.17	5.14E-03	2.23E-02
236	366298.73	3761970.77	Worker	0.21	6.38E-03	2.72E-02
237	366298.73	3761995.77	Worker	0.27	8.13E-03	3.28E-02
238	366298.73	3762020.77	Worker	0.36	1.07E-02	3.85E-02
239	366298.73	3762045.77	Worker	0.50	1.46E-02	4.67E-02
240	366298.73	3762070.77	Worker	0.69	2.01E-02	7.18E-02
241	366298.73	3762095.77	Worker	0.95	2.75E-02	9.18E-02
242	366298.73	3762120.77	Worker	1.21	3.49E-02	1.10E-01
243	366298.73	3762145.77	Resident	11.30	3.69E-02	9.89E-02
244	366298.73	3762170.77	Worker	1.07	3.23E-02	1.12E-01
245	366298.73	3762395.77	Worker	0.12	3.65E-03	1.85E-02
246	366298.73	3762420.77	Worker	0.10	3.11E-03	1.60E-02
247	366298.73	3762445.77	Resident	0.73	2.69E-03	1.39E-02
248	366298.73	3762470.77	Resident	0.64	2.34E-03	1.20E-02
249	366298.73	3762495.77	Resident	0.56	2.07E-03	1.04E-02
250	366298.73	3762520.77	Resident	0.50	1.84E-03	8.99E-03
251	366298.73	3762545.77	Resident	0.45	1.64E-03	7.99E-03
252	366298.73	3762570.77	Resident	0.41	1.48E-03	7.27E-03
253	366298.73	3762595.77	Worker	0.04	1.35E-03	6.75E-03
254	366323.73	3761895.77	Worker	0.12	3.71E-03	1.43E-02
255	366323.73	3761920.77	Worker	0.15	4.46E-03	1.69E-02
256	366323.73	3761945.77	Worker	0.18	5.48E-03	2.14E-02
257	366323.73	3761970.77	Worker	0.23	6.92E-03	2.76E-02
258	366323.73	3761995.77	Worker	0.30	8.99E-03	3.59E-02
259	366323.73	3762020.77	Worker	0.40	1.22E-02	4.70E-02
260	366323.73	3762045.77	Worker	0.59	1.75E-02	6.18E-02
261	366323.73	3762070.77	Worker	0.94	2.73E-02	8.12E-02
262	366323.73	3762095.77	Worker	1.64	4.63E-02	1.53E-01
263	366323.73	3762120.77	Worker	2.80	7.62E-02	2.32E-01
264	366323.73	3762395.77	Worker	0.12	3.87E-03	1.75E-02
265	366323.73	3762420.77	Resident	0.90	3.28E-03	1.44E-02
266	366323.73	3762445.77	Resident	0.77	2.82E-03	1.23E-02
267	366323.73	3762470.77	Worker	0.08	2.44E-03	1.08E-02
268	366323.73	3762495.77	Resident	0.59	2.14E-03	9.76E-03
269	366323.73	3762520.77	Resident	0.52	1.90E-03	8.86E-03
270	366323.73	3762545.77	Resident	0.47	1.70E-03	8.08E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
271	366323.73	3762570.77	Worker	0.05	1.52E-03	7.40E-03
272	366323.73	3762595.77	Resident	0.38	1.38E-03	6.80E-03
273	366348.73	3761895.77	Worker	0.13	3.83E-03	1.61E-02
274	366348.73	3761920.77	Worker	0.15	4.63E-03	1.87E-02
275	366348.73	3761945.77	Worker	0.19	5.74E-03	2.21E-02
276	366348.73	3761970.77	Worker	0.24	7.30E-03	2.66E-02
277	366348.73	3761995.77	Worker	0.32	9.63E-03	3.27E-02
278	366348.73	3762020.77	Worker	0.44	1.34E-02	4.50E-02
279	366348.73	3762045.77	Worker	0.67	2.02E-02	6.67E-02
280	366348.73	3762070.77	Worker	1.15	3.43E-02	1.05E-01
281	366348.73	3762095.77	Worker	2.49	7.14E-02	1.81E-01
282	366348.73	3762420.77	Resident	0.95	3.44E-03	1.38E-02
283	366348.73	3762445.77	Resident	0.81	2.93E-03	1.20E-02
284	366348.73	3762470.77	Resident	0.70	2.53E-03	1.08E-02
285	366348.73	3762495.77	Resident	0.61	2.21E-03	9.71E-03
286	366348.73	3762520.77	Worker	0.06	1.96E-03	8.78E-03
287	366348.73	3762545.77	Resident	0.48	1.74E-03	8.00E-03
288	366348.73	3762570.77	Resident	0.43	1.56E-03	7.36E-03
289	366348.73	3762595.77	Resident	0.39	1.41E-03	6.78E-03
290	366373.73	3761895.77	Worker	0.13	3.89E-03	1.53E-02
291	366373.73	3761920.77	Worker	0.16	4.72E-03	1.80E-02
292	366373.73	3761945.77	Worker	0.19	5.83E-03	2.14E-02
293	366373.73	3761970.77	Worker	0.24	7.43E-03	2.61E-02
294	366373.73	3761995.77	Worker	0.32	9.89E-03	3.28E-02
295	366373.73	3762020.77	Worker	0.45	1.39E-02	4.27E-02
296	366373.73	3762045.77	Worker	0.70	2.14E-02	5.89E-02
297	366373.73	3762070.77	Worker	1.23	3.76E-02	9.13E-02
298	366373.73	3762095.77	Worker	2.80	8.47E-02	1.73E-01
299	366373.73	3762420.77	Worker	0.11	3.58E-03	1.47E-02
300	366373.73	3762445.77	Resident	0.85	3.04E-03	1.31E-02
301	366373.73	3762470.77	Worker	0.08	2.62E-03	1.19E-02
302	366373.73	3762495.77	Worker	0.07	2.28E-03	1.08E-02
303	366373.73	3762520.77	Resident	0.56	2.01E-03	9.88E-03
304	366373.73	3762545.77	Resident	0.50	1.78E-03	9.03E-03
305	366373.73	3762570.77	Resident	0.44	1.60E-03	8.27E-03
306	366373.73	3762595.77	Resident	0.40	1.44E-03	7.59E-03
307	366398.73	3761920.77	Worker	0.15	4.65E-03	1.87E-02
308	366398.73	3761945.77	Worker	0.19	5.73E-03	2.25E-02
309	366398.73	3761970.77	Worker	0.24	7.28E-03	2.76E-02
310	366398.73	3761995.77	Worker	0.31	9.62E-03	3.50E-02
311	366398.73	3762020.77	Worker	0.43	1.34E-02	4.58E-02
312	366398.73	3762045.77	Worker	0.65	2.01E-02	6.12E-02
313	366398.73	3762070.77	Worker	1.09	3.37E-02	8.56E-02
314	366398.73	3762095.77	Worker	2.19	6.75E-02	1.44E-01
315	366398.73	3762120.77	Worker	5.82	1.76E-01	3.52E-01
316	366398.73	3762420.77	Worker	0.12	3.71E-03	1.58E-02
317	366398.73	3762445.77	Worker	0.10	3.14E-03	1.39E-02
318	366398.73	3762470.77	Resident	0.76	2.69E-03	1.27E-02
319	366398.73	3762495.77	Resident	0.66	2.34E-03	1.15E-02
320	366398.73	3762520.77	Resident	0.58	2.05E-03	1.04E-02
321	366398.73	3762545.77	Worker	0.06	1.82E-03	9.50E-03
322	366398.73	3762570.77	Resident	0.46	1.63E-03	8.73E-03
323	366398.73	3762595.77	Resident	0.41	1.46E-03	8.02E-03
324	366398.73	3762620.77	Resident	0.37	1.33E-03	7.40E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
325	366423.73	3761920.77	Worker	0.15	4.47E-03	1.84E-02
326	366423.73	3761945.77	Worker	0.18	5.46E-03	2.16E-02
327	366423.73	3761970.77	Worker	0.22	6.84E-03	2.55E-02
328	366423.73	3761995.77	Worker	0.29	8.85E-03	3.07E-02
329	366423.73	3762020.77	Worker	0.38	1.19E-02	3.89E-02
330	366423.73	3762045.77	Worker	0.54	1.69E-02	4.99E-02
331	366423.73	3762070.77	Worker	0.82	2.57E-02	7.29E-02
332	366423.73	3762095.77	Worker	1.35	4.19E-02	1.17E-01
333	366423.73	3762120.77	Worker	2.40	7.26E-02	1.50E-01
334	366423.73	3762445.77	Resident	0.93	3.24E-03	1.35E-02
335	366423.73	3762470.77	Resident	0.79	2.77E-03	1.24E-02
336	366423.73	3762495.77	Resident	0.68	2.40E-03	1.13E-02
337	366423.73	3762520.77	Resident	0.60	2.10E-03	1.04E-02
338	366423.73	3762545.77	Resident	0.53	1.86E-03	9.51E-03
339	366423.73	3762570.77	Resident	0.47	1.66E-03	8.73E-03
340	366423.73	3762595.77	Worker	0.05	1.49E-03	8.04E-03
341	366423.73	3762620.77	Resident	0.38	1.35E-03	7.48E-03
342	366448.73	3761945.77	Worker	0.16	5.05E-03	2.00E-02
343	366448.73	3761970.77	Worker	0.20	6.21E-03	2.35E-02
344	366448.73	3761995.77	Worker	0.25	7.82E-03	2.77E-02
345	366448.73	3762020.77	Worker	0.33	1.01E-02	3.46E-02
346	366448.73	3762045.77	Worker	0.43	1.35E-02	4.68E-02
347	366448.73	3762070.77	Worker	0.60	1.85E-02	6.24E-02
348	366448.73	3762095.77	Worker	0.84	2.60E-02	7.47E-02
349	366448.73	3762120.77	Worker	1.25	3.76E-02	8.71E-02
350	366448.73	3762145.77	Worker	2.05	5.90E-02	1.10E-01
351	366448.73	3762445.77	Resident	0.97	3.35E-03	1.33E-02
352	366448.73	3762470.77	Resident	0.82	2.85E-03	1.16E-02
353	366448.73	3762495.77	Resident	0.71	2.46E-03	1.01E-02
354	366448.73	3762520.77	Resident	0.62	2.15E-03	9.25E-03
355	366448.73	3762545.77	Worker	0.06	1.90E-03	8.61E-03
356	366448.73	3762570.77	Worker	0.05	1.69E-03	8.04E-03
357	366448.73	3762595.77	Resident	0.43	1.52E-03	7.52E-03
358	366448.73	3762620.77	Resident	0.39	1.37E-03	7.04E-03
359	366473.73	3761945.77	Worker	0.15	4.59E-03	1.83E-02
360	366473.73	3761970.77	Worker	0.18	5.52E-03	2.15E-02
361	366473.73	3761995.77	Worker	0.22	6.75E-03	2.58E-02
362	366473.73	3762020.77	Worker	0.27	8.39E-03	3.34E-02
363	366473.73	3762045.77	Worker	0.34	1.06E-02	4.17E-02
364	366473.73	3762070.77	Worker	0.43	1.35E-02	4.78E-02
365	366473.73	3762095.77	Worker	0.56	1.72E-02	5.45E-02
366	366473.73	3762120.77	Worker	0.75	2.26E-02	5.61E-02
367	366473.73	3762145.77	Worker	1.15	3.25E-02	6.78E-02
368	366473.73	3762445.77	Worker	0.11	3.48E-03	1.49E-02
369	366473.73	3762470.77	Resident	0.86	2.94E-03	1.26E-02
370	366473.73	3762495.77	Resident	0.74	2.53E-03	1.09E-02
371	366473.73	3762520.77	Worker	0.07	2.21E-03	9.71E-03
372	366473.73	3762545.77	Resident	0.56	1.94E-03	8.67E-03
373	366473.73	3762570.77	Resident	0.50	1.72E-03	7.75E-03
374	366473.73	3762595.77	Resident	0.44	1.54E-03	6.95E-03
375	366473.73	3762620.77	Resident	0.40	1.39E-03	6.33E-03
376	366473.73	3762645.77	Resident	0.36	1.26E-03	5.94E-03
377	366498.73	3761970.77	Worker	0.16	4.85E-03	2.02E-02
378	366498.73	3761995.77	Worker	0.19	5.76E-03	2.54E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
379	366498.73	3762020.77	Worker	0.22	6.91E-03	3.05E-02
380	366498.73	3762045.77	Worker	0.27	8.36E-03	3.36E-02
381	366498.73	3762070.77	Worker	0.33	1.01E-02	3.56E-02
382	366498.73	3762095.77	Worker	0.40	1.21E-02	4.08E-02
383	366498.73	3762120.77	Worker	0.50	1.50E-02	4.21E-02
384	366498.73	3762145.77	Worker	0.69	1.99E-02	4.76E-02
385	366498.73	3762170.77	Worker	1.01	2.73E-02	6.35E-02
386	366498.73	3762445.77	Worker	0.12	3.61E-03	1.60E-02
387	366498.73	3762470.77	Worker	0.10	3.05E-03	1.40E-02
388	366498.73	3762495.77	Resident	0.77	2.61E-03	1.21E-02
389	366498.73	3762520.77	Resident	0.66	2.26E-03	1.05E-02
390	366498.73	3762545.77	Resident	0.58	1.99E-03	9.07E-03
391	366498.73	3762570.77	Worker	0.06	1.76E-03	8.13E-03
392	366498.73	3762595.77	Resident	0.46	1.57E-03	7.39E-03
393	366498.73	3762620.77	Resident	0.41	1.41E-03	6.75E-03
394	366498.73	3762645.77	Resident	0.37	1.28E-03	6.16E-03
395	366523.73	3761970.77	Worker	0.14	4.24E-03	2.00E-02
396	366523.73	3761995.77	Worker	0.16	4.93E-03	2.32E-02
397	366523.73	3762020.77	Worker	0.19	5.73E-03	2.53E-02
398	366523.73	3762045.77	Worker	0.22	6.67E-03	2.70E-02
399	366523.73	3762070.77	Worker	0.25	7.76E-03	3.02E-02
400	366523.73	3762095.77	Worker	0.30	9.00E-03	3.02E-02
401	366523.73	3762120.77	Worker	0.36	1.07E-02	3.32E-02
402	366523.73	3762145.77	Worker	0.46	1.34E-02	3.68E-02
403	366523.73	3762170.77	Worker	0.66	1.79E-02	4.70E-02
404	366523.73	3762195.77	Worker	0.82	2.19E-02	5.03E-02
405	366523.73	3762445.77	Worker	0.13	3.74E-03	1.49E-02
406	366523.73	3762470.77	Resident	0.94	3.15E-03	1.38E-02
407	366523.73	3762495.77	Resident	0.80	2.69E-03	1.27E-02
408	366523.73	3762520.77	Resident	0.69	2.33E-03	1.14E-02
409	366523.73	3762545.77	Resident	0.60	2.04E-03	1.01E-02
410	366523.73	3762570.77	Resident	0.53	1.80E-03	8.87E-03
411	366523.73	3762595.77	Resident	0.47	1.60E-03	7.78E-03
412	366523.73	3762620.77	Worker	0.05	1.44E-03	6.91E-03
413	366523.73	3762645.77	Worker	0.04	1.30E-03	6.33E-03
414	366548.73	3761995.77	Worker	0.14	4.22E-03	1.96E-02
415	366548.73	3762020.77	Worker	0.16	4.79E-03	2.13E-02
416	366548.73	3762045.77	Worker	0.18	5.43E-03	2.23E-02
417	366548.73	3762070.77	Worker	0.20	6.14E-03	2.47E-02
418	366548.73	3762095.77	Worker	0.23	6.97E-03	2.39E-02
419	366548.73	3762120.77	Worker	0.27	7.99E-03	2.71E-02
420	366548.73	3762145.77	Worker	0.33	9.66E-03	3.05E-02
421	366548.73	3762170.77	Worker	0.44	1.23E-02	3.46E-02
422	366548.73	3762195.77	Worker	0.65	1.63E-02	4.33E-02
423	366548.73	3762370.77	Worker	0.24	6.99E-03	1.70E-02
424	366548.73	3762395.77	Worker	0.19	5.66E-03	1.49E-02
425	366548.73	3762420.77	Worker	0.16	4.64E-03	1.28E-02
426	366548.73	3762445.77	Worker	0.13	3.85E-03	1.26E-02
427	366548.73	3762470.77	Worker	0.11	3.25E-03	1.22E-02
428	366548.73	3762495.77	Worker	0.09	2.77E-03	1.18E-02
429	366548.73	3762520.77	Resident	0.72	2.39E-03	1.11E-02
430	366548.73	3762545.77	Resident	0.62	2.09E-03	1.03E-02
431	366548.73	3762570.77	Resident	0.55	1.84E-03	9.40E-03
432	366548.73	3762595.77	Worker	0.05	1.64E-03	8.49E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
433	366548.73	3762620.77	Worker	0.05	1.47E-03	7.61E-03
434	366548.73	3762645.77	Worker	0.04	1.32E-03	6.82E-03
435	366573.73	3762020.77	Worker	0.13	4.06E-03	1.71E-02
436	366573.73	3762045.77	Worker	0.15	4.50E-03	1.96E-02
437	366573.73	3762070.77	Worker	0.16	4.98E-03	2.00E-02
438	366573.73	3762095.77	Worker	0.18	5.53E-03	1.99E-02
439	366573.73	3762120.77	Worker	0.21	6.25E-03	2.25E-02
440	366573.73	3762145.77	Worker	0.26	7.35E-03	2.54E-02
441	366573.73	3762170.77	Worker	0.32	9.01E-03	2.65E-02
442	366573.73	3762195.77	Worker	0.44	1.14E-02	3.51E-02
443	366573.73	3762220.77	Worker	0.58	1.42E-02	3.54E-02
444	366573.73	3762320.77	Worker	0.35	1.01E-02	1.94E-02
445	366573.73	3762345.77	Worker	0.29	8.43E-03	1.86E-02
446	366573.73	3762370.77	Worker	0.24	6.95E-03	1.61E-02
447	366573.73	3762395.77	Worker	0.19	5.71E-03	1.42E-02
448	366573.73	3762420.77	Worker	0.16	4.73E-03	1.27E-02
449	366573.73	3762445.77	Worker	0.13	3.95E-03	1.12E-02
450	366573.73	3762470.77	Worker	0.11	3.33E-03	1.04E-02
451	366573.73	3762495.77	Resident	0.87	2.84E-03	1.02E-02
452	366573.73	3762520.77	Resident	0.74	2.46E-03	9.79E-03
453	366573.73	3762545.77	Worker	0.07	2.14E-03	9.50E-03
454	366573.73	3762570.77	Worker	0.06	1.89E-03	9.05E-03
455	366573.73	3762595.77	Worker	0.06	1.67E-03	8.54E-03
456	366573.73	3762620.77	Worker	0.05	1.50E-03	7.94E-03
457	366598.73	3762020.77	Worker	0.11	3.47E-03	1.53E-02
458	366598.73	3762045.77	Worker	0.12	3.79E-03	1.68E-02
459	366598.73	3762070.77	Worker	0.14	4.12E-03	1.63E-02
460	366598.73	3762095.77	Worker	0.15	4.51E-03	1.68E-02
461	366598.73	3762120.77	Worker	0.17	5.04E-03	1.91E-02
462	366598.73	3762145.77	Worker	0.20	5.79E-03	2.15E-02
463	366598.73	3762170.77	Worker	0.25	6.87E-03	2.19E-02
464	366598.73	3762195.77	Worker	0.31	8.37E-03	2.72E-02
465	366598.73	3762220.77	Worker	0.47	1.11E-02	3.05E-02
466	366598.73	3762245.77	Worker	0.44	1.13E-02	2.52E-02
467	366598.73	3762270.77	Worker	0.39	1.09E-02	2.58E-02
468	366598.73	3762295.77	Worker	0.36	1.03E-02	2.37E-02
469	366598.73	3762320.77	Worker	0.32	9.23E-03	1.94E-02
470	366598.73	3762345.77	Worker	0.28	8.00E-03	1.60E-02
471	366598.73	3762370.77	Worker	0.23	6.78E-03	1.57E-02
472	366598.73	3762395.77	Worker	0.20	5.68E-03	1.38E-02
473	366598.73	3762420.77	Worker	0.16	4.76E-03	1.20E-02
474	366598.73	3762445.77	Worker	0.14	4.01E-03	1.10E-02
475	366598.73	3762470.77	Worker	0.12	3.40E-03	9.92E-03
476	366598.73	3762495.77	Worker	0.10	2.91E-03	8.81E-03
477	366598.73	3762520.77	Worker	0.08	2.51E-03	8.62E-03
478	366598.73	3762545.77	Worker	0.07	2.19E-03	8.47E-03
479	366598.73	3762570.77	Worker	0.06	1.92E-03	8.16E-03
480	366598.73	3762595.77	Worker	0.06	1.71E-03	7.90E-03
481	366598.73	3762620.77	Worker	0.05	1.53E-03	7.58E-03
482	366623.73	3762045.77	Worker	0.11	3.23E-03	1.43E-02
483	366623.73	3762070.77	Worker	0.12	3.48E-03	1.41E-02
484	366623.73	3762095.77	Worker	0.13	3.77E-03	1.47E-02
485	366623.73	3762120.77	Worker	0.14	4.14E-03	1.65E-02
486	366623.73	3762145.77	Worker	0.16	4.67E-03	1.88E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
487	366623.73	3762170.77	Worker	0.19	5.43E-03	1.87E-02
488	366623.73	3762195.77	Worker	0.24	6.47E-03	2.16E-02
489	366623.73	3762220.77	Worker	0.32	7.90E-03	2.50E-02
490	366623.73	3762245.77	Worker	0.45	1.02E-02	2.53E-02
491	366623.73	3762270.77	Worker	0.35	9.27E-03	2.21E-02
492	366623.73	3762295.77	Worker	0.32	8.90E-03	2.19E-02
493	366623.73	3762320.77	Worker	0.29	8.29E-03	1.92E-02
494	366623.73	3762345.77	Worker	0.26	7.44E-03	1.59E-02
495	366623.73	3762370.77	Worker	0.23	6.49E-03	1.36E-02
496	366623.73	3762395.77	Worker	0.19	5.57E-03	1.34E-02
497	366623.73	3762420.77	Worker	0.16	4.74E-03	1.20E-02
498	366623.73	3762445.77	Worker	0.14	4.03E-03	1.02E-02
499	366623.73	3762470.77	Worker	0.12	3.44E-03	9.63E-03
500	366623.73	3762495.77	Worker	0.10	2.96E-03	8.77E-03
501	366623.73	3762520.77	Worker	0.09	2.56E-03	7.85E-03
502	366623.73	3762545.77	Worker	0.08	2.23E-03	7.40E-03
503	366623.73	3762570.77	Worker	0.07	1.96E-03	7.33E-03
504	366623.73	3762595.77	Worker	0.06	1.74E-03	7.17E-03
505	366648.73	3762045.77	Worker	0.09	2.79E-03	1.20E-02
506	366648.73	3762070.77	Worker	0.10	2.98E-03	1.24E-02
507	366648.73	3762095.77	Worker	0.11	3.20E-03	1.31E-02
508	366648.73	3762120.77	Worker	0.12	3.48E-03	1.45E-02
509	366648.73	3762145.77	Worker	0.14	3.87E-03	1.64E-02
510	366648.73	3762170.77	Worker	0.16	4.41E-03	1.61E-02
511	366648.73	3762195.77	Worker	0.19	5.16E-03	1.74E-02
512	366648.73	3762220.77	Worker	0.24	6.12E-03	2.09E-02
513	366648.73	3762245.77	Worker	0.36	8.00E-03	2.26E-02
514	366648.73	3762270.77	Worker	0.37	8.60E-03	1.98E-02
515	366648.73	3762295.77	Worker	0.29	7.75E-03	1.95E-02
516	366648.73	3762320.77	Worker	0.27	7.38E-03	1.84E-02
517	366648.73	3762345.77	Worker	0.24	6.82E-03	1.57E-02
518	366648.73	3762370.77	Worker	0.21	6.12E-03	1.33E-02
519	366648.73	3762395.77	Worker	0.19	5.38E-03	1.18E-02
520	366648.73	3762420.77	Worker	0.16	4.66E-03	1.17E-02
521	366648.73	3762445.77	Worker	0.14	4.02E-03	1.06E-02
522	366648.73	3762470.77	Worker	0.12	3.46E-03	8.96E-03
523	366648.73	3762495.77	Worker	0.10	2.99E-03	8.44E-03
524	366648.73	3762520.77	Worker	0.09	2.60E-03	7.79E-03
525	366648.73	3762545.77	Worker	0.08	2.27E-03	7.13E-03
526	366648.73	3762570.77	Worker	0.07	2.00E-03	6.62E-03
527	366648.73	3762595.77	Worker	0.06	1.77E-03	6.31E-03
528	366673.73	3762070.77	Worker	0.09	2.58E-03	1.09E-02
529	366673.73	3762095.77	Worker	0.09	2.75E-03	1.17E-02
530	366673.73	3762120.77	Worker	0.10	2.96E-03	1.28E-02
531	366673.73	3762145.77	Worker	0.11	3.25E-03	1.45E-02
532	366673.73	3762170.77	Worker	0.13	3.66E-03	1.42E-02
533	366673.73	3762195.77	Worker	0.15	4.21E-03	1.44E-02
534	366673.73	3762220.77	Worker	0.19	4.91E-03	1.76E-02
535	366673.73	3762245.77	Worker	0.24	5.84E-03	1.89E-02
536	366673.73	3762270.77	Worker	0.37	7.83E-03	1.94E-02
537	366673.73	3762295.77	Worker	0.28	6.96E-03	1.72E-02
538	366673.73	3762320.77	Worker	0.24	6.55E-03	1.70E-02
539	366673.73	3762345.77	Worker	0.22	6.19E-03	1.56E-02
540	366673.73	3762370.77	Worker	0.20	5.70E-03	1.32E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
541	366673.73	3762395.77	Worker	0.18	5.13E-03	1.13E-02
542	366673.73	3762420.77	Worker	0.16	4.53E-03	1.03E-02
543	366673.73	3762445.77	Worker	0.14	3.96E-03	1.02E-02
544	366673.73	3762470.77	Worker	0.12	3.45E-03	9.38E-03
545	366673.73	3762495.77	Worker	0.10	3.00E-03	8.05E-03
546	366673.73	3762520.77	Worker	0.09	2.62E-03	7.45E-03
547	366673.73	3762545.77	Worker	0.08	2.30E-03	7.01E-03
548	366673.73	3762570.77	Worker	0.07	2.03E-03	6.47E-03
549	366698.73	3762070.77	Worker	0.08	2.26E-03	9.70E-03
550	366698.73	3762095.77	Worker	0.08	2.39E-03	1.06E-02
551	366698.73	3762120.77	Worker	0.09	2.56E-03	1.15E-02
552	366698.73	3762145.77	Worker	0.10	2.78E-03	1.29E-02
553	366698.73	3762170.77	Worker	0.11	3.09E-03	1.27E-02
554	366698.73	3762195.77	Worker	0.13	3.51E-03	1.25E-02
555	366698.73	3762220.77	Worker	0.15	4.04E-03	1.48E-02
556	366698.73	3762245.77	Worker	0.19	4.69E-03	1.65E-02
557	366698.73	3762270.77	Worker	0.27	5.84E-03	1.73E-02
558	366698.73	3762295.77	Worker	0.33	7.08E-03	1.64E-02
559	366698.73	3762320.77	Worker	0.23	5.90E-03	1.54E-02
560	366698.73	3762345.77	Worker	0.21	5.60E-03	1.49E-02
561	366698.73	3762370.77	Worker	0.19	5.26E-03	1.33E-02
562	366698.73	3762395.77	Worker	0.17	4.83E-03	1.13E-02
563	366698.73	3762420.77	Worker	0.15	4.35E-03	9.87E-03
564	366698.73	3762445.77	Worker	0.14	3.87E-03	9.15E-03
565	366698.73	3762470.77	Worker	0.12	3.41E-03	9.09E-03
566	366698.73	3762495.77	Worker	0.10	3.00E-03	8.40E-03
567	366698.73	3762520.77	Worker	0.09	2.63E-03	7.30E-03
568	366723.73	3762095.77	Worker	0.07	2.10E-03	9.60E-03
569	366723.73	3762120.77	Worker	0.08	2.24E-03	1.04E-02
570	366723.73	3762145.77	Worker	0.08	2.41E-03	1.16E-02
571	366723.73	3762170.77	Worker	0.09	2.65E-03	1.15E-02
572	366723.73	3762195.77	Worker	0.11	2.97E-03	1.12E-02
573	366723.73	3762220.77	Worker	0.13	3.38E-03	1.25E-02
574	366723.73	3762245.77	Worker	0.15	3.87E-03	1.44E-02
575	366723.73	3762270.77	Worker	0.19	4.51E-03	1.48E-02
576	366723.73	3762295.77	Worker	0.31	6.26E-03	1.56E-02
577	366723.73	3762320.77	Worker	0.24	5.63E-03	1.42E-02
578	366723.73	3762345.77	Worker	0.20	5.09E-03	1.38E-02
579	366723.73	3762370.77	Worker	0.18	4.82E-03	1.30E-02
580	366723.73	3762395.77	Worker	0.16	4.51E-03	1.13E-02
581	366723.73	3762420.77	Worker	0.15	4.14E-03	9.85E-03
582	366723.73	3762445.77	Worker	0.13	3.74E-03	8.67E-03
583	366748.73	3762120.77	Worker	0.07	1.98E-03	9.41E-03
584	366748.73	3762145.77	Worker	0.07	2.11E-03	1.05E-02
585	366748.73	3762170.77	Worker	0.08	2.30E-03	1.04E-02
586	366748.73	3762195.77	Worker	0.09	2.55E-03	1.01E-02
587	366748.73	3762220.77	Worker	0.11	2.87E-03	1.07E-02
588	366748.73	3762245.77	Worker	0.13	3.25E-03	1.25E-02
589	366748.73	3762270.77	Worker	0.15	3.71E-03	1.33E-02
590	366748.73	3762295.77	Worker	0.21	4.48E-03	1.35E-02
591	366748.73	3762320.77	Worker	0.30	5.97E-03	1.42E-02
592	366748.73	3762345.77	Worker	0.20	4.75E-03	1.27E-02
593	366748.73	3762370.77	Worker	0.17	4.43E-03	1.24E-02
594	366748.73	3762395.77	Worker	0.15	4.19E-03	1.13E-02

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
595	366773.73	3762145.77	Worker	0.07	1.87E-03	9.57E-03
596	366773.73	3762170.77	Worker	0.07	2.02E-03	9.55E-03
597	366773.73	3762195.77	Worker	0.08	2.21E-03	9.15E-03
598	366773.73	3762220.77	Worker	0.09	2.47E-03	9.31E-03
599	366773.73	3762245.77	Worker	0.11	2.77E-03	1.09E-02
600	366773.73	3762270.77	Worker	0.13	3.13E-03	1.20E-02
601	366773.73	3762295.77	Worker	0.16	3.60E-03	1.20E-02
602	366773.73	3762320.77	Worker	0.27	5.12E-03	1.30E-02
603	366798.73	3762245.77	Worker	0.09	2.39E-03	9.51E-03
604	365848.73	3762245.77	Resident	0.27	9.98E-04	5.23E-03
605	365848.73	3762295.77	Worker	0.03	9.57E-04	5.02E-03
606	365848.73	3762345.77	Resident	0.25	9.09E-04	4.92E-03
607	365848.73	3762395.77	Worker	0.03	8.66E-04	5.92E-03
608	365848.73	3762445.77	Worker	0.03	9.38E-04	6.33E-03
609	365848.73	3762495.77	Resident	0.20	7.36E-04	4.82E-03
610	365898.73	3762145.77	Resident	0.35	1.24E-03	5.36E-03
611	365898.73	3762195.77	Resident	0.34	1.22E-03	5.88E-03
612	365898.73	3762245.77	Worker	0.04	1.18E-03	6.06E-03
613	365898.73	3762295.77	Resident	0.31	1.13E-03	5.63E-03
614	365898.73	3762345.77	Worker	0.03	1.06E-03	6.24E-03
615	365898.73	3762395.77	Worker	0.04	1.07E-03	7.51E-03
616	365898.73	3762445.77	Worker	0.03	9.57E-04	6.37E-03
617	365898.73	3762495.77	Worker	0.03	8.34E-04	4.54E-03
618	365898.73	3762545.77	Resident	0.20	7.49E-04	3.84E-03
619	365948.73	3761995.77	Resident	0.41	1.42E-03	8.04E-03
620	365948.73	3762045.77	Worker	0.05	1.48E-03	7.01E-03
621	365948.73	3762095.77	Resident	0.43	1.51E-03	6.71E-03
622	365948.73	3762145.77	Resident	0.42	1.51E-03	6.42E-03
623	365948.73	3762195.77	Resident	0.41	1.48E-03	6.96E-03
624	365948.73	3762245.77	Resident	0.39	1.42E-03	7.08E-03
625	365948.73	3762295.77	Resident	0.37	1.34E-03	6.73E-03
626	365948.73	3762345.77	Worker	0.04	1.26E-03	8.26E-03
627	365948.73	3762395.77	Worker	0.04	1.27E-03	8.40E-03
628	365948.73	3762445.77	Worker	0.03	1.06E-03	5.95E-03
629	365948.73	3762495.77	Worker	0.03	9.37E-04	4.67E-03
630	365948.73	3762545.77	Resident	0.23	8.36E-04	4.31E-03
631	365948.73	3762595.77	Worker	0.02	7.50E-04	3.91E-03
632	365948.73	3762645.77	Resident	0.18	6.75E-04	3.62E-03
633	365998.73	3761895.77	Worker	0.05	1.47E-03	6.76E-03
634	365998.73	3761945.77	Worker	0.05	1.60E-03	8.11E-03
635	365998.73	3761995.77	Resident	0.51	1.74E-03	9.32E-03
636	365998.73	3762045.77	Worker	0.06	1.83E-03	9.13E-03
637	365998.73	3762095.77	Resident	0.54	1.89E-03	8.24E-03
638	365998.73	3762145.77	Resident	0.53	1.89E-03	7.85E-03
639	365998.73	3762195.77	Worker	0.06	1.84E-03	8.37E-03
640	365998.73	3762245.77	Resident	0.48	1.75E-03	8.30E-03
641	365998.73	3762295.77	Worker	0.05	1.63E-03	8.93E-03
642	365998.73	3762345.77	Worker	0.06	1.63E-03	1.07E-02
643	365998.73	3762395.77	Resident	0.39	1.37E-03	8.39E-03
644	365998.73	3762445.77	Resident	0.33	1.20E-03	5.88E-03
645	365998.73	3762495.77	Worker	0.03	1.06E-03	5.17E-03
646	365998.73	3762545.77	Worker	0.03	9.33E-04	4.65E-03
647	365998.73	3762595.77	Resident	0.22	8.27E-04	4.23E-03
648	365998.73	3762645.77	Resident	0.20	7.37E-04	3.77E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
649	365998.73	3762695.77	Worker	0.02	6.59E-04	3.59E-03
650	366048.73	3761845.77	Worker	0.05	1.49E-03	8.29E-03
651	366048.73	3761895.77	Worker	0.06	1.74E-03	9.43E-03
652	366048.73	3761945.77	Resident	0.58	1.95E-03	9.02E-03
653	366048.73	3761995.77	Resident	0.64	2.16E-03	1.11E-02
654	366048.73	3762045.77	Resident	0.68	2.33E-03	1.19E-02
655	366048.73	3762095.77	Resident	0.69	2.43E-03	1.04E-02
656	366048.73	3762145.77	Resident	0.69	2.44E-03	9.88E-03
657	366048.73	3762195.77	Resident	0.66	2.37E-03	1.04E-02
658	366048.73	3762245.77	Worker	0.07	2.22E-03	9.90E-03
659	366048.73	3762495.77	Resident	0.32	1.19E-03	5.67E-03
660	366048.73	3762545.77	Resident	0.28	1.04E-03	5.06E-03
661	366048.73	3762595.77	Worker	0.03	9.11E-04	4.52E-03
662	366048.73	3762645.77	Worker	0.03	8.02E-04	4.58E-03
663	366048.73	3762695.77	Resident	0.19	7.10E-04	4.47E-03
664	366098.73	3761795.77	Resident	0.43	1.44E-03	6.27E-03
665	366098.73	3761845.77	Worker	0.06	1.70E-03	7.74E-03
666	366098.73	3761895.77	Worker	0.07	2.02E-03	1.10E-02
667	366098.73	3761945.77	Worker	0.08	2.43E-03	1.18E-02
668	366098.73	3761995.77	Worker	0.09	2.75E-03	1.31E-02
669	366098.73	3762045.77	Resident	0.90	3.06E-03	1.55E-02
670	366098.73	3762095.77	Worker	0.11	3.26E-03	1.35E-02
671	366098.73	3762145.77	Resident	0.93	3.29E-03	1.29E-02
672	366098.73	3762545.77	Worker	0.04	1.16E-03	5.98E-03
673	366098.73	3762595.77	Worker	0.03	9.99E-04	5.93E-03
674	366098.73	3762645.77	Resident	0.23	8.69E-04	5.35E-03
675	366098.73	3762695.77	Resident	0.20	7.63E-04	4.45E-03
676	366098.73	3762745.77	Worker	0.02	6.74E-04	3.94E-03
677	366148.73	3761745.77	Resident	0.39	1.33E-03	6.10E-03
678	366148.73	3761795.77	Resident	0.47	1.60E-03	6.66E-03
679	366148.73	3761845.77	Worker	0.07	1.94E-03	8.02E-03
680	366148.73	3761895.77	Resident	0.71	2.38E-03	1.05E-02
681	366148.73	3761945.77	Worker	0.10	2.95E-03	1.54E-02
682	366148.73	3761995.77	Resident	1.08	3.59E-03	1.53E-02
683	366148.73	3762595.77	Resident	0.29	1.09E-03	6.15E-03
684	366148.73	3762645.77	Worker	0.03	9.38E-04	5.44E-03
685	366148.73	3762695.77	Resident	0.22	8.15E-04	5.10E-03
686	366148.73	3762745.77	Resident	0.19	7.15E-04	4.75E-03
687	366198.73	3761745.77	Resident	0.41	1.43E-03	7.15E-03
688	366198.73	3761795.77	Worker	0.06	1.75E-03	8.29E-03
689	366198.73	3761845.77	Resident	0.64	2.18E-03	9.31E-03
690	366198.73	3761895.77	Resident	0.82	2.78E-03	1.08E-02
691	366198.73	3761945.77	Worker	0.12	3.61E-03	1.50E-02
692	366198.73	3762595.77	Resident	0.32	1.18E-03	7.26E-03
693	366198.73	3762645.77	Worker	0.03	1.00E-03	6.51E-03
694	366198.73	3762695.77	Resident	0.23	8.64E-04	5.70E-03
695	366198.73	3762745.77	Resident	0.20	7.53E-04	4.88E-03
696	366248.73	3761745.77	Resident	0.44	1.53E-03	6.96E-03
697	366248.73	3761795.77	Resident	0.54	1.89E-03	8.85E-03
698	366248.73	3761845.77	Worker	0.08	2.42E-03	1.15E-02
699	366248.73	3761895.77	Resident	0.92	3.19E-03	1.44E-02
700	366248.73	3762595.77	Resident	0.34	1.27E-03	7.51E-03
701	366248.73	3762645.77	Resident	0.29	1.07E-03	6.13E-03
702	366248.73	3762695.77	Worker	0.03	9.11E-04	5.01E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
703	366248.73	3762745.77	Resident	0.21	7.87E-04	4.24E-03
704	366298.73	3761695.77	Resident	0.37	1.32E-03	6.15E-03
705	366298.73	3761745.77	Resident	0.45	1.61E-03	7.19E-03
706	366298.73	3761795.77	Worker	0.07	2.02E-03	8.59E-03
707	366298.73	3761845.77	Resident	0.74	2.62E-03	1.07E-02
708	366298.73	3762645.77	Resident	0.31	1.12E-03	5.85E-03
709	366298.73	3762695.77	Resident	0.26	9.51E-04	5.12E-03
710	366298.73	3762745.77	Resident	0.22	8.19E-04	4.53E-03
711	366298.73	3762795.77	Worker	0.02	7.13E-04	4.05E-03
712	366348.73	3761695.77	Worker	0.04	1.35E-03	6.57E-03
713	366348.73	3761745.77	Resident	0.47	1.66E-03	7.91E-03
714	366348.73	3761795.77	Worker	0.07	2.10E-03	9.72E-03
715	366348.73	3761845.77	Resident	0.78	2.76E-03	1.23E-02
716	366348.73	3762645.77	Resident	0.32	1.17E-03	5.84E-03
717	366348.73	3762695.77	Resident	0.27	9.86E-04	5.09E-03
718	366348.73	3762745.77	Worker	0.03	8.45E-04	4.50E-03
719	366348.73	3762795.77	Resident	0.20	7.34E-04	4.02E-03
720	366398.73	3761695.77	Resident	0.38	1.36E-03	6.57E-03
721	366398.73	3761745.77	Resident	0.47	1.67E-03	7.77E-03
722	366398.73	3761795.77	Worker	0.07	2.11E-03	9.43E-03
723	366398.73	3761845.77	Worker	0.09	2.78E-03	1.19E-02
724	366398.73	3761895.77	Worker	0.13	3.87E-03	1.58E-02
725	366398.73	3762645.77	Worker	0.04	1.21E-03	6.91E-03
726	366398.73	3762695.77	Resident	0.28	1.01E-03	6.04E-03
727	366398.73	3762745.77	Resident	0.24	8.67E-04	5.34E-03
728	366398.73	3762795.77	Worker	0.02	7.51E-04	4.73E-03
729	366448.73	3761745.77	Worker	0.05	1.62E-03	7.76E-03
730	366448.73	3761795.77	Worker	0.07	2.04E-03	9.40E-03
731	366448.73	3761845.77	Worker	0.09	2.65E-03	1.15E-02
732	366448.73	3761895.77	Worker	0.12	3.54E-03	1.46E-02
733	366448.73	3762645.77	Resident	0.35	1.24E-03	6.62E-03
734	366448.73	3762695.77	Resident	0.29	1.04E-03	5.89E-03
735	366448.73	3762745.77	Worker	0.03	8.86E-04	5.25E-03
736	366448.73	3762795.77	Worker	0.02	7.65E-04	4.71E-03
737	366448.73	3762845.77	Resident	0.19	6.69E-04	4.24E-03
738	366498.73	3761745.77	Worker	0.05	1.55E-03	7.33E-03
739	366498.73	3761795.77	Worker	0.06	1.89E-03	8.98E-03
740	366498.73	3761845.77	Worker	0.08	2.36E-03	1.10E-02
741	366498.73	3761895.77	Worker	0.10	3.06E-03	1.32E-02
742	366498.73	3761945.77	Worker	0.13	4.12E-03	1.73E-02
743	366498.73	3762695.77	Worker	0.03	1.07E-03	5.14E-03
744	366498.73	3762745.77	Worker	0.03	9.04E-04	4.46E-03
745	366498.73	3762795.77	Worker	0.03	7.79E-04	4.02E-03
746	366498.73	3762845.77	Worker	0.02	6.80E-04	3.65E-03
747	366548.73	3761795.77	Worker	0.05	1.68E-03	8.08E-03
748	366548.73	3761845.77	Worker	0.07	2.05E-03	9.78E-03
749	366548.73	3761895.77	Worker	0.08	2.56E-03	1.18E-02
750	366548.73	3761945.77	Worker	0.11	3.27E-03	1.63E-02
751	366548.73	3762695.77	Worker	0.04	1.10E-03	5.51E-03
752	366548.73	3762745.77	Worker	0.03	9.25E-04	4.81E-03
753	366548.73	3762795.77	Worker	0.03	7.94E-04	4.22E-03
754	366548.73	3762845.77	Worker	0.02	6.91E-04	3.68E-03
755	366598.73	3761795.77	Worker	0.05	1.48E-03	7.64E-03
756	366598.73	3761845.77	Worker	0.06	1.77E-03	8.82E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
757	366598.73	3761895.77	Worker	0.07	2.13E-03	1.15E-02
758	366598.73	3761945.77	Worker	0.08	2.59E-03	1.33E-02
759	366598.73	3761995.77	Worker	0.10	3.15E-03	1.44E-02
760	366598.73	3762645.77	Worker	0.05	1.37E-03	7.24E-03
761	366598.73	3762695.77	Worker	0.04	1.13E-03	6.34E-03
762	366598.73	3762745.77	Worker	0.03	9.50E-04	5.33E-03
763	366598.73	3762795.77	Worker	0.03	8.12E-04	4.44E-03
764	366648.73	3761845.77	Worker	0.05	1.52E-03	8.69E-03
765	366648.73	3761895.77	Worker	0.06	1.77E-03	9.73E-03
766	366648.73	3761945.77	Worker	0.07	2.08E-03	1.06E-02
767	366648.73	3761995.77	Worker	0.08	2.42E-03	1.13E-02
768	366648.73	3762645.77	Worker	0.05	1.42E-03	6.16E-03
769	366648.73	3762695.77	Worker	0.04	1.17E-03	5.71E-03
770	366648.73	3762745.77	Worker	0.03	9.77E-04	5.40E-03
771	366648.73	3762795.77	Worker	0.03	8.32E-04	4.91E-03
772	366698.73	3761845.77	Worker	0.04	1.30E-03	7.53E-03
773	366698.73	3761895.77	Worker	0.05	1.49E-03	8.07E-03
774	366698.73	3761945.77	Worker	0.06	1.70E-03	7.99E-03
775	366698.73	3761995.77	Worker	0.06	1.91E-03	9.47E-03
776	366698.73	3762045.77	Worker	0.07	2.14E-03	9.50E-03
777	366698.73	3762545.77	Worker	0.08	2.32E-03	6.63E-03
778	366698.73	3762595.77	Worker	0.06	1.82E-03	5.88E-03
779	366698.73	3762645.77	Worker	0.05	1.46E-03	5.23E-03
780	366698.73	3762695.77	Worker	0.04	1.20E-03	5.05E-03
781	366698.73	3762745.77	Worker	0.03	1.00E-03	4.87E-03
782	366698.73	3762795.77	Worker	0.03	8.51E-04	4.44E-03
783	366748.73	3761895.77	Worker	0.04	1.26E-03	6.39E-03
784	366748.73	3761945.77	Worker	0.05	1.40E-03	7.02E-03
785	366748.73	3761995.77	Worker	0.05	1.55E-03	7.53E-03
786	366748.73	3762045.77	Worker	0.06	1.70E-03	7.84E-03
787	366748.73	3762095.77	Worker	0.06	1.86E-03	8.77E-03
788	366748.73	3762445.77	Worker	0.13	3.59E-03	8.62E-03
789	366748.73	3762495.77	Resident	0.94	2.92E-03	7.36E-03
790	366748.73	3762545.77	Resident	0.74	2.33E-03	6.88E-03
791	366748.73	3762595.77	Resident	0.59	1.86E-03	5.42E-03
792	366748.73	3762645.77	Worker	0.05	1.50E-03	4.95E-03
793	366748.73	3762695.77	Worker	0.04	1.23E-03	4.49E-03
794	366748.73	3762745.77	Worker	0.03	1.03E-03	4.23E-03
795	366798.73	3761895.77	Worker	0.04	1.08E-03	5.47E-03
796	366798.73	3761945.77	Worker	0.04	1.18E-03	6.18E-03
797	366798.73	3761995.77	Worker	0.04	1.28E-03	6.35E-03
798	366798.73	3762045.77	Worker	0.05	1.38E-03	6.59E-03
799	366798.73	3762095.77	Worker	0.05	1.50E-03	7.43E-03
800	366798.73	3762145.77	Worker	0.06	1.66E-03	8.76E-03
801	366798.73	3762195.77	Worker	0.07	1.94E-03	8.37E-03
802	366798.73	3762295.77	Worker	0.13	3.02E-03	1.09E-02
803	366798.73	3762345.77	Worker	0.28	5.23E-03	1.27E-02
804	366798.73	3762395.77	Worker	0.14	3.63E-03	1.05E-02
805	366798.73	3762445.77	Resident	1.09	3.22E-03	8.63E-03
806	366798.73	3762495.77	Resident	0.90	2.76E-03	6.88E-03
807	366798.73	3762545.77	Worker	0.08	2.28E-03	6.11E-03
808	366798.73	3762595.77	Resident	0.59	1.86E-03	5.78E-03
809	366798.73	3762645.77	Resident	0.48	1.52E-03	4.68E-03
810	366798.73	3762695.77	Worker	0.04	1.25E-03	4.30E-03

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
811	366848.73	3761945.77	Worker	0.03	1.00E-03	5.26E-03
812	366848.73	3761995.77	Worker	0.04	1.07E-03	5.53E-03
813	366848.73	3762045.77	Worker	0.04	1.15E-03	5.63E-03
814	366848.73	3762095.77	Worker	0.04	1.23E-03	6.40E-03
815	366848.73	3762145.77	Worker	0.05	1.35E-03	7.40E-03
816	366848.73	3762195.77	Worker	0.06	1.54E-03	7.06E-03
817	366848.73	3762245.77	Worker	0.07	1.83E-03	7.47E-03
818	366848.73	3762295.77	Resident	0.82	2.25E-03	9.19E-03
819	366848.73	3762345.77	Worker	0.14	2.93E-03	8.94E-03
820	366848.73	3762395.77	Worker	0.17	3.56E-03	9.87E-03
821	366848.73	3762445.77	Resident	1.02	2.87E-03	8.55E-03
822	366848.73	3762495.77	Resident	0.85	2.54E-03	6.79E-03
823	366848.73	3762545.77	Resident	0.71	2.19E-03	5.66E-03
824	366848.73	3762595.77	Resident	0.59	1.83E-03	5.18E-03
825	366848.73	3762645.77	Worker	0.05	1.52E-03	4.94E-03
826	366898.73	3761995.77	Worker	0.03	9.16E-04	4.84E-03
827	366898.73	3762045.77	Worker	0.03	9.72E-04	5.04E-03
828	366898.73	3762095.77	Worker	0.04	1.04E-03	5.60E-03
829	366898.73	3762145.77	Worker	0.04	1.12E-03	6.35E-03
830	366898.73	3762195.77	Worker	0.04	1.25E-03	6.03E-03
831	366898.73	3762245.77	Resident	0.48	1.45E-03	6.03E-03
832	366898.73	3762295.77	Resident	0.61	1.74E-03	7.60E-03
833	366898.73	3762345.77	Worker	0.09	2.12E-03	7.77E-03
834	366898.73	3762395.77	Worker	0.23	3.88E-03	9.97E-03
835	366898.73	3762445.77	Worker	0.11	2.63E-03	8.07E-03
836	366898.73	3762495.77	Resident	0.80	2.31E-03	6.99E-03
837	366898.73	3762545.77	Worker	0.07	2.05E-03	5.61E-03
838	366948.73	3762045.77	Worker	0.03	8.34E-04	4.54E-03
839	366948.73	3762095.77	Worker	0.03	8.83E-04	4.96E-03
840	366948.73	3762145.77	Resident	0.28	9.48E-04	5.52E-03
841	366948.73	3762195.77	Resident	0.32	1.04E-03	5.29E-03
842	366948.73	3762245.77	Resident	0.38	1.18E-03	5.16E-03
843	366948.73	3762295.77	Worker	0.05	1.38E-03	6.19E-03
844	366948.73	3762345.77	Resident	0.59	1.64E-03	6.86E-03
845	366948.73	3762395.77	Worker	0.09	2.03E-03	6.60E-03
846	366948.73	3762445.77	Worker	0.15	3.09E-03	9.23E-03
847	366998.73	3762245.77	Worker	0.03	9.86E-04	4.57E-03
848	365879.44	3762156.38	Sensitive	0.32	1.16E-03	5.19E-03
849	366918.12	3762381.3	Sensitive	1.02	2.29E-03	7.20E-03
850	365948	3761812.73	Sensitive	0.31	1.05E-03	6.22E-03
851	366260.81	3762127.74	Sensitive	5.00	1.68E-02	5.40E-02
852	366302.68	3762452.63	Sensitive	0.71	2.61E-03	1.31E-02
853	366498.73	3762195.77	Worker	1.05	3.02E-02	5.77E-02
854	366498.73	3762220.77	Worker	1.01	2.96E-02	5.79E-02
855	366498.73	3762245.77	Worker	0.87	2.54E-02	4.41E-02
856	366523.73	3762245.77	Worker	0.72	2.08E-02	4.23E-02
857	366523.73	3762220.77	Worker	0.77	2.22E-02	4.61E-02
858	366473.73	3762195.77	Worker	1.53	4.48E-02	8.19E-02
859	366473.73	3762170.77	Worker	1.48	4.25E-02	8.83E-02
860	366473.73	3762220.77	Worker	1.32	3.90E-02	6.64E-02
861	366448.73	3762195.77	Worker	2.30	6.83E-02	1.16E-01
862	366448.73	3762170.77	Worker	2.52	7.44E-02	1.30E-01
863	366423.73	3762195.77	Worker	3.42	1.03E-01	1.46E-01
864	366423.73	3762170.77	Worker	5.05	1.50E-01	2.51E-01

Table F-1. Operational Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
865	366423.73	3762145.77	Worker	4.73	1.37E-01	2.36E-01
866	366573.73	3762245.77	Worker	0.49	1.36E-02	3.07E-02
867	366573.73	3762270.77	Worker	0.46	1.30E-02	2.94E-02
868	366548.73	3762245.77	Worker	0.60	1.70E-02	3.77E-02
869	366548.73	3762270.77	Worker	0.54	1.55E-02	3.18E-02

Notes:

[1] Receptors 2, 8-11, 16-19, 24-28, 33, 34, and 41 were used for spatial averaging to represent Receptor 243 more accurately. Receptor 243 is presented as spatial averaged value in Table 5-3.

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0001	366270	3762132	Worker	3.03E-02	9.22E-04	0.00E+00
R0002	366275	3762132	Resident	9.63E-01	1.08E-02	0.00E+00
R0003	366280	3762132	Worker	3.75E-02	1.16E-03	0.00E+00
R0004	366285	3762132	Worker	4.21E-02	1.31E-03	0.00E+00
R0005	366290	3762132	Worker	4.77E-02	1.50E-03	0.00E+00
R0006	366295	3762132	Worker	5.45E-02	1.73E-03	0.00E+00
R0007	366300	3762132	Worker	6.29E-02	2.01E-03	0.00E+00
R0008	366270	3762137	Resident	8.63E-01	4.29E-03	0.00E+00
R0009	366275	3762137	Resident	9.56E-01	4.09E-03	0.00E+00
R0010	366280	3762137	Resident	1.06E+00	3.88E-03	0.00E+00
R0011	366285	3762137	Resident	1.19E+00	3.77E-03	0.00E+00
R0012	366290	3762137	Worker	4.70E-02	1.48E-03	0.00E+00
R0013	366295	3762137	Worker	5.36E-02	1.70E-03	0.00E+00
R0014	366300	3762137	Worker	6.16E-02	1.97E-03	0.00E+00
R0015	366270	3762142	Resident	8.52E-01	2.84E-03	0.00E+00
R0016	366275	3762142	Resident	9.42E-01	2.60E-03	0.00E+00
R0017	366280	3762142	Resident	1.05E+00	2.48E-03	0.00E+00
R0018	366285	3762142	Resident	1.17E+00	2.45E-03	0.00E+00
R0019	366290	3762142	Resident	1.32E+00	2.42E-03	0.00E+00
R0020	366295	3762142	Worker	5.20E-02	1.65E-03	0.00E+00
R0021	366300	3762142	Worker	5.94E-02	1.90E-03	0.00E+00
R0022	366270	3762147	Resident	8.36E-01	2.29E-03	0.00E+00
R0023	366275	3762147	Resident	9.21E-01	2.16E-03	0.00E+00
R0024	366280	3762147	Resident	1.02E+00	2.09E-03	0.00E+00
R0025	366285	3762147	Resident	1.13E+00	2.01E-03	0.00E+00
R0026	366290	3762147	Resident	1.27E+00	1.97E-03	0.00E+00
R0027	366295	3762147	Resident	1.43E+00	1.94E-03	0.00E+00
R0028	366300	3762147	Resident	1.63E+00	1.90E-03	0.00E+00
R0029	366270	3762152	Resident	8.16E-01	1.90E-03	0.00E+00
R0030	366275	3762152	Resident	8.96E-01	1.86E-03	0.00E+00
R0031	366280	3762152	Resident	9.87E-01	1.86E-03	0.00E+00
R0032	366285	3762152	Resident	1.09E+00	1.81E-03	0.00E+00
R0033	366290	3762152	Resident	1.22E+00	1.77E-03	0.00E+00
R0034	366295	3762152	Resident	1.36E+00	1.75E-03	0.00E+00
R0035	366300	3762152	Worker	5.34E-02	1.71E-03	0.00E+00
R0036	366270	3762157	Resident	7.92E-01	1.71E-03	0.00E+00
R0037	366275	3762157	Resident	8.66E-01	1.70E-03	0.00E+00
R0038	366280	3762157	Resident	9.51E-01	1.65E-03	0.00E+00
R0039	366285	3762157	Resident	1.05E+00	1.61E-03	0.00E+00
R0040	366290	3762157	Resident	1.16E+00	1.59E-03	0.00E+00
R0041	366295	3762157	Resident	1.29E+00	1.58E-03	0.00E+00
R0042	366300	3762157	Worker	5.00E-02	1.61E-03	0.00E+00
R0043	366048.73	3762295.77	Worker	2.30E-03	6.32E-05	0.00E+00
R0044	366048.73	3762320.77	Worker	2.14E-03	5.85E-05	0.00E+00
R0045	366048.73	3762345.77	Worker	1.99E-03	5.41E-05	0.00E+00
R0046	366048.73	3762370.77	Resident	5.24E-02	1.48E-03	0.00E+00
R0047	366048.73	3762395.77	Resident	4.86E-02	1.44E-03	0.00E+00
R0048	366048.73	3762420.77	Worker	1.58E-03	4.26E-05	0.00E+00
R0049	366048.73	3762445.77	Worker	1.47E-03	3.95E-05	0.00E+00
R0050	366073.73	3762220.77	Resident	9.01E-02	1.39E-03	0.00E+00
R0051	366073.73	3762245.77	Worker	2.98E-03	8.28E-05	0.00E+00
R0052	366073.73	3762270.77	Worker	2.78E-03	7.68E-05	0.00E+00
R0053	366073.73	3762295.77	Worker	2.57E-03	7.08E-05	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0054	366073.73	3762320.77	Worker	2.37E-03	6.51E-05	0.00E+00
R0055	366073.73	3762345.77	Worker	2.19E-03	5.97E-05	0.00E+00
R0056	366073.73	3762370.77	Resident	5.74E-02	1.29E-03	0.00E+00
R0057	366073.73	3762395.77	Worker	1.86E-03	5.02E-05	0.00E+00
R0058	366073.73	3762420.77	Resident	4.89E-02	1.27E-03	0.00E+00
R0059	366073.73	3762445.77	Resident	4.50E-02	1.27E-03	0.00E+00
R0060	366073.73	3762470.77	Resident	4.19E-02	1.26E-03	0.00E+00
R0061	366098.73	3762170.77	Resident	1.16E-01	1.26E-03	0.00E+00
R0062	366098.73	3762195.77	Worker	3.88E-03	1.10E-04	0.00E+00
R0063	366098.73	3762220.77	Worker	3.67E-03	1.03E-04	0.00E+00
R0064	366098.73	3762245.77	Worker	3.42E-03	9.53E-05	0.00E+00
R0065	366098.73	3762270.77	Worker	3.16E-03	8.75E-05	0.00E+00
R0066	366098.73	3762295.77	Worker	2.90E-03	7.99E-05	0.00E+00
R0067	366098.73	3762320.77	Worker	2.65E-03	7.27E-05	0.00E+00
R0068	366098.73	3762345.77	Worker	2.42E-03	6.62E-05	0.00E+00
R0069	366098.73	3762370.77	Resident	6.32E-02	1.13E-03	0.00E+00
R0070	366098.73	3762395.77	Resident	5.78E-02	1.13E-03	0.00E+00
R0071	366098.73	3762420.77	Resident	5.31E-02	1.12E-03	0.00E+00
R0072	366098.73	3762445.77	Worker	1.71E-03	4.62E-05	0.00E+00
R0073	366098.73	3762470.77	Resident	4.53E-02	1.08E-03	0.00E+00
R0074	366098.73	3762495.77	Resident	4.20E-02	1.07E-03	0.00E+00
R0075	366123.73	3762095.77	Resident	1.39E-01	1.06E-03	0.00E+00
R0076	366123.73	3762120.77	Worker	5.00E-03	1.44E-04	0.00E+00
R0077	366123.73	3762145.77	Resident	1.42E-01	1.06E-03	0.00E+00
R0078	366123.73	3762170.77	Resident	1.38E-01	1.03E-03	0.00E+00
R0079	366123.73	3762195.77	Worker	4.62E-03	1.31E-04	0.00E+00
R0080	366123.73	3762220.77	Worker	4.31E-03	1.21E-04	0.00E+00
R0081	366123.73	3762245.77	Worker	3.97E-03	1.11E-04	0.00E+00
R0082	366123.73	3762270.77	Worker	3.62E-03	1.01E-04	0.00E+00
R0083	366123.73	3762295.77	Worker	3.28E-03	9.07E-05	0.00E+00
R0084	366123.73	3762320.77	Worker	2.97E-03	8.18E-05	0.00E+00
R0085	366123.73	3762345.77	Resident	7.69E-02	9.88E-04	0.00E+00
R0086	366123.73	3762370.77	Resident	6.98E-02	9.80E-04	0.00E+00
R0087	366123.73	3762395.77	Resident	6.36E-02	9.68E-04	0.00E+00
R0088	366123.73	3762420.77	Resident	5.82E-02	9.60E-04	0.00E+00
R0089	366123.73	3762445.77	Resident	5.34E-02	9.50E-04	0.00E+00
R0090	366123.73	3762470.77	Resident	4.92E-02	9.28E-04	0.00E+00
R0091	366123.73	3762495.77	Worker	1.60E-03	4.31E-05	0.00E+00
R0092	366123.73	3762520.77	Resident	4.23E-02	9.22E-04	0.00E+00
R0093	366148.73	3762045.77	Resident	1.45E-01	9.17E-04	0.00E+00
R0094	366148.73	3762070.77	Resident	1.60E-01	9.15E-04	0.00E+00
R0095	366148.73	3762095.77	Resident	1.70E-01	9.07E-04	0.00E+00
R0096	366148.73	3762120.77	Worker	6.15E-03	1.78E-04	0.00E+00
R0097	366148.73	3762145.77	Resident	1.75E-01	8.90E-04	0.00E+00
R0098	366148.73	3762170.77	Worker	5.94E-03	1.70E-04	0.00E+00
R0099	366148.73	3762195.77	Worker	5.58E-03	1.58E-04	0.00E+00
R0100	366148.73	3762220.77	Worker	5.13E-03	1.45E-04	0.00E+00
R0101	366148.73	3762245.77	Worker	4.66E-03	1.30E-04	0.00E+00
R0102	366148.73	3762270.77	Worker	4.19E-03	1.17E-04	0.00E+00
R0103	366148.73	3762295.77	Worker	3.75E-03	1.04E-04	0.00E+00
R0104	366148.73	3762320.77	Resident	9.58E-02	8.60E-04	0.00E+00
R0105	366148.73	3762345.77	Resident	8.60E-02	8.48E-04	0.00E+00
R0106	366148.73	3762370.77	Resident	7.77E-02	8.32E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0107	366148.73	3762395.77	Resident	7.04E-02	8.31E-04	0.00E+00
R0108	366148.73	3762420.77	Resident	6.39E-02	8.26E-04	0.00E+00
R0109	366148.73	3762445.77	Worker	2.05E-03	5.56E-05	0.00E+00
R0110	366148.73	3762470.77	Worker	1.89E-03	5.11E-05	0.00E+00
R0111	366148.73	3762495.77	Resident	4.95E-02	7.96E-04	0.00E+00
R0112	366148.73	3762520.77	Resident	4.58E-02	7.89E-04	0.00E+00
R0113	366148.73	3762545.77	Resident	4.26E-02	7.67E-04	0.00E+00
R0114	366173.73	3761995.77	Worker	4.55E-03	1.33E-04	0.00E+00
R0115	366173.73	3762020.77	Resident	1.52E-01	7.57E-04	0.00E+00
R0116	366173.73	3762045.77	Worker	6.10E-03	1.79E-04	0.00E+00
R0117	366173.73	3762070.77	Resident	1.96E-01	7.52E-04	0.00E+00
R0118	366173.73	3762095.77	Resident	2.13E-01	7.47E-04	0.00E+00
R0119	366173.73	3762120.77	Worker	7.77E-03	2.26E-04	0.00E+00
R0120	366173.73	3762145.77	Worker	7.76E-03	2.24E-04	0.00E+00
R0121	366173.73	3762170.77	Worker	7.44E-03	2.13E-04	0.00E+00
R0122	366173.73	3762195.77	Worker	6.88E-03	1.96E-04	0.00E+00
R0123	366173.73	3762220.77	Worker	6.22E-03	1.76E-04	0.00E+00
R0124	366173.73	3762245.77	Worker	5.54E-03	1.55E-04	0.00E+00
R0125	366173.73	3762270.77	Worker	4.90E-03	1.37E-04	0.00E+00
R0126	366173.73	3762295.77	Resident	1.23E-01	6.86E-04	0.00E+00
R0127	366173.73	3762320.77	Resident	1.09E-01	6.79E-04	0.00E+00
R0128	366173.73	3762345.77	Worker	3.41E-03	9.37E-05	0.00E+00
R0129	366173.73	3762370.77	Resident	8.71E-02	6.49E-04	0.00E+00
R0130	366173.73	3762395.77	Resident	7.85E-02	6.46E-04	0.00E+00
R0131	366173.73	3762420.77	Worker	2.49E-03	6.78E-05	0.00E+00
R0132	366173.73	3762445.77	Resident	6.46E-02	6.41E-04	0.00E+00
R0133	366173.73	3762470.77	Resident	5.90E-02	6.33E-04	0.00E+00
R0134	366173.73	3762495.77	Resident	5.42E-02	6.31E-04	0.00E+00
R0135	366173.73	3762520.77	Worker	1.75E-03	4.76E-05	0.00E+00
R0136	366173.73	3762545.77	Resident	4.64E-02	6.29E-04	0.00E+00
R0137	366198.73	3761970.77	Worker	4.32E-03	1.26E-04	0.00E+00
R0138	366198.73	3761995.77	Worker	5.19E-03	1.52E-04	0.00E+00
R0139	366198.73	3762020.77	Worker	6.23E-03	1.84E-04	0.00E+00
R0140	366198.73	3762045.77	Resident	2.12E-01	6.17E-04	0.00E+00
R0141	366198.73	3762070.77	Worker	8.58E-03	2.54E-04	0.00E+00
R0142	366198.73	3762095.77	Worker	9.59E-03	2.82E-04	0.00E+00
R0143	366198.73	3762120.77	Worker	1.02E-02	2.98E-04	0.00E+00
R0144	366198.73	3762145.77	Worker	1.02E-02	2.95E-04	0.00E+00
R0145	366198.73	3762170.77	Worker	9.62E-03	2.77E-04	0.00E+00
R0146	366198.73	3762195.77	Worker	8.72E-03	2.49E-04	0.00E+00
R0147	366198.73	3762220.77	Worker	7.69E-03	2.18E-04	0.00E+00
R0148	366198.73	3762245.77	Worker	6.68E-03	1.88E-04	0.00E+00
R0149	366198.73	3762270.77	Resident	1.65E-01	5.79E-04	0.00E+00
R0150	366198.73	3762295.77	Worker	5.03E-03	1.40E-04	0.00E+00
R0151	366198.73	3762320.77	Resident	1.26E-01	5.62E-04	0.00E+00
R0152	366198.73	3762345.77	Resident	1.11E-01	5.61E-04	0.00E+00
R0153	366198.73	3762370.77	Worker	3.45E-03	9.48E-05	0.00E+00
R0154	366198.73	3762395.77	Worker	3.09E-03	8.47E-05	0.00E+00
R0155	366198.73	3762420.77	Resident	7.93E-02	5.52E-04	0.00E+00
R0156	366198.73	3762445.77	Resident	7.18E-02	5.44E-04	0.00E+00
R0157	366198.73	3762470.77	Resident	6.52E-02	5.40E-04	0.00E+00
R0158	366198.73	3762495.77	Resident	5.96E-02	5.35E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0159	366198.73	3762520.77	Resident	5.48E-02	5.34E-04	0.00E+00
R0160	366198.73	3762545.77	Resident	5.06E-02	5.33E-04	0.00E+00
R0161	366223.73	3761945.77	Resident	1.13E-01	5.32E-04	0.00E+00
R0162	366223.73	3761970.77	Worker	4.81E-03	1.41E-04	0.00E+00
R0163	366223.73	3761995.77	Worker	5.91E-03	1.74E-04	0.00E+00
R0164	366223.73	3762020.77	Worker	7.34E-03	2.18E-04	0.00E+00
R0165	366223.73	3762045.77	Worker	9.10E-03	2.71E-04	0.00E+00
R0166	366223.73	3762070.77	Worker	1.10E-02	3.29E-04	0.00E+00
R0167	366223.73	3762095.77	Worker	1.28E-02	3.82E-04	0.00E+00
R0168	366223.73	3762120.77	Worker	1.39E-02	4.11E-04	0.00E+00
R0169	366223.73	3762145.77	Worker	1.39E-02	4.07E-04	0.00E+00
R0170	366223.73	3762170.77	Worker	1.29E-02	3.74E-04	0.00E+00
R0171	366223.73	3762195.77	Worker	1.14E-02	3.26E-04	0.00E+00
R0172	366223.73	3762220.77	Resident	2.77E-01	4.93E-04	0.00E+00
R0173	366223.73	3762245.77	Resident	2.34E-01	4.92E-04	0.00E+00
R0174	366223.73	3762270.77	Resident	1.98E-01	4.92E-04	0.00E+00
R0175	366223.73	3762295.77	Resident	1.69E-01	4.84E-04	0.00E+00
R0176	366223.73	3762320.77	Resident	1.46E-01	4.82E-04	0.00E+00
R0177	366223.73	3762345.77	Worker	4.47E-03	1.24E-04	0.00E+00
R0178	366223.73	3762370.77	Worker	3.94E-03	1.09E-04	0.00E+00
R0179	366223.73	3762395.77	Resident	1.00E-01	4.77E-04	0.00E+00
R0180	366223.73	3762420.77	Resident	8.94E-02	4.73E-04	0.00E+00
R0181	366223.73	3762445.77	Resident	8.04E-02	4.58E-04	0.00E+00
R0182	366223.73	3762470.77	Resident	7.26E-02	4.57E-04	0.00E+00
R0183	366223.73	3762495.77	Resident	6.60E-02	4.54E-04	0.00E+00
R0184	366223.73	3762520.77	Worker	2.12E-03	5.79E-05	0.00E+00
R0185	366223.73	3762545.77	Worker	1.94E-03	5.31E-05	0.00E+00
R0186	366223.73	3762570.77	Resident	5.12E-02	4.53E-04	0.00E+00
R0187	366248.73	3761920.77	Resident	1.01E-01	4.52E-04	0.00E+00
R0188	366248.73	3761945.77	Resident	1.23E-01	4.47E-04	0.00E+00
R0189	366248.73	3761970.77	Worker	5.31E-03	1.56E-04	0.00E+00
R0190	366248.73	3761995.77	Worker	6.71E-03	1.99E-04	0.00E+00
R0191	366248.73	3762020.77	Worker	8.66E-03	2.59E-04	0.00E+00
R0192	366248.73	3762045.77	Worker	1.13E-02	3.40E-04	0.00E+00
R0193	366248.73	3762070.77	Worker	1.46E-02	4.41E-04	0.00E+00
R0194	366248.73	3762095.77	Worker	1.80E-02	5.44E-04	0.00E+00
R0195	366248.73	3762120.77	Worker	2.02E-02	6.07E-04	0.00E+00
R0196	366248.73	3762145.77	Worker	2.02E-02	5.99E-04	0.00E+00
R0197	366248.73	3762170.77	Resident	5.18E-01	4.33E-04	0.00E+00
R0198	366248.73	3762195.77	Resident	4.37E-01	4.31E-04	0.00E+00
R0199	366248.73	3762220.77	Resident	3.58E-01	4.30E-04	0.00E+00
R0200	366248.73	3762245.77	Resident	2.92E-01	4.29E-04	0.00E+00
R0201	366248.73	3762270.77	Resident	2.42E-01	4.22E-04	0.00E+00
R0202	366248.73	3762295.77	Worker	7.10E-03	1.99E-04	0.00E+00
R0203	366248.73	3762395.77	Worker	4.01E-03	1.11E-04	0.00E+00
R0204	366248.73	3762420.77	Resident	1.02E-01	4.16E-04	0.00E+00
R0205	366248.73	3762445.77	Resident	9.04E-02	4.16E-04	0.00E+00
R0206	366248.73	3762470.77	Resident	8.13E-02	4.15E-04	0.00E+00
R0207	366248.73	3762495.77	Worker	2.57E-03	7.08E-05	0.00E+00
R0208	366248.73	3762520.77	Resident	6.68E-02	4.11E-04	0.00E+00
R0209	366248.73	3762545.77	Resident	6.11E-02	4.07E-04	0.00E+00
R0210	366248.73	3762570.77	Resident	5.62E-02	4.05E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0211	366273.73	3761920.77	Resident	1.08E-01	4.00E-04	0.00E+00
R0212	366273.73	3761945.77	Resident	1.33E-01	3.97E-04	0.00E+00
R0213	366273.73	3761970.77	Worker	5.84E-03	1.72E-04	0.00E+00
R0214	366273.73	3761995.77	Worker	7.57E-03	2.25E-04	0.00E+00
R0215	366273.73	3762020.77	Worker	1.02E-02	3.06E-04	0.00E+00
R0216	366273.73	3762045.77	Worker	1.41E-02	4.31E-04	0.00E+00
R0217	366273.73	3762070.77	Worker	1.98E-02	6.10E-04	0.00E+00
R0218	366273.73	3762095.77	Worker	2.69E-02	8.31E-04	0.00E+00
R0219	366273.73	3762120.77	Worker	3.22E-02	9.88E-04	0.00E+00
R0220	366273.73	3762145.77	Resident	9.04E-01	3.87E-04	0.00E+00
R0221	366273.73	3762170.77	Resident	7.62E-01	3.82E-04	0.00E+00
R0222	366273.73	3762195.77	Resident	6.10E-01	3.80E-04	0.00E+00
R0223	366273.73	3762220.77	Worker	1.68E-02	4.82E-04	0.00E+00
R0224	366273.73	3762245.77	Worker	1.32E-02	3.76E-04	0.00E+00
R0225	366273.73	3762395.77	Resident	1.33E-01	3.76E-04	0.00E+00
R0226	366273.73	3762420.77	Resident	1.16E-01	3.76E-04	0.00E+00
R0227	366273.73	3762445.77	Worker	3.60E-03	9.97E-05	0.00E+00
R0228	366273.73	3762470.77	Resident	9.17E-02	3.74E-04	0.00E+00
R0229	366273.73	3762495.77	Resident	8.22E-02	3.72E-04	0.00E+00
R0230	366273.73	3762520.77	Resident	7.43E-02	3.72E-04	0.00E+00
R0231	366273.73	3762545.77	Worker	2.36E-03	6.50E-05	0.00E+00
R0232	366273.73	3762570.77	Resident	6.18E-02	3.62E-04	0.00E+00
R0233	366298.73	3761895.77	Resident	9.59E-02	3.59E-04	0.00E+00
R0234	366298.73	3761920.77	Resident	1.15E-01	3.59E-04	0.00E+00
R0235	366298.73	3761945.77	Worker	4.99E-03	1.46E-04	0.00E+00
R0236	366298.73	3761970.77	Worker	6.35E-03	1.87E-04	0.00E+00
R0237	366298.73	3761995.77	Worker	8.41E-03	2.51E-04	0.00E+00
R0238	366298.73	3762020.77	Worker	1.18E-02	3.56E-04	0.00E+00
R0239	366298.73	3762045.77	Worker	1.74E-02	5.35E-04	0.00E+00
R0240	366298.73	3762070.77	Worker	2.75E-02	8.60E-04	0.00E+00
R0241	366298.73	3762095.77	Worker	4.41E-02	1.40E-03	0.00E+00
R0242	366298.73	3762120.77	Worker	5.96E-02	1.90E-03	0.00E+00
R0243	366298.73	3762145.77	Resident	1.60E+00	3.42E-04	0.00E+00
R0244	366298.73	3762170.77	Worker	4.08E-02	1.29E-03	0.00E+00
R0245	366298.73	3762395.77	Worker	5.42E-03	1.51E-04	0.00E+00
R0246	366298.73	3762420.77	Worker	4.73E-03	1.32E-04	0.00E+00
R0247	366298.73	3762445.77	Resident	1.18E-01	3.38E-04	0.00E+00
R0248	366298.73	3762470.77	Resident	1.04E-01	3.37E-04	0.00E+00
R0249	366298.73	3762495.77	Resident	9.27E-02	3.34E-04	0.00E+00
R0250	366298.73	3762520.77	Resident	8.32E-02	3.34E-04	0.00E+00
R0251	366298.73	3762545.77	Resident	7.51E-02	3.31E-04	0.00E+00
R0252	366298.73	3762570.77	Resident	6.83E-02	3.29E-04	0.00E+00
R0253	366298.73	3762595.77	Worker	2.19E-03	6.00E-05	0.00E+00
R0254	366323.73	3761895.77	Worker	3.52E-03	1.01E-04	0.00E+00
R0255	366323.73	3761920.77	Worker	4.26E-03	1.24E-04	0.00E+00
R0256	366323.73	3761945.77	Worker	5.29E-03	1.55E-04	0.00E+00
R0257	366323.73	3761970.77	Worker	6.80E-03	2.01E-04	0.00E+00
R0258	366323.73	3761995.77	Worker	9.18E-03	2.75E-04	0.00E+00
R0259	366323.73	3762020.77	Worker	1.30E-02	3.95E-04	0.00E+00
R0260	366323.73	3762045.77	Worker	2.01E-02	6.23E-04	0.00E+00
R0261	366323.73	3762070.77	Worker	3.58E-02	1.13E-03	0.00E+00
R0262	366323.73	3762095.77	Worker	7.35E-02	2.37E-03	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0263	366323.73	3762120.77	Worker	1.16E-01	3.77E-03	0.00E+00
R0264	366323.73	3762395.77	Worker	6.43E-03	1.80E-04	0.00E+00
R0265	366323.73	3762420.77	Resident	1.59E-01	3.05E-04	0.00E+00
R0266	366323.73	3762445.77	Resident	1.37E-01	3.05E-04	0.00E+00
R0267	366323.73	3762470.77	Worker	4.18E-03	1.16E-04	0.00E+00
R0268	366323.73	3762495.77	Resident	1.05E-01	3.02E-04	0.00E+00
R0269	366323.73	3762520.77	Resident	9.36E-02	3.00E-04	0.00E+00
R0270	366323.73	3762545.77	Resident	8.41E-02	2.99E-04	0.00E+00
R0271	366323.73	3762570.77	Worker	2.66E-03	7.31E-05	0.00E+00
R0272	366323.73	3762595.77	Resident	6.88E-02	2.96E-04	0.00E+00
R0273	366348.73	3761895.77	Worker	3.64E-03	1.05E-04	0.00E+00
R0274	366348.73	3761920.77	Worker	4.42E-03	1.29E-04	0.00E+00
R0275	366348.73	3761945.77	Worker	5.54E-03	1.63E-04	0.00E+00
R0276	366348.73	3761970.77	Worker	7.16E-03	2.13E-04	0.00E+00
R0277	366348.73	3761995.77	Worker	9.52E-03	2.86E-04	0.00E+00
R0278	366348.73	3762020.77	Worker	1.35E-02	4.13E-04	0.00E+00
R0279	366348.73	3762045.77	Worker	2.12E-02	6.59E-04	0.00E+00
R0280	366348.73	3762070.77	Worker	3.81E-02	1.21E-03	0.00E+00
R0281	366348.73	3762095.77	Worker	7.69E-02	2.48E-03	0.00E+00
R0282	366348.73	3762420.77	Resident	1.89E-01	2.83E-04	0.00E+00
R0283	366348.73	3762445.77	Resident	1.60E-01	2.82E-04	0.00E+00
R0284	366348.73	3762470.77	Resident	1.38E-01	2.82E-04	0.00E+00
R0285	366348.73	3762495.77	Resident	1.20E-01	2.79E-04	0.00E+00
R0286	366348.73	3762520.77	Worker	3.72E-03	1.03E-04	0.00E+00
R0287	366348.73	3762545.77	Resident	9.45E-02	2.77E-04	0.00E+00
R0288	366348.73	3762570.77	Resident	8.45E-02	2.76E-04	0.00E+00
R0289	366348.73	3762595.77	Resident	7.62E-02	2.76E-04	0.00E+00
R0290	366373.73	3761895.77	Worker	3.70E-03	1.07E-04	0.00E+00
R0291	366373.73	3761920.77	Worker	4.53E-03	1.32E-04	0.00E+00
R0292	366373.73	3761945.77	Worker	5.62E-03	1.65E-04	0.00E+00
R0293	366373.73	3761970.77	Worker	7.09E-03	2.11E-04	0.00E+00
R0294	366373.73	3761995.77	Worker	9.36E-03	2.82E-04	0.00E+00
R0295	366373.73	3762020.77	Worker	1.31E-02	4.00E-04	0.00E+00
R0296	366373.73	3762045.77	Worker	1.99E-02	6.17E-04	0.00E+00
R0297	366373.73	3762070.77	Worker	3.40E-02	1.07E-03	0.00E+00
R0298	366373.73	3762095.77	Worker	7.49E-02	2.42E-03	0.00E+00
R0299	366373.73	3762420.77	Worker	7.90E-03	2.20E-04	0.00E+00
R0300	366373.73	3762445.77	Resident	1.89E-01	2.65E-04	0.00E+00
R0301	366373.73	3762470.77	Worker	5.63E-03	1.56E-04	0.00E+00
R0302	366373.73	3762495.77	Worker	4.84E-03	1.34E-04	0.00E+00
R0303	366373.73	3762520.77	Resident	1.21E-01	2.63E-04	0.00E+00
R0304	366373.73	3762545.77	Resident	1.06E-01	2.63E-04	0.00E+00
R0305	366373.73	3762570.77	Resident	9.44E-02	2.62E-04	0.00E+00
R0306	366373.73	3762595.77	Resident	8.46E-02	2.62E-04	0.00E+00
R0307	366398.73	3761920.77	Worker	4.45E-03	1.30E-04	0.00E+00
R0308	366398.73	3761945.77	Worker	5.40E-03	1.59E-04	0.00E+00
R0309	366398.73	3761970.77	Worker	6.75E-03	2.00E-04	0.00E+00
R0310	366398.73	3761995.77	Worker	8.72E-03	2.62E-04	0.00E+00
R0311	366398.73	3762020.77	Worker	1.18E-02	3.59E-04	0.00E+00
R0312	366398.73	3762045.77	Worker	1.70E-02	5.23E-04	0.00E+00
R0313	366398.73	3762070.77	Worker	2.70E-02	8.48E-04	0.00E+00
R0314	366398.73	3762095.77	Worker	5.80E-02	1.86E-03	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0315	366398.73	3762120.77	Worker	2.01E-01	6.59E-03	0.00E+00
R0316	366398.73	3762420.77	Worker	9.44E-03	2.63E-04	0.00E+00
R0317	366398.73	3762445.77	Worker	7.81E-03	2.17E-04	0.00E+00
R0318	366398.73	3762470.77	Resident	1.87E-01	2.49E-04	0.00E+00
R0319	366398.73	3762495.77	Resident	1.59E-01	2.46E-04	0.00E+00
R0320	366398.73	3762520.77	Resident	1.38E-01	2.44E-04	0.00E+00
R0321	366398.73	3762545.77	Worker	4.20E-03	1.16E-04	0.00E+00
R0322	366398.73	3762570.77	Resident	1.06E-01	2.42E-04	0.00E+00
R0323	366398.73	3762595.77	Resident	9.42E-02	2.39E-04	0.00E+00
R0324	366398.73	3762620.77	Resident	8.44E-02	2.39E-04	0.00E+00
R0325	366423.73	3761920.77	Worker	4.21E-03	1.22E-04	0.00E+00
R0326	366423.73	3761945.77	Worker	5.04E-03	1.47E-04	0.00E+00
R0327	366423.73	3761970.77	Worker	6.18E-03	1.82E-04	0.00E+00
R0328	366423.73	3761995.77	Worker	7.78E-03	2.31E-04	0.00E+00
R0329	366423.73	3762020.77	Worker	1.01E-02	3.05E-04	0.00E+00
R0330	366423.73	3762045.77	Worker	1.38E-02	4.22E-04	0.00E+00
R0331	366423.73	3762070.77	Worker	2.09E-02	6.49E-04	0.00E+00
R0332	366423.73	3762095.77	Worker	4.17E-02	1.33E-03	0.00E+00
R0333	366423.73	3762120.77	Worker	1.20E-01	3.88E-03	0.00E+00
R0334	366423.73	3762445.77	Resident	2.62E-01	2.31E-04	0.00E+00
R0335	366423.73	3762470.77	Resident	2.17E-01	2.31E-04	0.00E+00
R0336	366423.73	3762495.77	Resident	1.83E-01	2.30E-04	0.00E+00
R0337	366423.73	3762520.77	Resident	1.57E-01	2.28E-04	0.00E+00
R0338	366423.73	3762545.77	Resident	1.36E-01	2.26E-04	0.00E+00
R0339	366423.73	3762570.77	Resident	1.19E-01	2.26E-04	0.00E+00
R0340	366423.73	3762595.77	Worker	3.67E-03	1.01E-04	0.00E+00
R0341	366423.73	3762620.77	Resident	9.33E-02	2.24E-04	0.00E+00
R0342	366448.73	3761945.77	Worker	4.59E-03	1.33E-04	0.00E+00
R0343	366448.73	3761970.77	Worker	5.51E-03	1.61E-04	0.00E+00
R0344	366448.73	3761995.77	Worker	6.76E-03	1.99E-04	0.00E+00
R0345	366448.73	3762020.77	Worker	8.51E-03	2.53E-04	0.00E+00
R0346	366448.73	3762045.77	Worker	1.13E-02	3.39E-04	0.00E+00
R0347	366448.73	3762070.77	Worker	1.67E-02	5.10E-04	0.00E+00
R0348	366448.73	3762095.77	Worker	3.09E-02	9.68E-04	0.00E+00
R0349	366448.73	3762120.77	Worker	7.48E-02	2.40E-03	0.00E+00
R0350	366448.73	3762145.77	Worker	1.63E-01	5.25E-03	0.00E+00
R0351	366448.73	3762445.77	Resident	3.05E-01	2.17E-04	0.00E+00
R0352	366448.73	3762470.77	Resident	2.51E-01	2.17E-04	0.00E+00
R0353	366448.73	3762495.77	Resident	2.10E-01	2.16E-04	0.00E+00
R0354	366448.73	3762520.77	Resident	1.78E-01	2.16E-04	0.00E+00
R0355	366448.73	3762545.77	Worker	5.36E-03	1.47E-04	0.00E+00
R0356	366448.73	3762570.77	Worker	4.66E-03	1.28E-04	0.00E+00
R0357	366448.73	3762595.77	Resident	1.17E-01	2.14E-04	0.00E+00
R0358	366448.73	3762620.77	Resident	1.03E-01	2.13E-04	0.00E+00
R0359	366473.73	3761945.77	Worker	4.13E-03	1.19E-04	0.00E+00
R0360	366473.73	3761970.77	Worker	4.87E-03	1.41E-04	0.00E+00
R0361	366473.73	3761995.77	Worker	5.84E-03	1.69E-04	0.00E+00
R0362	366473.73	3762020.77	Worker	7.20E-03	2.11E-04	0.00E+00
R0363	366473.73	3762045.77	Worker	9.42E-03	2.79E-04	0.00E+00
R0364	366473.73	3762070.77	Worker	1.38E-02	4.15E-04	0.00E+00
R0365	366473.73	3762095.77	Worker	2.41E-02	7.43E-04	0.00E+00
R0366	366473.73	3762120.77	Worker	4.91E-02	1.54E-03	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0367	366473.73	3762145.77	Worker	9.27E-02	2.93E-03	0.00E+00
R0368	366473.73	3762445.77	Worker	1.22E-02	3.34E-04	0.00E+00
R0369	366473.73	3762470.77	Resident	2.86E-01	2.03E-04	0.00E+00
R0370	366473.73	3762495.77	Resident	2.39E-01	2.02E-04	0.00E+00
R0371	366473.73	3762520.77	Worker	7.05E-03	1.93E-04	0.00E+00
R0372	366473.73	3762545.77	Resident	1.72E-01	2.01E-04	0.00E+00
R0373	366473.73	3762570.77	Resident	1.49E-01	2.01E-04	0.00E+00
R0374	366473.73	3762595.77	Resident	1.30E-01	2.01E-04	0.00E+00
R0375	366473.73	3762620.77	Resident	1.14E-01	2.00E-04	0.00E+00
R0376	366473.73	3762645.77	Resident	1.01E-01	2.00E-04	0.00E+00
R0377	366498.73	3761970.77	Worker	4.30E-03	1.23E-04	0.00E+00
R0378	366498.73	3761995.77	Worker	5.08E-03	1.46E-04	0.00E+00
R0379	366498.73	3762020.77	Worker	6.22E-03	1.80E-04	0.00E+00
R0380	366498.73	3762045.77	Worker	8.11E-03	2.37E-04	0.00E+00
R0381	366498.73	3762070.77	Worker	1.18E-02	3.49E-04	0.00E+00
R0382	366498.73	3762095.77	Worker	1.93E-02	5.87E-04	0.00E+00
R0383	366498.73	3762120.77	Worker	3.49E-02	1.08E-03	0.00E+00
R0384	366498.73	3762145.77	Worker	6.01E-02	1.86E-03	0.00E+00
R0385	366498.73	3762170.77	Worker	8.62E-02	2.60E-03	0.00E+00
R0386	366498.73	3762445.77	Worker	1.38E-02	3.72E-04	0.00E+00
R0387	366498.73	3762470.77	Worker	1.13E-02	3.06E-04	0.00E+00
R0388	366498.73	3762495.77	Resident	2.68E-01	1.93E-04	0.00E+00
R0389	366498.73	3762520.77	Resident	2.25E-01	1.93E-04	0.00E+00
R0390	366498.73	3762545.77	Resident	1.92E-01	1.88E-04	0.00E+00
R0391	366498.73	3762570.77	Worker	5.77E-03	1.57E-04	0.00E+00
R0392	366498.73	3762595.77	Resident	1.43E-01	1.86E-04	0.00E+00
R0393	366498.73	3762620.77	Resident	1.26E-01	1.86E-04	0.00E+00
R0394	366498.73	3762645.77	Resident	1.11E-01	1.84E-04	0.00E+00
R0395	366523.73	3761970.77	Worker	3.83E-03	1.08E-04	0.00E+00
R0396	366523.73	3761995.77	Worker	4.51E-03	1.27E-04	0.00E+00
R0397	366523.73	3762020.77	Worker	5.49E-03	1.56E-04	0.00E+00
R0398	366523.73	3762045.77	Worker	7.12E-03	2.05E-04	0.00E+00
R0399	366523.73	3762070.77	Worker	1.01E-02	2.96E-04	0.00E+00
R0400	366523.73	3762095.77	Worker	1.58E-02	4.73E-04	0.00E+00
R0401	366523.73	3762120.77	Worker	2.61E-02	7.89E-04	0.00E+00
R0402	366523.73	3762145.77	Worker	4.15E-02	1.26E-03	0.00E+00
R0403	366523.73	3762170.77	Worker	5.91E-02	1.75E-03	0.00E+00
R0404	366523.73	3762195.77	Worker	7.95E-02	2.09E-03	0.00E+00
R0405	366523.73	3762445.77	Worker	1.52E-02	4.05E-04	0.00E+00
R0406	366523.73	3762470.77	Resident	3.58E-01	1.79E-04	0.00E+00
R0407	366523.73	3762495.77	Resident	2.96E-01	1.79E-04	0.00E+00
R0408	366523.73	3762520.77	Resident	2.49E-01	1.78E-04	0.00E+00
R0409	366523.73	3762545.77	Resident	2.12E-01	1.77E-04	0.00E+00
R0410	366523.73	3762570.77	Resident	1.82E-01	1.77E-04	0.00E+00
R0411	366523.73	3762595.77	Resident	1.57E-01	1.76E-04	0.00E+00
R0412	366523.73	3762620.77	Worker	4.81E-03	1.30E-04	0.00E+00
R0413	366523.73	3762645.77	Worker	4.22E-03	1.14E-04	0.00E+00
R0414	366548.73	3761995.77	Worker	4.04E-03	1.13E-04	0.00E+00
R0415	366548.73	3762020.77	Worker	4.91E-03	1.39E-04	0.00E+00
R0416	366548.73	3762045.77	Worker	6.31E-03	1.81E-04	0.00E+00
R0417	366548.73	3762070.77	Worker	8.77E-03	2.55E-04	0.00E+00
R0418	366548.73	3762095.77	Worker	1.31E-02	3.89E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0419	366548.73	3762120.77	Worker	2.01E-02	6.03E-04	0.00E+00
R0420	366548.73	3762145.77	Worker	3.02E-02	9.07E-04	0.00E+00
R0421	366548.73	3762170.77	Worker	4.24E-02	1.25E-03	0.00E+00
R0422	366548.73	3762195.77	Worker	5.75E-02	1.52E-03	0.00E+00
R0423	366548.73	3762370.77	Worker	3.12E-02	7.67E-04	0.00E+00
R0424	366548.73	3762395.77	Worker	2.49E-02	6.30E-04	0.00E+00
R0425	366548.73	3762420.77	Worker	2.01E-02	5.19E-04	0.00E+00
R0426	366548.73	3762445.77	Worker	1.64E-02	4.30E-04	0.00E+00
R0427	366548.73	3762470.77	Worker	1.36E-02	3.58E-04	0.00E+00
R0428	366548.73	3762495.77	Worker	1.13E-02	2.99E-04	0.00E+00
R0429	366548.73	3762520.77	Resident	2.72E-01	1.63E-04	0.00E+00
R0430	366548.73	3762545.77	Resident	2.31E-01	1.62E-04	0.00E+00
R0431	366548.73	3762570.77	Resident	1.99E-01	1.62E-04	0.00E+00
R0432	366548.73	3762595.77	Worker	6.00E-03	1.61E-04	0.00E+00
R0433	366548.73	3762620.77	Worker	5.23E-03	1.41E-04	0.00E+00
R0434	366548.73	3762645.77	Worker	4.59E-03	1.24E-04	0.00E+00
R0435	366573.73	3762020.77	Worker	4.43E-03	1.25E-04	0.00E+00
R0436	366573.73	3762045.77	Worker	5.65E-03	1.61E-04	0.00E+00
R0437	366573.73	3762070.77	Worker	7.64E-03	2.21E-04	0.00E+00
R0438	366573.73	3762095.77	Worker	1.09E-02	3.22E-04	0.00E+00
R0439	366573.73	3762120.77	Worker	1.60E-02	4.77E-04	0.00E+00
R0440	366573.73	3762145.77	Worker	2.30E-02	6.88E-04	0.00E+00
R0441	366573.73	3762170.77	Worker	3.16E-02	9.28E-04	0.00E+00
R0442	366573.73	3762195.77	Worker	4.24E-02	1.14E-03	0.00E+00
R0443	366573.73	3762220.77	Worker	5.91E-02	1.28E-03	0.00E+00
R0444	366573.73	3762320.77	Worker	4.96E-02	1.03E-03	0.00E+00
R0445	366573.73	3762345.77	Worker	3.95E-02	8.86E-04	0.00E+00
R0446	366573.73	3762370.77	Worker	3.17E-02	7.52E-04	0.00E+00
R0447	366573.73	3762395.77	Worker	2.57E-02	6.33E-04	0.00E+00
R0448	366573.73	3762420.77	Worker	2.10E-02	5.31E-04	0.00E+00
R0449	366573.73	3762445.77	Worker	1.74E-02	4.46E-04	0.00E+00
R0450	366573.73	3762470.77	Worker	1.44E-02	3.76E-04	0.00E+00
R0451	366573.73	3762495.77	Resident	3.47E-01	1.55E-04	0.00E+00
R0452	366573.73	3762520.77	Resident	2.93E-01	1.54E-04	0.00E+00
R0453	366573.73	3762545.77	Worker	8.72E-03	2.31E-04	0.00E+00
R0454	366573.73	3762570.77	Worker	7.49E-03	1.99E-04	0.00E+00
R0455	366573.73	3762595.77	Worker	6.48E-03	1.73E-04	0.00E+00
R0456	366573.73	3762620.77	Worker	5.65E-03	1.51E-04	0.00E+00
R0457	366598.73	3762020.77	Worker	4.02E-03	1.13E-04	0.00E+00
R0458	366598.73	3762045.77	Worker	5.07E-03	1.44E-04	0.00E+00
R0459	366598.73	3762070.77	Worker	6.68E-03	1.93E-04	0.00E+00
R0460	366598.73	3762095.77	Worker	9.23E-03	2.71E-04	0.00E+00
R0461	366598.73	3762120.77	Worker	1.31E-02	3.88E-04	0.00E+00
R0462	366598.73	3762145.77	Worker	1.82E-02	5.40E-04	0.00E+00
R0463	366598.73	3762170.77	Worker	2.45E-02	7.13E-04	0.00E+00
R0464	366598.73	3762195.77	Worker	3.21E-02	8.76E-04	0.00E+00
R0465	366598.73	3762220.77	Worker	4.20E-02	1.00E-03	0.00E+00
R0466	366598.73	3762245.77	Worker	5.10E-02	1.06E-03	0.00E+00
R0467	366598.73	3762270.77	Worker	5.40E-02	1.06E-03	0.00E+00
R0468	366598.73	3762295.77	Worker	5.07E-02	1.01E-03	0.00E+00
R0469	366598.73	3762320.77	Worker	4.42E-02	9.27E-04	0.00E+00
R0470	366598.73	3762345.77	Worker	3.72E-02	8.26E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0471	366598.73	3762370.77	Worker	3.10E-02	7.21E-04	0.00E+00
R0472	366598.73	3762395.77	Worker	2.57E-02	6.22E-04	0.00E+00
R0473	366598.73	3762420.77	Worker	2.15E-02	5.32E-04	0.00E+00
R0474	366598.73	3762445.77	Worker	1.79E-02	4.54E-04	0.00E+00
R0475	366598.73	3762470.77	Worker	1.51E-02	3.87E-04	0.00E+00
R0476	366598.73	3762495.77	Worker	1.28E-02	3.31E-04	0.00E+00
R0477	366598.73	3762520.77	Worker	1.08E-02	2.84E-04	0.00E+00
R0478	366598.73	3762545.77	Worker	9.27E-03	2.44E-04	0.00E+00
R0479	366598.73	3762570.77	Worker	7.98E-03	2.11E-04	0.00E+00
R0480	366598.73	3762595.77	Worker	6.92E-03	1.84E-04	0.00E+00
R0481	366598.73	3762620.77	Worker	6.05E-03	1.61E-04	0.00E+00
R0482	366623.73	3762045.77	Worker	4.57E-03	1.30E-04	0.00E+00
R0483	366623.73	3762070.77	Worker	5.91E-03	1.71E-04	0.00E+00
R0484	366623.73	3762095.77	Worker	7.94E-03	2.33E-04	0.00E+00
R0485	366623.73	3762120.77	Worker	1.09E-02	3.22E-04	0.00E+00
R0486	366623.73	3762145.77	Worker	1.47E-02	4.35E-04	0.00E+00
R0487	366623.73	3762170.77	Worker	1.94E-02	5.61E-04	0.00E+00
R0488	366623.73	3762195.77	Worker	2.50E-02	6.88E-04	0.00E+00
R0489	366623.73	3762220.77	Worker	3.17E-02	7.96E-04	0.00E+00
R0490	366623.73	3762245.77	Worker	3.78E-02	8.65E-04	0.00E+00
R0491	366623.73	3762270.77	Worker	4.13E-02	8.90E-04	0.00E+00
R0492	366623.73	3762295.77	Worker	4.12E-02	8.74E-04	0.00E+00
R0493	366623.73	3762320.77	Worker	3.82E-02	8.26E-04	0.00E+00
R0494	366623.73	3762345.77	Worker	3.39E-02	7.57E-04	0.00E+00
R0495	366623.73	3762370.77	Worker	2.94E-02	6.79E-04	0.00E+00
R0496	366623.73	3762395.77	Worker	2.51E-02	5.99E-04	0.00E+00
R0497	366623.73	3762420.77	Worker	2.14E-02	5.23E-04	0.00E+00
R0498	366623.73	3762445.77	Worker	1.82E-02	4.54E-04	0.00E+00
R0499	366623.73	3762470.77	Worker	1.55E-02	3.93E-04	0.00E+00
R0500	366623.73	3762495.77	Worker	1.32E-02	3.39E-04	0.00E+00
R0501	366623.73	3762520.77	Worker	1.13E-02	2.94E-04	0.00E+00
R0502	366623.73	3762545.77	Worker	9.75E-03	2.54E-04	0.00E+00
R0503	366623.73	3762570.77	Worker	8.43E-03	2.21E-04	0.00E+00
R0504	366623.73	3762595.77	Worker	7.33E-03	1.93E-04	0.00E+00
R0505	366648.73	3762045.77	Worker	4.14E-03	1.18E-04	0.00E+00
R0506	366648.73	3762070.77	Worker	5.29E-03	1.53E-04	0.00E+00
R0507	366648.73	3762095.77	Worker	7.01E-03	2.05E-04	0.00E+00
R0508	366648.73	3762120.77	Worker	9.24E-03	2.72E-04	0.00E+00
R0509	366648.73	3762145.77	Worker	1.21E-02	3.56E-04	0.00E+00
R0510	366648.73	3762170.77	Worker	1.57E-02	4.53E-04	0.00E+00
R0511	366648.73	3762195.77	Worker	2.00E-02	5.52E-04	0.00E+00
R0512	366648.73	3762220.77	Worker	2.48E-02	6.43E-04	0.00E+00
R0513	366648.73	3762245.77	Worker	2.94E-02	7.11E-04	0.00E+00
R0514	366648.73	3762270.77	Worker	3.25E-02	7.47E-04	0.00E+00
R0515	366648.73	3762295.77	Worker	3.36E-02	7.52E-04	0.00E+00
R0516	366648.73	3762320.77	Worker	3.26E-02	7.29E-04	0.00E+00
R0517	366648.73	3762345.77	Worker	3.02E-02	6.86E-04	0.00E+00
R0518	366648.73	3762370.77	Worker	2.72E-02	6.31E-04	0.00E+00
R0519	366648.73	3762395.77	Worker	2.39E-02	5.69E-04	0.00E+00
R0520	366648.73	3762420.77	Worker	2.09E-02	5.07E-04	0.00E+00
R0521	366648.73	3762445.77	Worker	1.81E-02	4.47E-04	0.00E+00
R0522	366648.73	3762470.77	Worker	1.56E-02	3.92E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0523	366648.73	3762495.77	Worker	1.35E-02	3.43E-04	0.00E+00
R0524	366648.73	3762520.77	Worker	1.17E-02	3.00E-04	0.00E+00
R0525	366648.73	3762545.77	Worker	1.01E-02	2.62E-04	0.00E+00
R0526	366648.73	3762570.77	Worker	8.81E-03	2.30E-04	0.00E+00
R0527	366648.73	3762595.77	Worker	7.70E-03	2.02E-04	0.00E+00
R0528	366673.73	3762070.77	Worker	4.85E-03	1.41E-04	0.00E+00
R0529	366673.73	3762095.77	Worker	6.12E-03	1.79E-04	0.00E+00
R0530	366673.73	3762120.77	Worker	7.87E-03	2.31E-04	0.00E+00
R0531	366673.73	3762145.77	Worker	1.01E-02	2.96E-04	0.00E+00
R0532	366673.73	3762170.77	Worker	1.30E-02	3.72E-04	0.00E+00
R0533	366673.73	3762195.77	Worker	1.62E-02	4.52E-04	0.00E+00
R0534	366673.73	3762220.77	Worker	1.99E-02	5.27E-04	0.00E+00
R0535	366673.73	3762245.77	Worker	2.34E-02	5.89E-04	0.00E+00
R0536	366673.73	3762270.77	Worker	2.62E-02	6.29E-04	0.00E+00
R0537	366673.73	3762295.77	Worker	2.77E-02	6.46E-04	0.00E+00
R0538	366673.73	3762320.77	Worker	2.78E-02	6.41E-04	0.00E+00
R0539	366673.73	3762345.77	Worker	2.66E-02	6.17E-04	0.00E+00
R0540	366673.73	3762370.77	Worker	2.47E-02	5.79E-04	0.00E+00
R0541	366673.73	3762395.77	Worker	2.24E-02	5.34E-04	0.00E+00
R0542	366673.73	3762420.77	Worker	2.00E-02	4.84E-04	0.00E+00
R0543	366673.73	3762445.77	Worker	1.77E-02	4.34E-04	0.00E+00
R0544	366673.73	3762470.77	Worker	1.55E-02	3.87E-04	0.00E+00
R0545	366673.73	3762495.77	Worker	1.36E-02	3.42E-04	0.00E+00
R0546	366673.73	3762520.77	Worker	1.19E-02	3.02E-04	0.00E+00
R0547	366673.73	3762545.77	Worker	1.04E-02	2.67E-04	0.00E+00
R0548	366673.73	3762570.77	Worker	9.10E-03	2.35E-04	0.00E+00
R0549	366698.73	3762070.77	Worker	4.32E-03	1.25E-04	0.00E+00
R0550	366698.73	3762095.77	Worker	5.38E-03	1.56E-04	0.00E+00
R0551	366698.73	3762120.77	Worker	6.80E-03	1.98E-04	0.00E+00
R0552	366698.73	3762145.77	Worker	8.62E-03	2.50E-04	0.00E+00
R0553	366698.73	3762170.77	Worker	1.09E-02	3.11E-04	0.00E+00
R0554	366698.73	3762195.77	Worker	1.35E-02	3.76E-04	0.00E+00
R0555	366698.73	3762220.77	Worker	1.63E-02	4.38E-04	0.00E+00
R0556	366698.73	3762245.77	Worker	1.91E-02	4.92E-04	0.00E+00
R0557	366698.73	3762270.77	Worker	2.15E-02	5.33E-04	0.00E+00
R0558	366698.73	3762295.77	Worker	2.31E-02	5.57E-04	0.00E+00
R0559	366698.73	3762320.77	Worker	2.37E-02	5.62E-04	0.00E+00
R0560	366698.73	3762345.77	Worker	2.33E-02	5.52E-04	0.00E+00
R0561	366698.73	3762370.77	Worker	2.22E-02	5.28E-04	0.00E+00
R0562	366698.73	3762395.77	Worker	2.07E-02	4.96E-04	0.00E+00
R0563	366698.73	3762420.77	Worker	1.89E-02	4.58E-04	0.00E+00
R0564	366698.73	3762445.77	Worker	1.70E-02	4.17E-04	0.00E+00
R0565	366698.73	3762470.77	Worker	1.52E-02	3.77E-04	0.00E+00
R0566	366698.73	3762495.77	Worker	1.35E-02	3.38E-04	0.00E+00
R0567	366698.73	3762520.77	Worker	1.19E-02	3.02E-04	0.00E+00
R0568	366723.73	3762095.77	Worker	4.77E-03	1.38E-04	0.00E+00
R0569	366723.73	3762120.77	Worker	5.95E-03	1.73E-04	0.00E+00
R0570	366723.73	3762145.77	Worker	7.42E-03	2.14E-04	0.00E+00
R0571	366723.73	3762170.77	Worker	9.24E-03	2.63E-04	0.00E+00
R0572	366723.73	3762195.77	Worker	1.13E-02	3.16E-04	0.00E+00
R0573	366723.73	3762220.77	Worker	1.36E-02	3.68E-04	0.00E+00
R0574	366723.73	3762245.77	Worker	1.59E-02	4.16E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0575	366723.73	3762270.77	Worker	1.79E-02	4.54E-04	0.00E+00
R0576	366723.73	3762295.77	Worker	1.94E-02	4.81E-04	0.00E+00
R0577	366723.73	3762320.77	Worker	2.03E-02	4.93E-04	0.00E+00
R0578	366723.73	3762345.77	Worker	2.04E-02	4.92E-04	0.00E+00
R0579	366723.73	3762370.77	Worker	1.99E-02	4.79E-04	0.00E+00
R0580	366723.73	3762395.77	Worker	1.89E-02	4.57E-04	0.00E+00
R0581	366723.73	3762420.77	Worker	1.76E-02	4.29E-04	0.00E+00
R0582	366723.73	3762445.77	Worker	1.61E-02	3.97E-04	0.00E+00
R0583	366748.73	3762120.77	Worker	5.26E-03	1.52E-04	0.00E+00
R0584	366748.73	3762145.77	Worker	6.47E-03	1.86E-04	0.00E+00
R0585	366748.73	3762170.77	Worker	7.94E-03	2.26E-04	0.00E+00
R0586	366748.73	3762195.77	Worker	9.65E-03	2.69E-04	0.00E+00
R0587	366748.73	3762220.77	Worker	1.15E-02	3.14E-04	0.00E+00
R0588	366748.73	3762245.77	Worker	1.34E-02	3.54E-04	0.00E+00
R0589	366748.73	3762270.77	Worker	1.51E-02	3.90E-04	0.00E+00
R0590	366748.73	3762295.77	Worker	1.65E-02	4.16E-04	0.00E+00
R0591	366748.73	3762320.77	Worker	1.74E-02	4.33E-04	0.00E+00
R0592	366748.73	3762345.77	Worker	1.78E-02	4.38E-04	0.00E+00
R0593	366748.73	3762370.77	Worker	1.77E-02	4.33E-04	0.00E+00
R0594	366748.73	3762395.77	Worker	1.72E-02	4.19E-04	0.00E+00
R0595	366773.73	3762145.77	Worker	5.67E-03	1.62E-04	0.00E+00
R0596	366773.73	3762170.77	Worker	6.89E-03	1.95E-04	0.00E+00
R0597	366773.73	3762195.77	Worker	8.30E-03	2.32E-04	0.00E+00
R0598	366773.73	3762220.77	Worker	9.84E-03	2.69E-04	0.00E+00
R0599	366773.73	3762245.77	Worker	1.14E-02	3.05E-04	0.00E+00
R0600	366773.73	3762270.77	Worker	1.29E-02	3.37E-04	0.00E+00
R0601	366773.73	3762295.77	Worker	1.41E-02	3.62E-04	0.00E+00
R0602	366773.73	3762320.77	Worker	1.51E-02	3.80E-04	0.00E+00
R0603	366798.73	3762245.77	Worker	9.82E-03	2.64E-04	0.00E+00
R0604	365848.73	3762245.77	Resident	3.30E-02	8.92E-05	0.00E+00
R0605	365848.73	3762295.77	Worker	1.09E-03	2.97E-05	0.00E+00
R0606	365848.73	3762345.77	Resident	2.89E-02	8.85E-05	0.00E+00
R0607	365848.73	3762395.77	Worker	9.39E-04	2.53E-05	0.00E+00
R0608	365848.73	3762445.77	Worker	8.60E-04	2.30E-05	0.00E+00
R0609	365848.73	3762495.77	Resident	2.23E-02	8.72E-05	0.00E+00
R0610	365898.73	3762145.77	Resident	4.25E-02	8.68E-05	0.00E+00
R0611	365898.73	3762195.77	Resident	4.15E-02	8.60E-05	0.00E+00
R0612	365898.73	3762245.77	Worker	1.39E-03	3.79E-05	0.00E+00
R0613	365898.73	3762295.77	Resident	3.67E-02	8.51E-05	0.00E+00
R0614	365898.73	3762345.77	Worker	1.18E-03	3.20E-05	0.00E+00
R0615	365898.73	3762395.77	Worker	1.08E-03	2.90E-05	0.00E+00
R0616	365898.73	3762445.77	Worker	9.69E-04	2.60E-05	0.00E+00
R0617	365898.73	3762495.77	Worker	8.77E-04	2.34E-05	0.00E+00
R0618	365898.73	3762545.77	Resident	2.24E-02	8.35E-05	0.00E+00
R0619	365948.73	3761995.77	Resident	4.67E-02	8.35E-05	0.00E+00
R0620	365948.73	3762045.77	Worker	1.76E-03	4.92E-05	0.00E+00
R0621	365948.73	3762095.77	Resident	5.20E-02	8.27E-05	0.00E+00
R0622	365948.73	3762145.77	Resident	5.21E-02	8.21E-05	0.00E+00
R0623	365948.73	3762195.77	Resident	5.06E-02	8.18E-05	0.00E+00
R0624	365948.73	3762245.77	Resident	4.77E-02	8.18E-05	0.00E+00
R0625	365948.73	3762295.77	Resident	4.39E-02	8.15E-05	0.00E+00
R0626	365948.73	3762345.77	Worker	1.40E-03	3.78E-05	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0627	365948.73	3762395.77	Worker	1.25E-03	3.36E-05	0.00E+00
R0628	365948.73	3762445.77	Worker	1.11E-03	2.97E-05	0.00E+00
R0629	365948.73	3762495.77	Worker	9.88E-04	2.63E-05	0.00E+00
R0630	365948.73	3762545.77	Resident	2.51E-02	8.04E-05	0.00E+00
R0631	365948.73	3762595.77	Worker	7.89E-04	2.09E-05	0.00E+00
R0632	365948.73	3762645.77	Resident	2.02E-02	7.99E-05	0.00E+00
R0633	365998.73	3761895.77	Worker	1.51E-03	4.21E-05	0.00E+00
R0634	365998.73	3761945.77	Worker	1.75E-03	4.92E-05	0.00E+00
R0635	365998.73	3761995.77	Resident	5.68E-02	7.84E-05	0.00E+00
R0636	365998.73	3762045.77	Worker	2.18E-03	6.15E-05	0.00E+00
R0637	365998.73	3762095.77	Resident	6.54E-02	7.78E-05	0.00E+00
R0638	365998.73	3762145.77	Resident	6.57E-02	7.76E-05	0.00E+00
R0639	365998.73	3762195.77	Worker	2.22E-03	6.18E-05	0.00E+00
R0640	365998.73	3762245.77	Resident	5.88E-02	7.68E-05	0.00E+00
R0641	365998.73	3762295.77	Worker	1.87E-03	5.11E-05	0.00E+00
R0642	365998.73	3762345.77	Worker	1.65E-03	4.49E-05	0.00E+00
R0643	365998.73	3762395.77	Resident	4.14E-02	7.51E-05	0.00E+00
R0644	365998.73	3762445.77	Resident	3.63E-02	7.47E-05	0.00E+00
R0645	365998.73	3762495.77	Worker	1.12E-03	2.99E-05	0.00E+00
R0646	365998.73	3762545.77	Worker	9.92E-04	2.64E-05	0.00E+00
R0647	365998.73	3762595.77	Resident	2.50E-02	7.45E-05	0.00E+00
R0648	365998.73	3762645.77	Resident	2.24E-02	7.38E-05	0.00E+00
R0649	365998.73	3762695.77	Worker	7.13E-04	1.89E-05	0.00E+00
R0650	366048.73	3761845.77	Worker	1.43E-03	3.99E-05	0.00E+00
R0651	366048.73	3761895.77	Worker	1.74E-03	4.88E-05	0.00E+00
R0652	366048.73	3761945.77	Resident	5.97E-02	7.27E-05	0.00E+00
R0653	366048.73	3761995.77	Resident	7.03E-02	7.27E-05	0.00E+00
R0654	366048.73	3762045.77	Resident	7.96E-02	7.25E-05	0.00E+00
R0655	366048.73	3762095.77	Resident	8.53E-02	7.24E-05	0.00E+00
R0656	366048.73	3762145.77	Resident	8.60E-02	7.16E-05	0.00E+00
R0657	366048.73	3762195.77	Resident	8.19E-02	7.16E-05	0.00E+00
R0658	366048.73	3762245.77	Worker	2.61E-03	7.25E-05	0.00E+00
R0659	366048.73	3762495.77	Resident	3.64E-02	7.08E-05	0.00E+00
R0660	366048.73	3762545.77	Resident	3.20E-02	7.08E-05	0.00E+00
R0661	366048.73	3762595.77	Worker	9.91E-04	2.64E-05	0.00E+00
R0662	366048.73	3762645.77	Worker	8.83E-04	2.36E-05	0.00E+00
R0663	366048.73	3762695.77	Resident	2.26E-02	6.97E-05	0.00E+00
R0664	366098.73	3761795.77	Resident	3.69E-02	6.92E-05	0.00E+00
R0665	366098.73	3761845.77	Worker	1.60E-03	4.47E-05	0.00E+00
R0666	366098.73	3761895.77	Worker	2.00E-03	5.65E-05	0.00E+00
R0667	366098.73	3761945.77	Worker	2.51E-03	7.16E-05	0.00E+00
R0668	366098.73	3761995.77	Worker	3.11E-03	8.92E-05	0.00E+00
R0669	366098.73	3762045.77	Resident	1.05E-01	6.78E-05	0.00E+00
R0670	366098.73	3762095.77	Worker	4.08E-03	1.17E-04	0.00E+00
R0671	366098.73	3762145.77	Resident	1.18E-01	6.72E-05	0.00E+00
R0672	366098.73	3762545.77	Worker	1.28E-03	3.45E-05	0.00E+00
R0673	366098.73	3762595.77	Worker	1.13E-03	3.03E-05	0.00E+00
R0674	366098.73	3762645.77	Resident	2.85E-02	6.62E-05	0.00E+00
R0675	366098.73	3762695.77	Resident	2.55E-02	6.59E-05	0.00E+00
R0676	366098.73	3762745.77	Worker	8.06E-04	2.17E-05	0.00E+00
R0677	366148.73	3761745.77	Resident	3.29E-02	6.52E-05	0.00E+00
R0678	366148.73	3761795.77	Resident	4.03E-02	6.51E-05	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0679	366148.73	3761845.77	Worker	1.78E-03	4.99E-05	0.00E+00
R0680	366148.73	3761895.77	Resident	6.55E-02	6.46E-05	0.00E+00
R0681	366148.73	3761945.77	Worker	3.02E-03	8.68E-05	0.00E+00
R0682	366148.73	3761995.77	Resident	1.14E-01	6.45E-05	0.00E+00
R0683	366148.73	3762595.77	Resident	3.71E-02	6.42E-05	0.00E+00
R0684	366148.73	3762645.77	Worker	1.15E-03	3.10E-05	0.00E+00
R0685	366148.73	3762695.77	Resident	2.90E-02	6.33E-05	0.00E+00
R0686	366148.73	3762745.77	Resident	2.60E-02	6.32E-05	0.00E+00
R0687	366198.73	3761745.77	Resident	3.58E-02	6.24E-05	0.00E+00
R0688	366198.73	3761795.77	Worker	1.55E-03	4.32E-05	0.00E+00
R0689	366198.73	3761845.77	Resident	5.64E-02	6.18E-05	0.00E+00
R0690	366198.73	3761895.77	Resident	7.48E-02	6.18E-05	0.00E+00
R0691	366198.73	3761945.77	Worker	3.62E-03	1.05E-04	0.00E+00
R0692	366198.73	3762595.77	Resident	4.36E-02	6.15E-05	0.00E+00
R0693	366198.73	3762645.77	Worker	1.33E-03	3.61E-05	0.00E+00
R0694	366198.73	3762695.77	Resident	3.33E-02	6.06E-05	0.00E+00
R0695	366198.73	3762745.77	Resident	2.96E-02	6.03E-05	0.00E+00
R0696	366248.73	3761745.77	Resident	3.91E-02	6.03E-05	0.00E+00
R0697	366248.73	3761795.77	Resident	4.87E-02	6.00E-05	0.00E+00
R0698	366248.73	3761845.77	Worker	2.20E-03	6.22E-05	0.00E+00
R0699	366248.73	3761895.77	Resident	8.50E-02	5.98E-05	0.00E+00
R0700	366248.73	3762595.77	Resident	5.18E-02	5.97E-05	0.00E+00
R0701	366248.73	3762645.77	Resident	4.44E-02	5.94E-05	0.00E+00
R0702	366248.73	3762695.77	Worker	1.35E-03	3.68E-05	0.00E+00
R0703	366248.73	3762745.77	Resident	3.38E-02	5.89E-05	0.00E+00
R0704	366298.73	3761695.77	Resident	3.47E-02	5.87E-05	0.00E+00
R0705	366298.73	3761745.77	Resident	4.24E-02	5.85E-05	0.00E+00
R0706	366298.73	3761795.77	Worker	1.87E-03	5.24E-05	0.00E+00
R0707	366298.73	3761845.77	Resident	6.96E-02	5.79E-05	0.00E+00
R0708	366298.73	3762645.77	Resident	5.26E-02	5.79E-05	0.00E+00
R0709	366298.73	3762695.77	Resident	4.50E-02	5.71E-05	0.00E+00
R0710	366298.73	3762745.77	Resident	3.90E-02	5.70E-05	0.00E+00
R0711	366298.73	3762795.77	Worker	1.20E-03	3.26E-05	0.00E+00
R0712	366348.73	3761695.77	Worker	1.28E-03	3.55E-05	0.00E+00
R0713	366348.73	3761745.77	Resident	4.50E-02	5.65E-05	0.00E+00
R0714	366348.73	3761795.77	Worker	2.00E-03	5.61E-05	0.00E+00
R0715	366348.73	3761845.77	Resident	7.48E-02	5.61E-05	0.00E+00
R0716	366348.73	3762645.77	Resident	6.29E-02	5.61E-05	0.00E+00
R0717	366348.73	3762695.77	Resident	5.29E-02	5.56E-05	0.00E+00
R0718	366348.73	3762745.77	Worker	1.58E-03	4.31E-05	0.00E+00
R0719	366348.73	3762795.77	Resident	3.91E-02	5.54E-05	0.00E+00
R0720	366398.73	3761695.77	Resident	3.74E-02	5.53E-05	0.00E+00
R0721	366398.73	3761745.77	Resident	4.59E-02	5.50E-05	0.00E+00
R0722	366398.73	3761795.77	Worker	2.03E-03	5.71E-05	0.00E+00
R0723	366398.73	3761845.77	Worker	2.66E-03	7.57E-05	0.00E+00
R0724	366398.73	3761895.77	Worker	3.74E-03	1.08E-04	0.00E+00
R0725	366398.73	3762645.77	Worker	2.65E-03	7.27E-05	0.00E+00
R0726	366398.73	3762695.77	Resident	6.25E-02	5.38E-05	0.00E+00
R0727	366398.73	3762745.77	Resident	5.25E-02	5.38E-05	0.00E+00
R0728	366398.73	3762795.77	Worker	1.57E-03	4.28E-05	0.00E+00
R0729	366448.73	3761745.77	Worker	1.57E-03	4.36E-05	0.00E+00
R0730	366448.73	3761795.77	Worker	1.97E-03	5.54E-05	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0731	366448.73	3761845.77	Worker	2.62E-03	7.45E-05	0.00E+00
R0732	366448.73	3761895.77	Worker	3.35E-03	9.61E-05	0.00E+00
R0733	366448.73	3762645.77	Resident	9.19E-02	5.17E-05	0.00E+00
R0734	366448.73	3762695.77	Resident	7.42E-02	5.16E-05	0.00E+00
R0735	366448.73	3762745.77	Worker	2.15E-03	5.85E-05	0.00E+00
R0736	366448.73	3762795.77	Worker	1.81E-03	4.92E-05	0.00E+00
R0737	366448.73	3762845.77	Resident	4.43E-02	5.09E-05	0.00E+00
R0738	366498.73	3761745.77	Worker	1.54E-03	4.27E-05	0.00E+00
R0739	366498.73	3761795.77	Worker	1.89E-03	5.29E-05	0.00E+00
R0740	366498.73	3761845.77	Worker	2.27E-03	6.36E-05	0.00E+00
R0741	366498.73	3761895.77	Worker	2.85E-03	8.02E-05	0.00E+00
R0742	366498.73	3761945.77	Worker	3.70E-03	1.05E-04	0.00E+00
R0743	366498.73	3762695.77	Worker	3.07E-03	8.35E-05	0.00E+00
R0744	366498.73	3762745.77	Worker	2.50E-03	6.79E-05	0.00E+00
R0745	366498.73	3762795.77	Worker	2.08E-03	5.65E-05	0.00E+00
R0746	366498.73	3762845.77	Worker	1.76E-03	4.78E-05	0.00E+00
R0747	366548.73	3761795.77	Worker	1.63E-03	4.49E-05	0.00E+00
R0748	366548.73	3761845.77	Worker	1.95E-03	5.38E-05	0.00E+00
R0749	366548.73	3761895.77	Worker	2.38E-03	6.59E-05	0.00E+00
R0750	366548.73	3761945.77	Worker	3.01E-03	8.35E-05	0.00E+00
R0751	366548.73	3762695.77	Worker	3.61E-03	9.75E-05	0.00E+00
R0752	366548.73	3762745.77	Worker	2.90E-03	7.84E-05	0.00E+00
R0753	366548.73	3762795.77	Worker	2.39E-03	6.45E-05	0.00E+00
R0754	366548.73	3762845.77	Worker	2.00E-03	5.41E-05	0.00E+00
R0755	366598.73	3761795.77	Worker	1.42E-03	3.85E-05	0.00E+00
R0756	366598.73	3761845.77	Worker	1.67E-03	4.55E-05	0.00E+00
R0757	366598.73	3761895.77	Worker	2.01E-03	5.49E-05	0.00E+00
R0758	366598.73	3761945.77	Worker	2.49E-03	6.83E-05	0.00E+00
R0759	366598.73	3761995.77	Worker	3.32E-03	9.23E-05	0.00E+00
R0760	366598.73	3762645.77	Worker	5.31E-03	1.42E-04	0.00E+00
R0761	366598.73	3762695.77	Worker	4.16E-03	1.11E-04	0.00E+00
R0762	366598.73	3762745.77	Worker	3.33E-03	8.94E-05	0.00E+00
R0763	366598.73	3762795.77	Worker	2.72E-03	7.31E-05	0.00E+00
R0764	366648.73	3761845.77	Worker	1.45E-03	3.90E-05	0.00E+00
R0765	366648.73	3761895.77	Worker	1.72E-03	4.66E-05	0.00E+00
R0766	366648.73	3761945.77	Worker	2.12E-03	5.79E-05	0.00E+00
R0767	366648.73	3761995.77	Worker	2.80E-03	7.78E-05	0.00E+00
R0768	366648.73	3762645.77	Worker	5.95E-03	1.57E-04	0.00E+00
R0769	366648.73	3762695.77	Worker	4.68E-03	1.24E-04	0.00E+00
R0770	366648.73	3762745.77	Worker	3.75E-03	1.00E-04	0.00E+00
R0771	366648.73	3762795.77	Worker	3.06E-03	8.18E-05	0.00E+00
R0772	366698.73	3761845.77	Worker	1.26E-03	3.39E-05	0.00E+00
R0773	366698.73	3761895.77	Worker	1.50E-03	4.05E-05	0.00E+00
R0774	366698.73	3761945.77	Worker	1.84E-03	5.04E-05	0.00E+00
R0775	366698.73	3761995.77	Worker	2.42E-03	6.74E-05	0.00E+00
R0776	366698.73	3762045.77	Worker	3.57E-03	1.02E-04	0.00E+00
R0777	366698.73	3762545.77	Worker	1.05E-02	2.69E-04	0.00E+00
R0778	366698.73	3762595.77	Worker	8.21E-03	2.13E-04	0.00E+00
R0779	366698.73	3762645.77	Worker	6.45E-03	1.69E-04	0.00E+00
R0780	366698.73	3762695.77	Worker	5.12E-03	1.35E-04	0.00E+00
R0781	366698.73	3762745.77	Worker	4.14E-03	1.10E-04	0.00E+00
R0782	366698.73	3762795.77	Worker	3.39E-03	9.00E-05	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0783	366748.73	3761895.77	Worker	1.33E-03	3.60E-05	0.00E+00
R0784	366748.73	3761945.77	Worker	1.65E-03	4.55E-05	0.00E+00
R0785	366748.73	3761995.77	Worker	2.20E-03	6.18E-05	0.00E+00
R0786	366748.73	3762045.77	Worker	2.93E-03	8.36E-05	0.00E+00
R0787	366748.73	3762095.77	Worker	4.27E-03	1.23E-04	0.00E+00
R0788	366748.73	3762445.77	Worker	1.52E-02	3.75E-04	0.00E+00
R0789	366748.73	3762495.77	Resident	3.69E-01	4.22E-05	0.00E+00
R0790	366748.73	3762545.77	Resident	3.01E-01	4.21E-05	0.00E+00
R0791	366748.73	3762595.77	Resident	2.42E-01	4.20E-05	0.00E+00
R0792	366748.73	3762645.77	Worker	6.78E-03	1.76E-04	0.00E+00
R0793	366748.73	3762695.77	Worker	5.43E-03	1.41E-04	0.00E+00
R0794	366748.73	3762745.77	Worker	4.47E-03	1.17E-04	0.00E+00
R0795	366798.73	3761895.77	Worker	1.25E-03	3.42E-05	0.00E+00
R0796	366798.73	3761945.77	Worker	1.52E-03	4.22E-05	0.00E+00
R0797	366798.73	3761995.77	Worker	1.87E-03	5.23E-05	0.00E+00
R0798	366798.73	3762045.77	Worker	2.48E-03	7.03E-05	0.00E+00
R0799	366798.73	3762095.77	Worker	3.48E-03	9.98E-05	0.00E+00
R0800	366798.73	3762145.77	Worker	5.02E-03	1.43E-04	0.00E+00
R0801	366798.73	3762195.77	Worker	7.21E-03	2.01E-04	0.00E+00
R0802	366798.73	3762295.77	Worker	1.22E-02	3.17E-04	0.00E+00
R0803	366798.73	3762345.77	Worker	1.37E-02	3.47E-04	0.00E+00
R0804	366798.73	3762395.77	Worker	1.40E-02	3.49E-04	0.00E+00
R0805	366798.73	3762445.77	Resident	3.81E-01	3.93E-05	0.00E+00
R0806	366798.73	3762495.77	Resident	3.38E-01	3.92E-05	0.00E+00
R0807	366798.73	3762545.77	Worker	1.00E-02	2.53E-04	0.00E+00
R0808	366798.73	3762595.77	Resident	2.41E-01	3.85E-05	0.00E+00
R0809	366798.73	3762645.77	Resident	1.99E-01	3.81E-05	0.00E+00
R0810	366798.73	3762695.77	Worker	5.71E-03	1.48E-04	0.00E+00
R0811	366848.73	3761945.77	Worker	1.30E-03	3.59E-05	0.00E+00
R0812	366848.73	3761995.77	Worker	1.62E-03	4.53E-05	0.00E+00
R0813	366848.73	3762045.77	Worker	2.12E-03	5.99E-05	0.00E+00
R0814	366848.73	3762095.77	Worker	2.89E-03	8.21E-05	0.00E+00
R0815	366848.73	3762145.77	Worker	4.03E-03	1.14E-04	0.00E+00
R0816	366848.73	3762195.77	Worker	5.59E-03	1.56E-04	0.00E+00
R0817	366848.73	3762245.77	Worker	7.46E-03	2.03E-04	0.00E+00
R0818	366848.73	3762295.77	Resident	2.69E-01	3.60E-05	0.00E+00
R0819	366848.73	3762345.77	Worker	1.07E-02	2.76E-04	0.00E+00
R0820	366848.73	3762395.77	Worker	1.14E-02	2.89E-04	0.00E+00
R0821	366848.73	3762445.77	Resident	3.25E-01	3.55E-05	0.00E+00
R0822	366848.73	3762495.77	Resident	3.02E-01	3.51E-05	0.00E+00
R0823	366848.73	3762545.77	Resident	2.69E-01	3.51E-05	0.00E+00
R0824	366848.73	3762595.77	Resident	2.32E-01	3.47E-05	0.00E+00
R0825	366848.73	3762645.77	Worker	6.88E-03	1.77E-04	0.00E+00
R0826	366898.73	3761995.77	Worker	1.43E-03	3.98E-05	0.00E+00
R0827	366898.73	3762045.77	Worker	1.84E-03	5.17E-05	0.00E+00
R0828	366898.73	3762095.77	Worker	2.45E-03	6.92E-05	0.00E+00
R0829	366898.73	3762145.77	Worker	3.31E-03	9.32E-05	0.00E+00
R0830	366898.73	3762195.77	Worker	4.46E-03	1.24E-04	0.00E+00
R0831	366898.73	3762245.77	Resident	1.68E-01	3.36E-05	0.00E+00
R0832	366898.73	3762295.77	Resident	2.10E-01	3.26E-05	0.00E+00
R0833	366898.73	3762345.77	Worker	8.50E-03	2.22E-04	0.00E+00
R0834	366898.73	3762395.77	Worker	9.28E-03	2.39E-04	0.00E+00

Table F-2. Construction Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
R0835	366898.73	3762445.77	Worker	9.50E-03	2.42E-04	0.00E+00
R0836	366898.73	3762495.77	Resident	2.65E-01	3.17E-05	0.00E+00
R0837	366898.73	3762545.77	Worker	8.51E-03	2.16E-04	0.00E+00
R0838	366948.73	3762045.77	Worker	1.61E-03	4.51E-05	0.00E+00
R0839	366948.73	3762095.77	Worker	2.09E-03	5.89E-05	0.00E+00
R0840	366948.73	3762145.77	Resident	7.96E-02	2.99E-05	0.00E+00
R0841	366948.73	3762195.77	Resident	1.05E-01	2.99E-05	0.00E+00
R0842	366948.73	3762245.77	Resident	1.35E-01	2.97E-05	0.00E+00
R0843	366948.73	3762295.77	Worker	5.80E-03	1.56E-04	0.00E+00
R0844	366948.73	3762345.77	Resident	1.97E-01	2.90E-05	0.00E+00
R0845	366948.73	3762395.77	Worker	7.60E-03	1.98E-04	0.00E+00
R0846	366948.73	3762445.77	Worker	8.00E-03	2.06E-04	0.00E+00
R0847	366998.73	3762245.77	Worker	3.83E-03	1.05E-04	0.00E+00
R0848	365879.44	3762156.38	Sensitive	3.95E-02	2.75E-05	0.00E+00
R0849	366918.12	3762381.3	Sensitive	2.43E-01	2.68E-05	0.00E+00
R0850	365948	3761812.73	Sensitive	2.95E-02	2.64E-05	0.00E+00
R0851	366260.81	3762127.74	Sensitive	7.24E-01	2.64E-05	0.00E+00
R0852	366302.68	3762452.63	Sensitive	1.17E-01	2.63E-05	0.00E+00
R0853	366498.73	3762195.77	Worker	1.04E-01	2.95E-03	0.00E+00
R0854	366498.73	3762220.77	Worker	1.18E-01	2.84E-03	0.00E+00
R0855	366498.73	3762245.77	Worker	1.23E-01	2.45E-03	0.00E+00
R0856	366523.73	3762245.77	Worker	1.38E-01	2.29E-03	0.00E+00
R0857	366523.73	3762220.77	Worker	1.19E-01	2.16E-03	0.00E+00
R0858	366473.73	3762195.77	Worker	1.44E-01	4.29E-03	0.00E+00
R0859	366473.73	3762170.77	Worker	1.31E-01	4.09E-03	0.00E+00
R0860	366473.73	3762220.77	Worker	1.32E-01	3.70E-03	0.00E+00
R0861	366448.73	3762195.77	Worker	2.01E-01	6.27E-03	0.00E+00
R0862	366448.73	3762170.77	Worker	2.18E-01	6.98E-03	0.00E+00
R0863	366423.73	3762195.77	Worker	2.74E-01	8.69E-03	0.00E+00
R0864	366423.73	3762170.77	Worker	3.87E-01	1.25E-02	0.00E+00
R0865	366423.73	3762145.77	Worker	3.31E-01	1.08E-02	0.00E+00
R0866	366573.73	3762245.77	Worker	7.39E-02	1.31E-03	0.00E+00
R0867	366573.73	3762270.77	Worker	7.29E-02	1.27E-03	0.00E+00
R0868	366548.73	3762245.77	Worker	1.15E-01	1.94E-03	0.00E+00
R0869	366548.73	3762270.77	Worker	9.93E-02	1.59E-03	0.00E+00

Notes:

[1] Receptors 2, 8-11, 16-19, 24-28, 33, 34, and 41 were used for spatial averaging to represent Receptor 243 more accurately. Receptor 243 is presented as spatial averaged value in Table 5-4.

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
1	366270	3762132	Worker	0.68	1.97E-02	6.08E-02
2	366275	3762132	Resident	6.79	2.17E-02	6.58E-02
3	366280	3762132	Worker	0.82	2.39E-02	7.18E-02
4	366285	3762132	Worker	0.92	2.65E-02	7.88E-02
5	366290	3762132	Worker	1.03	2.96E-02	8.69E-02
6	366295	3762132	Worker	1.17	3.34E-02	9.78E-02
7	366300	3762132	Worker	1.34	3.81E-02	1.11E-01
8	366270	3762137	Resident	6.14	1.98E-02	5.92E-02
9	366275	3762137	Resident	6.77	2.18E-02	6.41E-02
10	366280	3762137	Resident	7.52	2.40E-02	6.97E-02
11	366285	3762137	Resident	8.42	2.67E-02	7.63E-02
12	366290	3762137	Worker	1.03	2.99E-02	8.40E-02
13	366295	3762137	Worker	1.17	3.37E-02	9.32E-02
14	366300	3762137	Worker	1.35	3.84E-02	1.05E-01
15	366270	3762142	Resident	6.09	1.98E-02	5.83E-02
16	366275	3762142	Resident	6.72	2.18E-02	6.30E-02
17	366280	3762142	Resident	7.46	2.40E-02	6.83E-02
18	366285	3762142	Resident	8.34	2.67E-02	7.45E-02
19	366290	3762142	Resident	9.41	2.99E-02	8.18E-02
20	366295	3762142	Worker	1.17	3.37E-02	9.05E-02
21	366300	3762142	Worker	1.34	3.85E-02	1.01E-01
22	366270	3762147	Resident	6.02	1.98E-02	5.84E-02
23	366275	3762147	Resident	6.64	2.17E-02	6.31E-02
24	366280	3762147	Resident	7.35	2.39E-02	6.85E-02
25	366285	3762147	Resident	8.21	2.66E-02	7.48E-02
26	366290	3762147	Resident	9.23	2.97E-02	8.22E-02
27	366295	3762147	Resident	10.49	3.35E-02	9.09E-02
28	366300	3762147	Resident	12.07	3.81E-02	1.02E-01
29	366270	3762152	Resident	5.93	1.96E-02	5.84E-02
30	366275	3762152	Resident	6.52	2.15E-02	6.29E-02
31	366280	3762152	Resident	7.21	2.37E-02	6.80E-02
32	366285	3762152	Resident	8.03	2.63E-02	7.42E-02
33	366290	3762152	Resident	9.00	2.93E-02	8.14E-02
34	366295	3762152	Resident	10.18	3.30E-02	9.01E-02
35	366300	3762152	Worker	1.29	3.74E-02	1.01E-01
36	366270	3762157	Resident	5.81	1.94E-02	5.85E-02
37	366275	3762157	Resident	6.38	2.12E-02	6.32E-02
38	366280	3762157	Resident	7.04	2.34E-02	6.85E-02
39	366285	3762157	Resident	7.81	2.59E-02	7.44E-02
40	366290	3762157	Resident	8.73	2.88E-02	8.21E-02
41	366295	3762157	Resident	9.82	3.23E-02	9.11E-02
42	366300	3762157	Worker	1.24	3.65E-02	1.02E-01
43	366048.73	3762295.77	Worker	0.07	2.05E-03	1.27E-02
44	366048.73	3762320.77	Worker	0.07	2.05E-03	1.33E-02
45	366048.73	3762345.77	Worker	0.06	1.87E-03	1.20E-02
46	366048.73	3762370.77	Resident	0.48	1.71E-03	9.81E-03
47	366048.73	3762395.77	Resident	0.44	1.59E-03	7.86E-03
48	366048.73	3762420.77	Worker	0.05	1.47E-03	6.95E-03
49	366048.73	3762445.77	Worker	0.04	1.37E-03	6.41E-03
50	366073.73	3762220.77	Resident	0.74	2.63E-03	1.17E-02
51	366073.73	3762245.77	Worker	0.08	2.53E-03	1.15E-02
52	366073.73	3762270.77	Worker	0.08	2.42E-03	1.35E-02
53	366073.73	3762295.77	Worker	0.08	2.39E-03	1.50E-02
54	366073.73	3762320.77	Worker	0.07	2.23E-03	1.43E-02
55	366073.73	3762345.77	Worker	0.07	2.02E-03	1.20E-02
56	366073.73	3762370.77	Resident	0.52	1.86E-03	9.35E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
57	366073.73	3762395.77	Worker	0.06	1.72E-03	8.03E-03
58	366073.73	3762420.77	Resident	0.44	1.59E-03	7.23E-03
59	366073.73	3762445.77	Resident	0.40	1.47E-03	6.70E-03
60	366073.73	3762470.77	Resident	0.37	1.37E-03	6.41E-03
61	366098.73	3762170.77	Resident	0.93	3.25E-03	1.32E-02
62	366098.73	3762195.77	Worker	0.10	3.16E-03	1.35E-02
63	366098.73	3762220.77	Worker	0.10	3.05E-03	1.32E-02
64	366098.73	3762245.77	Worker	0.10	2.91E-03	1.43E-02
65	366098.73	3762270.77	Worker	0.10	2.85E-03	1.65E-02
66	366098.73	3762295.77	Worker	0.09	2.68E-03	1.69E-02
67	366098.73	3762320.77	Worker	0.08	2.42E-03	1.48E-02
68	366098.73	3762345.77	Worker	0.07	2.21E-03	1.16E-02
69	366098.73	3762370.77	Resident	0.56	2.03E-03	9.41E-03
70	366098.73	3762395.77	Resident	0.51	1.87E-03	8.27E-03
71	366098.73	3762420.77	Resident	0.47	1.72E-03	7.58E-03
72	366098.73	3762445.77	Worker	0.05	1.58E-03	7.33E-03
73	366098.73	3762470.77	Resident	0.40	1.46E-03	6.89E-03
74	366098.73	3762495.77	Resident	0.37	1.35E-03	6.32E-03
75	366123.73	3762095.77	Resident	1.14	3.85E-03	1.57E-02
76	366123.73	3762120.77	Worker	0.13	3.91E-03	1.53E-02
77	366123.73	3762145.77	Resident	1.13	3.91E-03	1.50E-02
78	366123.73	3762170.77	Resident	1.11	3.85E-03	1.51E-02
79	366123.73	3762195.77	Worker	0.12	3.74E-03	1.56E-02
80	366123.73	3762220.77	Worker	0.12	3.58E-03	1.52E-02
81	366123.73	3762245.77	Worker	0.12	3.47E-03	1.79E-02
82	366123.73	3762270.77	Worker	0.11	3.27E-03	1.97E-02
83	366123.73	3762295.77	Worker	0.10	2.95E-03	1.83E-02
84	366123.73	3762320.77	Worker	0.09	2.68E-03	1.47E-02
85	366123.73	3762345.77	Resident	0.68	2.45E-03	1.14E-02
86	366123.73	3762370.77	Resident	0.61	2.23E-03	9.71E-03
87	366123.73	3762395.77	Resident	0.56	2.04E-03	8.77E-03
88	366123.73	3762420.77	Resident	0.51	1.86E-03	8.45E-03
89	366123.73	3762445.77	Resident	0.46	1.70E-03	7.87E-03
90	366123.73	3762470.77	Resident	0.42	1.56E-03	7.13E-03
91	366123.73	3762495.77	Worker	0.05	1.43E-03	6.95E-03
92	366123.73	3762520.77	Resident	0.36	1.32E-03	7.02E-03
93	366148.73	3762045.77	Resident	1.26	4.20E-03	1.99E-02
94	366148.73	3762070.77	Resident	1.33	4.45E-03	2.11E-02
95	366148.73	3762095.77	Resident	1.38	4.63E-03	1.89E-02
96	366148.73	3762120.77	Worker	0.16	4.73E-03	1.82E-02
97	366148.73	3762145.77	Resident	1.38	4.74E-03	1.78E-02
98	366148.73	3762170.77	Worker	0.15	4.66E-03	1.77E-02
99	366148.73	3762195.77	Worker	0.15	4.51E-03	1.84E-02
100	366148.73	3762220.77	Worker	0.15	4.35E-03	1.92E-02
101	366148.73	3762245.77	Worker	0.14	4.08E-03	2.23E-02
102	366148.73	3762270.77	Worker	0.12	3.68E-03	2.25E-02
103	366148.73	3762295.77	Worker	0.11	3.33E-03	1.90E-02
104	366148.73	3762320.77	Resident	0.83	3.02E-03	1.41E-02
105	366148.73	3762345.77	Resident	0.75	2.72E-03	1.17E-02
106	366148.73	3762370.77	Resident	0.67	2.46E-03	1.04E-02
107	366148.73	3762395.77	Resident	0.61	2.23E-03	9.89E-03
108	366148.73	3762420.77	Resident	0.55	2.02E-03	9.10E-03
109	366148.73	3762445.77	Worker	0.06	1.83E-03	8.25E-03
110	366148.73	3762470.77	Worker	0.05	1.67E-03	8.28E-03
111	366148.73	3762495.77	Resident	0.42	1.52E-03	8.33E-03
112	366148.73	3762520.77	Resident	0.38	1.39E-03	8.08E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
113	366148.73	3762545.77	Resident	0.35	1.28E-03	7.57E-03
114	366173.73	3761995.77	Worker	0.14	4.14E-03	1.94E-02
115	366173.73	3762020.77	Resident	1.38	4.57E-03	1.98E-02
116	366173.73	3762045.77	Worker	0.17	5.01E-03	2.27E-02
117	366173.73	3762070.77	Resident	1.62	5.39E-03	2.49E-02
118	366173.73	3762095.77	Resident	1.70	5.69E-03	2.38E-02
119	366173.73	3762120.77	Worker	0.20	5.86E-03	2.21E-02
120	366173.73	3762145.77	Worker	0.20	5.88E-03	2.14E-02
121	366173.73	3762170.77	Worker	0.19	5.80E-03	2.16E-02
122	366173.73	3762195.77	Worker	0.19	5.61E-03	2.19E-02
123	366173.73	3762220.77	Worker	0.17	5.21E-03	2.48E-02
124	366173.73	3762245.77	Worker	0.15	4.73E-03	2.73E-02
125	366173.73	3762270.77	Worker	0.14	4.26E-03	2.46E-02
126	366173.73	3762295.77	Resident	1.05	3.82E-03	1.86E-02
127	366173.73	3762320.77	Resident	0.93	3.41E-03	1.44E-02
128	366173.73	3762345.77	Worker	0.10	3.04E-03	1.26E-02
129	366173.73	3762370.77	Resident	0.74	2.72E-03	1.18E-02
130	366173.73	3762395.77	Resident	0.66	2.43E-03	1.06E-02
131	366173.73	3762420.77	Worker	0.07	2.19E-03	9.97E-03
132	366173.73	3762445.77	Resident	0.54	1.97E-03	1.00E-02
133	366173.73	3762470.77	Resident	0.49	1.78E-03	9.86E-03
134	366173.73	3762495.77	Resident	0.44	1.62E-03	9.26E-03
135	366173.73	3762520.77	Worker	0.05	1.47E-03	8.40E-03
136	366173.73	3762545.77	Resident	0.37	1.35E-03	7.43E-03
137	366198.73	3761970.77	Worker	0.14	4.14E-03	1.89E-02
138	366198.73	3761995.77	Worker	0.16	4.79E-03	2.31E-02
139	366198.73	3762020.77	Worker	0.18	5.40E-03	2.33E-02
140	366198.73	3762045.77	Resident	1.84	6.06E-03	2.61E-02
141	366198.73	3762070.77	Worker	0.23	6.67E-03	2.94E-02
142	366198.73	3762095.77	Worker	0.24	7.17E-03	3.01E-02
143	366198.73	3762120.77	Worker	0.25	7.48E-03	2.74E-02
144	366198.73	3762145.77	Worker	0.26	7.60E-03	2.65E-02
145	366198.73	3762170.77	Worker	0.25	7.43E-03	2.68E-02
146	366198.73	3762195.77	Worker	0.23	6.93E-03	2.69E-02
147	366198.73	3762220.77	Worker	0.21	6.32E-03	3.23E-02
148	366198.73	3762245.77	Worker	0.18	5.66E-03	3.21E-02
149	366198.73	3762270.77	Resident	1.38	5.02E-03	2.52E-02
150	366198.73	3762295.77	Worker	0.14	4.42E-03	1.83E-02
151	366198.73	3762320.77	Resident	1.06	3.88E-03	1.57E-02
152	366198.73	3762345.77	Resident	0.93	3.41E-03	1.43E-02
153	366198.73	3762370.77	Worker	0.10	3.01E-03	1.27E-02
154	366198.73	3762395.77	Worker	0.08	2.66E-03	1.24E-02
155	366198.73	3762420.77	Resident	0.65	2.37E-03	1.22E-02
156	366198.73	3762445.77	Resident	0.58	2.11E-03	1.15E-02
157	366198.73	3762470.77	Resident	0.52	1.89E-03	1.05E-02
158	366198.73	3762495.77	Resident	0.47	1.71E-03	9.21E-03
159	366198.73	3762520.77	Resident	0.43	1.55E-03	8.39E-03
160	366198.73	3762545.77	Resident	0.39	1.41E-03	8.03E-03
161	366223.73	3761945.77	Resident	1.17	3.99E-03	1.46E-02
162	366223.73	3761970.77	Worker	0.16	4.66E-03	1.87E-02
163	366223.73	3761995.77	Worker	0.19	5.49E-03	2.41E-02
164	366223.73	3762020.77	Worker	0.22	6.44E-03	2.94E-02
165	366223.73	3762045.77	Worker	0.25	7.43E-03	2.99E-02
166	366223.73	3762070.77	Worker	0.29	8.45E-03	3.55E-02
167	366223.73	3762095.77	Worker	0.32	9.37E-03	3.88E-02
168	366223.73	3762120.77	Worker	0.34	9.99E-03	3.50E-02

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
169	366223.73	3762145.77	Worker	0.34	1.01E-02	3.35E-02
170	366223.73	3762170.77	Worker	0.32	9.64E-03	3.38E-02
171	366223.73	3762195.77	Worker	0.29	8.89E-03	3.74E-02
172	366223.73	3762220.77	Resident	2.23	7.93E-03	4.15E-02
173	366223.73	3762245.77	Resident	1.92	6.93E-03	3.52E-02
174	366223.73	3762270.77	Resident	1.64	5.98E-03	2.45E-02
175	366223.73	3762295.77	Resident	1.41	5.14E-03	2.01E-02
176	366223.73	3762320.77	Resident	1.21	4.42E-03	1.77E-02
177	366223.73	3762345.77	Worker	0.12	3.82E-03	1.58E-02
178	366223.73	3762370.77	Worker	0.11	3.32E-03	1.58E-02
179	366223.73	3762395.77	Resident	0.80	2.90E-03	1.49E-02
180	366223.73	3762420.77	Resident	0.70	2.55E-03	1.34E-02
181	366223.73	3762445.77	Resident	0.62	2.26E-03	1.16E-02
182	366223.73	3762470.77	Resident	0.56	2.01E-03	1.07E-02
183	366223.73	3762495.77	Resident	0.50	1.80E-03	1.01E-02
184	366223.73	3762520.77	Worker	0.05	1.63E-03	9.49E-03
185	366223.73	3762545.77	Worker	0.05	1.47E-03	8.90E-03
186	366223.73	3762570.77	Resident	0.38	1.34E-03	8.31E-03
187	366248.73	3761920.77	Resident	1.07	3.72E-03	1.58E-02
188	366248.73	3761945.77	Resident	1.27	4.38E-03	1.69E-02
189	366248.73	3761970.77	Worker	0.18	5.22E-03	1.86E-02
190	366248.73	3761995.77	Worker	0.21	6.29E-03	2.40E-02
191	366248.73	3762020.77	Worker	0.26	7.67E-03	3.21E-02
192	366248.73	3762045.77	Worker	0.32	9.26E-03	3.90E-02
193	366248.73	3762070.77	Worker	0.38	1.11E-02	4.35E-02
194	366248.73	3762095.77	Worker	0.44	1.27E-02	5.00E-02
195	366248.73	3762120.77	Worker	0.47	1.38E-02	4.69E-02
196	366248.73	3762145.77	Worker	0.47	1.40E-02	4.40E-02
197	366248.73	3762170.77	Resident	3.89	1.33E-02	4.43E-02
198	366248.73	3762195.77	Resident	3.41	1.19E-02	5.29E-02
199	366248.73	3762220.77	Resident	2.88	1.03E-02	5.04E-02
200	366248.73	3762245.77	Resident	2.39	8.63E-03	3.58E-02
201	366248.73	3762270.77	Resident	1.98	7.20E-03	2.68E-02
202	366248.73	3762295.77	Worker	0.19	6.01E-03	2.28E-02
203	366248.73	3762395.77	Worker	0.10	3.15E-03	1.54E-02
204	366248.73	3762420.77	Resident	0.76	2.74E-03	1.40E-02
205	366248.73	3762445.77	Resident	0.67	2.41E-03	1.30E-02
206	366248.73	3762470.77	Resident	0.60	2.13E-03	1.21E-02
207	366248.73	3762495.77	Worker	0.06	1.90E-03	1.11E-02
208	366248.73	3762520.77	Resident	0.48	1.70E-03	1.02E-02
209	366248.73	3762545.77	Resident	0.43	1.53E-03	9.25E-03
210	366248.73	3762570.77	Resident	0.39	1.39E-03	8.35E-03
211	366273.73	3761920.77	Resident	1.14	3.99E-03	1.80E-02
212	366273.73	3761945.77	Resident	1.37	4.77E-03	2.06E-02
213	366273.73	3761970.77	Worker	0.19	5.80E-03	2.32E-02
214	366273.73	3761995.77	Worker	0.24	7.19E-03	2.54E-02
215	366273.73	3762020.77	Worker	0.31	9.09E-03	3.25E-02
216	366273.73	3762045.77	Worker	0.41	1.18E-02	4.58E-02
217	366273.73	3762070.77	Worker	0.51	1.47E-02	5.51E-02
218	366273.73	3762095.77	Worker	0.63	1.80E-02	6.63E-02
219	366273.73	3762120.77	Worker	0.71	2.06E-02	6.86E-02
220	366273.73	3762145.77	Resident	6.49	2.12E-02	6.19E-02
221	366273.73	3762170.77	Resident	5.78	1.97E-02	6.67E-02
222	366273.73	3762195.77	Resident	4.81	1.68E-02	7.32E-02
223	366273.73	3762220.77	Worker	0.45	1.37E-02	5.57E-02
224	366273.73	3762245.77	Worker	0.35	1.09E-02	3.78E-02

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
225	366273.73	3762395.77	Resident	0.95	3.40E-03	1.76E-02
226	366273.73	3762420.77	Resident	0.82	2.93E-03	1.58E-02
227	366273.73	3762445.77	Worker	0.08	2.55E-03	1.41E-02
228	366273.73	3762470.77	Resident	0.64	2.24E-03	1.26E-02
229	366273.73	3762495.77	Resident	0.56	1.98E-03	1.12E-02
230	366273.73	3762520.77	Resident	0.50	1.77E-03	9.95E-03
231	366273.73	3762545.77	Worker	0.05	1.59E-03	8.83E-03
232	366273.73	3762570.77	Resident	0.41	1.44E-03	7.83E-03
233	366298.73	3761895.77	Resident	1.00	3.56E-03	1.53E-02
234	366298.73	3761920.77	Resident	1.20	4.24E-03	1.85E-02
235	366298.73	3761945.77	Worker	0.17	5.14E-03	2.23E-02
236	366298.73	3761970.77	Worker	0.21	6.38E-03	2.72E-02
237	366298.73	3761995.77	Worker	0.27	8.13E-03	3.28E-02
238	366298.73	3762020.77	Worker	0.36	1.07E-02	3.85E-02
239	366298.73	3762045.77	Worker	0.50	1.46E-02	4.67E-02
240	366298.73	3762070.77	Worker	0.70	2.01E-02	7.18E-02
241	366298.73	3762095.77	Worker	0.97	2.75E-02	9.18E-02
242	366298.73	3762120.77	Worker	1.23	3.49E-02	1.10E-01
243	366298.73	3762145.77	Resident	11.72	3.69E-02	9.89E-02
244	366298.73	3762170.77	Worker	1.08	3.23E-02	1.12E-01
245	366298.73	3762395.77	Worker	0.12	3.65E-03	1.85E-02
246	366298.73	3762420.77	Worker	0.10	3.11E-03	1.60E-02
247	366298.73	3762445.77	Resident	0.77	2.69E-03	1.39E-02
248	366298.73	3762470.77	Resident	0.68	2.34E-03	1.20E-02
249	366298.73	3762495.77	Resident	0.60	2.07E-03	1.04E-02
250	366298.73	3762520.77	Resident	0.53	1.84E-03	8.99E-03
251	366298.73	3762545.77	Resident	0.48	1.64E-03	7.99E-03
252	366298.73	3762570.77	Resident	0.43	1.48E-03	7.27E-03
253	366298.73	3762595.77	Worker	0.04	1.35E-03	6.75E-03
254	366323.73	3761895.77	Worker	0.12	3.71E-03	1.43E-02
255	366323.73	3761920.77	Worker	0.15	4.46E-03	1.69E-02
256	366323.73	3761945.77	Worker	0.18	5.48E-03	2.14E-02
257	366323.73	3761970.77	Worker	0.23	6.92E-03	2.76E-02
258	366323.73	3761995.77	Worker	0.30	8.99E-03	3.59E-02
259	366323.73	3762020.77	Worker	0.41	1.22E-02	4.70E-02
260	366323.73	3762045.77	Worker	0.59	1.75E-02	6.18E-02
261	366323.73	3762070.77	Worker	0.95	2.73E-02	8.12E-02
262	366323.73	3762095.77	Worker	1.67	4.63E-02	1.53E-01
263	366323.73	3762120.77	Worker	2.85	7.62E-02	2.32E-01
264	366323.73	3762395.77	Worker	0.13	3.87E-03	1.75E-02
265	366323.73	3762420.77	Resident	0.96	3.28E-03	1.44E-02
266	366323.73	3762445.77	Resident	0.83	2.82E-03	1.23E-02
267	366323.73	3762470.77	Worker	0.08	2.44E-03	1.08E-02
268	366323.73	3762495.77	Resident	0.63	2.14E-03	9.76E-03
269	366323.73	3762520.77	Resident	0.56	1.90E-03	8.86E-03
270	366323.73	3762545.77	Resident	0.50	1.70E-03	8.08E-03
271	366323.73	3762570.77	Worker	0.05	1.52E-03	7.40E-03
272	366323.73	3762595.77	Resident	0.41	1.38E-03	6.80E-03
273	366348.73	3761895.77	Worker	0.13	3.83E-03	1.61E-02
274	366348.73	3761920.77	Worker	0.15	4.63E-03	1.87E-02
275	366348.73	3761945.77	Worker	0.19	5.74E-03	2.21E-02
276	366348.73	3761970.77	Worker	0.24	7.30E-03	2.66E-02
277	366348.73	3761995.77	Worker	0.32	9.63E-03	3.27E-02
278	366348.73	3762020.77	Worker	0.44	1.34E-02	4.50E-02
279	366348.73	3762045.77	Worker	0.67	2.02E-02	6.67E-02
280	366348.73	3762070.77	Worker	1.16	3.43E-02	1.05E-01

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
281	366348.73	3762095.77	Worker	2.50	7.14E-02	1.81E-01
282	366348.73	3762420.77	Resident	1.04	3.44E-03	1.38E-02
283	366348.73	3762445.77	Resident	0.89	2.93E-03	1.20E-02
284	366348.73	3762470.77	Resident	0.76	2.53E-03	1.08E-02
285	366348.73	3762495.77	Resident	0.67	2.21E-03	9.71E-03
286	366348.73	3762520.77	Worker	0.06	1.96E-03	8.78E-03
287	366348.73	3762545.77	Resident	0.53	1.74E-03	8.00E-03
288	366348.73	3762570.77	Resident	0.47	1.56E-03	7.36E-03
289	366348.73	3762595.77	Resident	0.43	1.41E-03	6.78E-03
290	366373.73	3761895.77	Worker	0.13	3.89E-03	1.53E-02
291	366373.73	3761920.77	Worker	0.16	4.72E-03	1.80E-02
292	366373.73	3761945.77	Worker	0.19	5.83E-03	2.14E-02
293	366373.73	3761970.77	Worker	0.24	7.43E-03	2.61E-02
294	366373.73	3761995.77	Worker	0.32	9.89E-03	3.28E-02
295	366373.73	3762020.77	Worker	0.46	1.39E-02	4.27E-02
296	366373.73	3762045.77	Worker	0.70	2.14E-02	5.89E-02
297	366373.73	3762070.77	Worker	1.23	3.76E-02	9.13E-02
298	366373.73	3762095.77	Worker	2.80	8.47E-02	1.73E-01
299	366373.73	3762420.77	Worker	0.12	3.58E-03	1.47E-02
300	366373.73	3762445.77	Resident	0.95	3.04E-03	1.31E-02
301	366373.73	3762470.77	Worker	0.09	2.62E-03	1.19E-02
302	366373.73	3762495.77	Worker	0.08	2.28E-03	1.08E-02
303	366373.73	3762520.77	Resident	0.62	2.01E-03	9.88E-03
304	366373.73	3762545.77	Resident	0.55	1.78E-03	9.03E-03
305	366373.73	3762570.77	Resident	0.49	1.60E-03	8.27E-03
306	366373.73	3762595.77	Resident	0.44	1.44E-03	7.59E-03
307	366398.73	3761920.77	Worker	0.15	4.65E-03	1.87E-02
308	366398.73	3761945.77	Worker	0.19	5.73E-03	2.25E-02
309	366398.73	3761970.77	Worker	0.24	7.28E-03	2.76E-02
310	366398.73	3761995.77	Worker	0.31	9.62E-03	3.50E-02
311	366398.73	3762020.77	Worker	0.43	1.34E-02	4.58E-02
312	366398.73	3762045.77	Worker	0.65	2.01E-02	6.12E-02
313	366398.73	3762070.77	Worker	1.09	3.37E-02	8.56E-02
314	366398.73	3762095.77	Worker	2.19	6.75E-02	1.44E-01
315	366398.73	3762120.77	Worker	5.87	1.76E-01	3.52E-01
316	366398.73	3762420.77	Worker	0.13	3.71E-03	1.58E-02
317	366398.73	3762445.77	Worker	0.11	3.14E-03	1.39E-02
318	366398.73	3762470.77	Resident	0.87	2.69E-03	1.27E-02
319	366398.73	3762495.77	Resident	0.75	2.34E-03	1.15E-02
320	366398.73	3762520.77	Resident	0.66	2.05E-03	1.04E-02
321	366398.73	3762545.77	Worker	0.06	1.82E-03	9.50E-03
322	366398.73	3762570.77	Resident	0.52	1.63E-03	8.73E-03
323	366398.73	3762595.77	Resident	0.46	1.46E-03	8.02E-03
324	366398.73	3762620.77	Resident	0.42	1.33E-03	7.40E-03
325	366423.73	3761920.77	Worker	0.15	4.47E-03	1.84E-02
326	366423.73	3761945.77	Worker	0.18	5.46E-03	2.16E-02
327	366423.73	3761970.77	Worker	0.22	6.84E-03	2.55E-02
328	366423.73	3761995.77	Worker	0.29	8.85E-03	3.07E-02
329	366423.73	3762020.77	Worker	0.38	1.19E-02	3.89E-02
330	366423.73	3762045.77	Worker	0.54	1.69E-02	4.99E-02
331	366423.73	3762070.77	Worker	0.82	2.57E-02	7.29E-02
332	366423.73	3762095.77	Worker	1.36	4.19E-02	1.17E-01
333	366423.73	3762120.77	Worker	2.46	7.26E-02	1.50E-01
334	366423.73	3762445.77	Resident	1.09	3.24E-03	1.35E-02
335	366423.73	3762470.77	Resident	0.92	2.77E-03	1.24E-02
336	366423.73	3762495.77	Resident	0.80	2.40E-03	1.13E-02

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
337	366423.73	3762520.77	Resident	0.69	2.10E-03	1.04E-02
338	366423.73	3762545.77	Resident	0.61	1.86E-03	9.51E-03
339	366423.73	3762570.77	Resident	0.54	1.66E-03	8.73E-03
340	366423.73	3762595.77	Worker	0.05	1.49E-03	8.04E-03
341	366423.73	3762620.77	Resident	0.43	1.35E-03	7.48E-03
342	366448.73	3761945.77	Worker	0.16	5.05E-03	2.00E-02
343	366448.73	3761970.77	Worker	0.20	6.21E-03	2.35E-02
344	366448.73	3761995.77	Worker	0.25	7.82E-03	2.77E-02
345	366448.73	3762020.77	Worker	0.33	1.01E-02	3.46E-02
346	366448.73	3762045.77	Worker	0.43	1.35E-02	4.68E-02
347	366448.73	3762070.77	Worker	0.60	1.85E-02	6.24E-02
348	366448.73	3762095.77	Worker	0.85	2.60E-02	7.47E-02
349	366448.73	3762120.77	Worker	1.29	3.76E-02	8.71E-02
350	366448.73	3762145.77	Worker	2.16	5.90E-02	1.10E-01
351	366448.73	3762445.77	Resident	1.18	3.35E-03	1.33E-02
352	366448.73	3762470.77	Resident	0.99	2.85E-03	1.16E-02
353	366448.73	3762495.77	Resident	0.85	2.46E-03	1.01E-02
354	366448.73	3762520.77	Resident	0.73	2.15E-03	9.25E-03
355	366448.73	3762545.77	Worker	0.07	1.90E-03	8.61E-03
356	366448.73	3762570.77	Worker	0.06	1.69E-03	8.04E-03
357	366448.73	3762595.77	Resident	0.50	1.52E-03	7.52E-03
358	366448.73	3762620.77	Resident	0.45	1.37E-03	7.04E-03
359	366473.73	3761945.77	Worker	0.15	4.59E-03	1.83E-02
360	366473.73	3761970.77	Worker	0.18	5.52E-03	2.15E-02
361	366473.73	3761995.77	Worker	0.22	6.75E-03	2.58E-02
362	366473.73	3762020.77	Worker	0.27	8.39E-03	3.34E-02
363	366473.73	3762045.77	Worker	0.34	1.06E-02	4.17E-02
364	366473.73	3762070.77	Worker	0.44	1.35E-02	4.78E-02
365	366473.73	3762095.77	Worker	0.57	1.72E-02	5.45E-02
366	366473.73	3762120.77	Worker	0.78	2.26E-02	5.61E-02
367	366473.73	3762145.77	Worker	1.21	3.25E-02	6.78E-02
368	366473.73	3762445.77	Worker	0.12	3.48E-03	1.49E-02
369	366473.73	3762470.77	Resident	1.06	2.94E-03	1.26E-02
370	366473.73	3762495.77	Resident	0.90	2.53E-03	1.09E-02
371	366473.73	3762520.77	Worker	0.08	2.21E-03	9.71E-03
372	366473.73	3762545.77	Resident	0.68	1.94E-03	8.67E-03
373	366473.73	3762570.77	Resident	0.60	1.72E-03	7.75E-03
374	366473.73	3762595.77	Resident	0.53	1.54E-03	6.95E-03
375	366473.73	3762620.77	Resident	0.47	1.39E-03	6.33E-03
376	366473.73	3762645.77	Resident	0.43	1.26E-03	5.94E-03
377	366498.73	3761970.77	Worker	0.16	4.85E-03	2.02E-02
378	366498.73	3761995.77	Worker	0.19	5.76E-03	2.54E-02
379	366498.73	3762020.77	Worker	0.22	6.91E-03	3.05E-02
380	366498.73	3762045.77	Worker	0.27	8.36E-03	3.36E-02
381	366498.73	3762070.77	Worker	0.33	1.01E-02	3.56E-02
382	366498.73	3762095.77	Worker	0.41	1.21E-02	4.08E-02
383	366498.73	3762120.77	Worker	0.52	1.50E-02	4.21E-02
384	366498.73	3762145.77	Worker	0.73	1.99E-02	4.76E-02
385	366498.73	3762170.77	Worker	1.07	2.73E-02	6.35E-02
386	366498.73	3762445.77	Worker	0.13	3.61E-03	1.60E-02
387	366498.73	3762470.77	Worker	0.11	3.05E-03	1.40E-02
388	366498.73	3762495.77	Resident	0.96	2.61E-03	1.21E-02
389	366498.73	3762520.77	Resident	0.82	2.26E-03	1.05E-02
390	366498.73	3762545.77	Resident	0.71	1.99E-03	9.07E-03
391	366498.73	3762570.77	Worker	0.06	1.76E-03	8.13E-03
392	366498.73	3762595.77	Resident	0.55	1.57E-03	7.39E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
393	366498.73	3762620.77	Resident	0.49	1.41E-03	6.75E-03
394	366498.73	3762645.77	Resident	0.44	1.28E-03	6.16E-03
395	366523.73	3761970.77	Worker	0.14	4.24E-03	2.00E-02
396	366523.73	3761995.77	Worker	0.16	4.93E-03	2.32E-02
397	366523.73	3762020.77	Worker	0.19	5.73E-03	2.53E-02
398	366523.73	3762045.77	Worker	0.22	6.67E-03	2.70E-02
399	366523.73	3762070.77	Worker	0.26	7.76E-03	3.02E-02
400	366523.73	3762095.77	Worker	0.30	9.00E-03	3.02E-02
401	366523.73	3762120.77	Worker	0.37	1.07E-02	3.32E-02
402	366523.73	3762145.77	Worker	0.49	1.34E-02	3.68E-02
403	366523.73	3762170.77	Worker	0.71	1.79E-02	4.70E-02
404	366523.73	3762195.77	Worker	0.88	2.19E-02	5.03E-02
405	366523.73	3762445.77	Worker	0.14	3.74E-03	1.49E-02
406	366523.73	3762470.77	Resident	1.21	3.15E-03	1.38E-02
407	366523.73	3762495.77	Resident	1.02	2.69E-03	1.27E-02
408	366523.73	3762520.77	Resident	0.87	2.33E-03	1.14E-02
409	366523.73	3762545.77	Resident	0.75	2.04E-03	1.01E-02
410	366523.73	3762570.77	Resident	0.66	1.80E-03	8.87E-03
411	366523.73	3762595.77	Resident	0.58	1.60E-03	7.78E-03
412	366523.73	3762620.77	Worker	0.05	1.44E-03	6.91E-03
413	366523.73	3762645.77	Worker	0.05	1.30E-03	6.33E-03
414	366548.73	3761995.77	Worker	0.14	4.22E-03	1.96E-02
415	366548.73	3762020.77	Worker	0.16	4.79E-03	2.13E-02
416	366548.73	3762045.77	Worker	0.18	5.43E-03	2.23E-02
417	366548.73	3762070.77	Worker	0.20	6.14E-03	2.47E-02
418	366548.73	3762095.77	Worker	0.24	6.97E-03	2.39E-02
419	366548.73	3762120.77	Worker	0.28	7.99E-03	2.71E-02
420	366548.73	3762145.77	Worker	0.36	9.66E-03	3.05E-02
421	366548.73	3762170.77	Worker	0.47	1.23E-02	3.46E-02
422	366548.73	3762195.77	Worker	0.69	1.63E-02	4.33E-02
423	366548.73	3762370.77	Worker	0.26	6.99E-03	1.70E-02
424	366548.73	3762395.77	Worker	0.21	5.66E-03	1.49E-02
425	366548.73	3762420.77	Worker	0.17	4.64E-03	1.28E-02
426	366548.73	3762445.77	Worker	0.14	3.85E-03	1.26E-02
427	366548.73	3762470.77	Worker	0.12	3.25E-03	1.22E-02
428	366548.73	3762495.77	Worker	0.10	2.77E-03	1.18E-02
429	366548.73	3762520.77	Resident	0.92	2.39E-03	1.11E-02
430	366548.73	3762545.77	Resident	0.79	2.09E-03	1.03E-02
431	366548.73	3762570.77	Resident	0.69	1.84E-03	9.40E-03
432	366548.73	3762595.77	Worker	0.06	1.64E-03	8.49E-03
433	366548.73	3762620.77	Worker	0.05	1.47E-03	7.61E-03
434	366548.73	3762645.77	Worker	0.05	1.32E-03	6.82E-03
435	366573.73	3762020.77	Worker	0.13	4.06E-03	1.71E-02
436	366573.73	3762045.77	Worker	0.15	4.50E-03	1.96E-02
437	366573.73	3762070.77	Worker	0.17	4.98E-03	2.00E-02
438	366573.73	3762095.77	Worker	0.19	5.53E-03	1.99E-02
439	366573.73	3762120.77	Worker	0.22	6.25E-03	2.25E-02
440	366573.73	3762145.77	Worker	0.27	7.35E-03	2.54E-02
441	366573.73	3762170.77	Worker	0.35	9.01E-03	2.65E-02
442	366573.73	3762195.77	Worker	0.47	1.14E-02	3.51E-02
443	366573.73	3762220.77	Worker	0.62	1.42E-02	3.54E-02
444	366573.73	3762320.77	Worker	0.39	1.01E-02	1.94E-02
445	366573.73	3762345.77	Worker	0.32	8.43E-03	1.86E-02
446	366573.73	3762370.77	Worker	0.26	6.95E-03	1.61E-02
447	366573.73	3762395.77	Worker	0.22	5.71E-03	1.42E-02
448	366573.73	3762420.77	Worker	0.18	4.73E-03	1.27E-02

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
449	366573.73	3762445.77	Worker	0.15	3.95E-03	1.12E-02
450	366573.73	3762470.77	Worker	0.12	3.33E-03	1.04E-02
451	366573.73	3762495.77	Resident	1.13	2.84E-03	1.02E-02
452	366573.73	3762520.77	Resident	0.96	2.46E-03	9.79E-03
453	366573.73	3762545.77	Worker	0.08	2.14E-03	9.50E-03
454	366573.73	3762570.77	Worker	0.07	1.89E-03	9.05E-03
455	366573.73	3762595.77	Worker	0.06	1.67E-03	8.54E-03
456	366573.73	3762620.77	Worker	0.05	1.50E-03	7.94E-03
457	366598.73	3762020.77	Worker	0.11	3.47E-03	1.53E-02
458	366598.73	3762045.77	Worker	0.13	3.79E-03	1.68E-02
459	366598.73	3762070.77	Worker	0.14	4.12E-03	1.63E-02
460	366598.73	3762095.77	Worker	0.16	4.51E-03	1.68E-02
461	366598.73	3762120.77	Worker	0.18	5.04E-03	1.91E-02
462	366598.73	3762145.77	Worker	0.21	5.79E-03	2.15E-02
463	366598.73	3762170.77	Worker	0.26	6.87E-03	2.19E-02
464	366598.73	3762195.77	Worker	0.34	8.37E-03	2.72E-02
465	366598.73	3762220.77	Worker	0.50	1.11E-02	3.05E-02
466	366598.73	3762245.77	Worker	0.48	1.13E-02	2.52E-02
467	366598.73	3762270.77	Worker	0.44	1.09E-02	2.58E-02
468	366598.73	3762295.77	Worker	0.40	1.03E-02	2.37E-02
469	366598.73	3762320.77	Worker	0.36	9.23E-03	1.94E-02
470	366598.73	3762345.77	Worker	0.31	8.00E-03	1.60E-02
471	366598.73	3762370.77	Worker	0.26	6.78E-03	1.57E-02
472	366598.73	3762395.77	Worker	0.22	5.68E-03	1.38E-02
473	366598.73	3762420.77	Worker	0.18	4.76E-03	1.20E-02
474	366598.73	3762445.77	Worker	0.15	4.01E-03	1.10E-02
475	366598.73	3762470.77	Worker	0.13	3.40E-03	9.92E-03
476	366598.73	3762495.77	Worker	0.11	2.91E-03	8.81E-03
477	366598.73	3762520.77	Worker	0.09	2.51E-03	8.62E-03
478	366598.73	3762545.77	Worker	0.08	2.19E-03	8.47E-03
479	366598.73	3762570.77	Worker	0.07	1.92E-03	8.16E-03
480	366598.73	3762595.77	Worker	0.06	1.71E-03	7.90E-03
481	366598.73	3762620.77	Worker	0.06	1.53E-03	7.58E-03
482	366623.73	3762045.77	Worker	0.11	3.23E-03	1.43E-02
483	366623.73	3762070.77	Worker	0.12	3.48E-03	1.41E-02
484	366623.73	3762095.77	Worker	0.13	3.77E-03	1.47E-02
485	366623.73	3762120.77	Worker	0.15	4.14E-03	1.65E-02
486	366623.73	3762145.77	Worker	0.17	4.67E-03	1.88E-02
487	366623.73	3762170.77	Worker	0.21	5.43E-03	1.87E-02
488	366623.73	3762195.77	Worker	0.26	6.47E-03	2.16E-02
489	366623.73	3762220.77	Worker	0.34	7.90E-03	2.50E-02
490	366623.73	3762245.77	Worker	0.47	1.02E-02	2.53E-02
491	366623.73	3762270.77	Worker	0.38	9.27E-03	2.21E-02
492	366623.73	3762295.77	Worker	0.35	8.90E-03	2.19E-02
493	366623.73	3762320.77	Worker	0.32	8.29E-03	1.92E-02
494	366623.73	3762345.77	Worker	0.29	7.44E-03	1.59E-02
495	366623.73	3762370.77	Worker	0.25	6.49E-03	1.36E-02
496	366623.73	3762395.77	Worker	0.21	5.57E-03	1.34E-02
497	366623.73	3762420.77	Worker	0.18	4.74E-03	1.20E-02
498	366623.73	3762445.77	Worker	0.15	4.03E-03	1.02E-02
499	366623.73	3762470.77	Worker	0.13	3.44E-03	9.63E-03
500	366623.73	3762495.77	Worker	0.11	2.96E-03	8.77E-03
501	366623.73	3762520.77	Worker	0.10	2.56E-03	7.85E-03
502	366623.73	3762545.77	Worker	0.08	2.23E-03	7.40E-03
503	366623.73	3762570.77	Worker	0.07	1.96E-03	7.33E-03
504	366623.73	3762595.77	Worker	0.06	1.74E-03	7.17E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
505	366648.73	3762045.77	Worker	0.09	2.79E-03	1.20E-02
506	366648.73	3762070.77	Worker	0.10	2.98E-03	1.24E-02
507	366648.73	3762095.77	Worker	0.11	3.20E-03	1.31E-02
508	366648.73	3762120.77	Worker	0.13	3.48E-03	1.45E-02
509	366648.73	3762145.77	Worker	0.14	3.87E-03	1.64E-02
510	366648.73	3762170.77	Worker	0.17	4.41E-03	1.61E-02
511	366648.73	3762195.77	Worker	0.21	5.16E-03	1.74E-02
512	366648.73	3762220.77	Worker	0.26	6.12E-03	2.09E-02
513	366648.73	3762245.77	Worker	0.38	8.00E-03	2.26E-02
514	366648.73	3762270.77	Worker	0.39	8.60E-03	1.98E-02
515	366648.73	3762295.77	Worker	0.32	7.75E-03	1.95E-02
516	366648.73	3762320.77	Worker	0.29	7.38E-03	1.84E-02
517	366648.73	3762345.77	Worker	0.27	6.82E-03	1.57E-02
518	366648.73	3762370.77	Worker	0.24	6.12E-03	1.33E-02
519	366648.73	3762395.77	Worker	0.21	5.38E-03	1.18E-02
520	366648.73	3762420.77	Worker	0.18	4.66E-03	1.17E-02
521	366648.73	3762445.77	Worker	0.15	4.02E-03	1.06E-02
522	366648.73	3762470.77	Worker	0.13	3.46E-03	8.96E-03
523	366648.73	3762495.77	Worker	0.11	2.99E-03	8.44E-03
524	366648.73	3762520.77	Worker	0.10	2.60E-03	7.79E-03
525	366648.73	3762545.77	Worker	0.09	2.27E-03	7.13E-03
526	366648.73	3762570.77	Worker	0.07	2.00E-03	6.62E-03
527	366648.73	3762595.77	Worker	0.07	1.77E-03	6.31E-03
528	366673.73	3762070.77	Worker	0.09	2.58E-03	1.09E-02
529	366673.73	3762095.77	Worker	0.10	2.75E-03	1.17E-02
530	366673.73	3762120.77	Worker	0.11	2.96E-03	1.28E-02
531	366673.73	3762145.77	Worker	0.12	3.25E-03	1.45E-02
532	366673.73	3762170.77	Worker	0.14	3.66E-03	1.42E-02
533	366673.73	3762195.77	Worker	0.17	4.21E-03	1.44E-02
534	366673.73	3762220.77	Worker	0.20	4.91E-03	1.76E-02
535	366673.73	3762245.77	Worker	0.26	5.84E-03	1.89E-02
536	366673.73	3762270.77	Worker	0.39	7.83E-03	1.94E-02
537	366673.73	3762295.77	Worker	0.30	6.96E-03	1.72E-02
538	366673.73	3762320.77	Worker	0.26	6.55E-03	1.70E-02
539	366673.73	3762345.77	Worker	0.24	6.19E-03	1.56E-02
540	366673.73	3762370.77	Worker	0.22	5.70E-03	1.32E-02
541	366673.73	3762395.77	Worker	0.20	5.13E-03	1.13E-02
542	366673.73	3762420.77	Worker	0.17	4.53E-03	1.03E-02
543	366673.73	3762445.77	Worker	0.15	3.96E-03	1.02E-02
544	366673.73	3762470.77	Worker	0.13	3.45E-03	9.38E-03
545	366673.73	3762495.77	Worker	0.11	3.00E-03	8.05E-03
546	366673.73	3762520.77	Worker	0.10	2.62E-03	7.45E-03
547	366673.73	3762545.77	Worker	0.09	2.30E-03	7.01E-03
548	366673.73	3762570.77	Worker	0.08	2.03E-03	6.47E-03
549	366698.73	3762070.77	Worker	0.08	2.26E-03	9.70E-03
550	366698.73	3762095.77	Worker	0.08	2.39E-03	1.06E-02
551	366698.73	3762120.77	Worker	0.09	2.56E-03	1.15E-02
552	366698.73	3762145.77	Worker	0.10	2.78E-03	1.29E-02
553	366698.73	3762170.77	Worker	0.12	3.09E-03	1.27E-02
554	366698.73	3762195.77	Worker	0.14	3.51E-03	1.25E-02
555	366698.73	3762220.77	Worker	0.17	4.04E-03	1.48E-02
556	366698.73	3762245.77	Worker	0.20	4.69E-03	1.65E-02
557	366698.73	3762270.77	Worker	0.28	5.84E-03	1.73E-02
558	366698.73	3762295.77	Worker	0.35	7.08E-03	1.64E-02
559	366698.73	3762320.77	Worker	0.25	5.90E-03	1.54E-02
560	366698.73	3762345.77	Worker	0.22	5.60E-03	1.49E-02

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
561	366698.73	3762370.77	Worker	0.21	5.26E-03	1.33E-02
562	366698.73	3762395.77	Worker	0.19	4.83E-03	1.13E-02
563	366698.73	3762420.77	Worker	0.17	4.35E-03	9.87E-03
564	366698.73	3762445.77	Worker	0.15	3.87E-03	9.15E-03
565	366698.73	3762470.77	Worker	0.13	3.41E-03	9.09E-03
566	366698.73	3762495.77	Worker	0.11	3.00E-03	8.40E-03
567	366698.73	3762520.77	Worker	0.10	2.63E-03	7.30E-03
568	366723.73	3762095.77	Worker	0.07	2.10E-03	9.60E-03
569	366723.73	3762120.77	Worker	0.08	2.24E-03	1.04E-02
570	366723.73	3762145.77	Worker	0.09	2.41E-03	1.16E-02
571	366723.73	3762170.77	Worker	0.10	2.65E-03	1.15E-02
572	366723.73	3762195.77	Worker	0.12	2.97E-03	1.12E-02
573	366723.73	3762220.77	Worker	0.14	3.38E-03	1.25E-02
574	366723.73	3762245.77	Worker	0.16	3.87E-03	1.44E-02
575	366723.73	3762270.77	Worker	0.20	4.51E-03	1.48E-02
576	366723.73	3762295.77	Worker	0.32	6.26E-03	1.56E-02
577	366723.73	3762320.77	Worker	0.26	5.63E-03	1.42E-02
578	366723.73	3762345.77	Worker	0.21	5.09E-03	1.38E-02
579	366723.73	3762370.77	Worker	0.19	4.82E-03	1.30E-02
580	366723.73	3762395.77	Worker	0.18	4.51E-03	1.13E-02
581	366723.73	3762420.77	Worker	0.16	4.14E-03	9.85E-03
582	366723.73	3762445.77	Worker	0.14	3.74E-03	8.67E-03
583	366748.73	3762120.77	Worker	0.07	1.98E-03	9.41E-03
584	366748.73	3762145.77	Worker	0.08	2.11E-03	1.05E-02
585	366748.73	3762170.77	Worker	0.09	2.30E-03	1.04E-02
586	366748.73	3762195.77	Worker	0.10	2.55E-03	1.01E-02
587	366748.73	3762220.77	Worker	0.12	2.87E-03	1.07E-02
588	366748.73	3762245.77	Worker	0.14	3.25E-03	1.25E-02
589	366748.73	3762270.77	Worker	0.16	3.71E-03	1.33E-02
590	366748.73	3762295.77	Worker	0.22	4.48E-03	1.35E-02
591	366748.73	3762320.77	Worker	0.31	5.97E-03	1.42E-02
592	366748.73	3762345.77	Worker	0.21	4.75E-03	1.27E-02
593	366748.73	3762370.77	Worker	0.18	4.43E-03	1.24E-02
594	366748.73	3762395.77	Worker	0.17	4.19E-03	1.13E-02
595	366773.73	3762145.77	Worker	0.07	1.87E-03	9.57E-03
596	366773.73	3762170.77	Worker	0.08	2.02E-03	9.55E-03
597	366773.73	3762195.77	Worker	0.09	2.21E-03	9.15E-03
598	366773.73	3762220.77	Worker	0.10	2.47E-03	9.31E-03
599	366773.73	3762245.77	Worker	0.11	2.77E-03	1.09E-02
600	366773.73	3762270.77	Worker	0.14	3.13E-03	1.20E-02
601	366773.73	3762295.77	Worker	0.17	3.60E-03	1.20E-02
602	366773.73	3762320.77	Worker	0.28	5.12E-03	1.30E-02
603	366798.73	3762245.77	Worker	0.10	2.39E-03	9.51E-03
604	365848.73	3762245.77	Resident	0.28	9.98E-04	5.23E-03
605	365848.73	3762295.77	Worker	0.03	9.57E-04	5.02E-03
606	365848.73	3762345.77	Resident	0.25	9.09E-04	4.92E-03
607	365848.73	3762395.77	Worker	0.03	8.66E-04	5.92E-03
608	365848.73	3762445.77	Worker	0.03	9.38E-04	6.33E-03
609	365848.73	3762495.77	Resident	0.20	7.36E-04	4.82E-03
610	365898.73	3762145.77	Resident	0.35	1.24E-03	5.36E-03
611	365898.73	3762195.77	Resident	0.35	1.22E-03	5.88E-03
612	365898.73	3762245.77	Worker	0.04	1.18E-03	6.06E-03
613	365898.73	3762295.77	Resident	0.31	1.13E-03	5.63E-03
614	365898.73	3762345.77	Worker	0.03	1.06E-03	6.24E-03
615	365898.73	3762395.77	Worker	0.04	1.07E-03	7.51E-03
616	365898.73	3762445.77	Worker	0.03	9.57E-04	6.37E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
617	365898.73	3762495.77	Worker	0.03	8.34E-04	4.54E-03
618	365898.73	3762545.77	Resident	0.20	7.49E-04	3.84E-03
619	365948.73	3761995.77	Resident	0.42	1.42E-03	8.04E-03
620	365948.73	3762045.77	Worker	0.05	1.48E-03	7.01E-03
621	365948.73	3762095.77	Resident	0.44	1.51E-03	6.71E-03
622	365948.73	3762145.77	Resident	0.43	1.51E-03	6.42E-03
623	365948.73	3762195.77	Resident	0.42	1.48E-03	6.96E-03
624	365948.73	3762245.77	Resident	0.40	1.42E-03	7.08E-03
625	365948.73	3762295.77	Resident	0.38	1.34E-03	6.73E-03
626	365948.73	3762345.77	Worker	0.04	1.26E-03	8.26E-03
627	365948.73	3762395.77	Worker	0.04	1.27E-03	8.40E-03
628	365948.73	3762445.77	Worker	0.03	1.06E-03	5.95E-03
629	365948.73	3762495.77	Worker	0.03	9.37E-04	4.67E-03
630	365948.73	3762545.77	Resident	0.23	8.36E-04	4.31E-03
631	365948.73	3762595.77	Worker	0.02	7.50E-04	3.91E-03
632	365948.73	3762645.77	Resident	0.18	6.75E-04	3.62E-03
633	365998.73	3761895.77	Worker	0.05	1.47E-03	6.76E-03
634	365998.73	3761945.77	Worker	0.05	1.60E-03	8.11E-03
635	365998.73	3761995.77	Resident	0.51	1.74E-03	9.32E-03
636	365998.73	3762045.77	Worker	0.06	1.83E-03	9.13E-03
637	365998.73	3762095.77	Resident	0.55	1.89E-03	8.24E-03
638	365998.73	3762145.77	Resident	0.54	1.89E-03	7.85E-03
639	365998.73	3762195.77	Worker	0.06	1.84E-03	8.37E-03
640	365998.73	3762245.77	Resident	0.49	1.75E-03	8.30E-03
641	365998.73	3762295.77	Worker	0.05	1.63E-03	8.93E-03
642	365998.73	3762345.77	Worker	0.06	1.63E-03	1.07E-02
643	365998.73	3762395.77	Resident	0.39	1.37E-03	8.39E-03
644	365998.73	3762445.77	Resident	0.33	1.20E-03	5.88E-03
645	365998.73	3762495.77	Worker	0.03	1.06E-03	5.17E-03
646	365998.73	3762545.77	Worker	0.03	9.33E-04	4.65E-03
647	365998.73	3762595.77	Resident	0.22	8.27E-04	4.23E-03
648	365998.73	3762645.77	Resident	0.20	7.37E-04	3.77E-03
649	365998.73	3762695.77	Worker	0.02	6.59E-04	3.59E-03
650	366048.73	3761845.77	Worker	0.05	1.49E-03	8.29E-03
651	366048.73	3761895.77	Worker	0.06	1.74E-03	9.43E-03
652	366048.73	3761945.77	Resident	0.58	1.95E-03	9.02E-03
653	366048.73	3761995.77	Resident	0.64	2.16E-03	1.11E-02
654	366048.73	3762045.77	Resident	0.69	2.33E-03	1.19E-02
655	366048.73	3762095.77	Resident	0.71	2.43E-03	1.04E-02
656	366048.73	3762145.77	Resident	0.70	2.44E-03	9.88E-03
657	366048.73	3762195.77	Resident	0.67	2.37E-03	1.04E-02
658	366048.73	3762245.77	Worker	0.07	2.22E-03	9.90E-03
659	366048.73	3762495.77	Resident	0.32	1.19E-03	5.67E-03
660	366048.73	3762545.77	Resident	0.28	1.04E-03	5.06E-03
661	366048.73	3762595.77	Worker	0.03	9.11E-04	4.52E-03
662	366048.73	3762645.77	Worker	0.03	8.02E-04	4.58E-03
663	366048.73	3762695.77	Resident	0.19	7.10E-04	4.47E-03
664	366098.73	3761795.77	Resident	0.42	1.44E-03	6.27E-03
665	366098.73	3761845.77	Worker	0.06	1.70E-03	7.74E-03
666	366098.73	3761895.77	Worker	0.07	2.02E-03	1.10E-02
667	366098.73	3761945.77	Worker	0.08	2.43E-03	1.18E-02
668	366098.73	3761995.77	Worker	0.09	2.75E-03	1.31E-02
669	366098.73	3762045.77	Resident	0.91	3.06E-03	1.55E-02
670	366098.73	3762095.77	Worker	0.11	3.26E-03	1.35E-02
671	366098.73	3762145.77	Resident	0.95	3.29E-03	1.29E-02
672	366098.73	3762545.77	Worker	0.04	1.16E-03	5.98E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
673	366098.73	3762595.77	Worker	0.03	9.99E-04	5.93E-03
674	366098.73	3762645.77	Resident	0.24	8.69E-04	5.35E-03
675	366098.73	3762695.77	Resident	0.21	7.63E-04	4.45E-03
676	366098.73	3762745.77	Worker	0.02	6.74E-04	3.94E-03
677	366148.73	3761745.77	Resident	0.38	1.33E-03	6.10E-03
678	366148.73	3761795.77	Resident	0.46	1.60E-03	6.66E-03
679	366148.73	3761845.77	Worker	0.07	1.94E-03	8.02E-03
680	366148.73	3761895.77	Resident	0.70	2.38E-03	1.05E-02
681	366148.73	3761945.77	Worker	0.10	2.95E-03	1.54E-02
682	366148.73	3761995.77	Resident	1.08	3.59E-03	1.53E-02
683	366148.73	3762595.77	Resident	0.30	1.09E-03	6.15E-03
684	366148.73	3762645.77	Worker	0.03	9.38E-04	5.44E-03
685	366148.73	3762695.77	Resident	0.22	8.15E-04	5.10E-03
686	366148.73	3762745.77	Resident	0.20	7.15E-04	4.75E-03
687	366198.73	3761745.77	Resident	0.41	1.43E-03	7.15E-03
688	366198.73	3761795.77	Worker	0.06	1.75E-03	8.29E-03
689	366198.73	3761845.77	Resident	0.63	2.18E-03	9.31E-03
690	366198.73	3761895.77	Resident	0.81	2.78E-03	1.08E-02
691	366198.73	3761945.77	Worker	0.12	3.61E-03	1.50E-02
692	366198.73	3762595.77	Resident	0.33	1.18E-03	7.26E-03
693	366198.73	3762645.77	Worker	0.03	1.00E-03	6.51E-03
694	366198.73	3762695.77	Resident	0.24	8.64E-04	5.70E-03
695	366198.73	3762745.77	Resident	0.21	7.53E-04	4.88E-03
696	366248.73	3761745.77	Resident	0.43	1.53E-03	6.96E-03
697	366248.73	3761795.77	Resident	0.54	1.89E-03	8.85E-03
698	366248.73	3761845.77	Worker	0.08	2.42E-03	1.15E-02
699	366248.73	3761895.77	Resident	0.91	3.19E-03	1.44E-02
700	366248.73	3762595.77	Resident	0.36	1.27E-03	7.51E-03
701	366248.73	3762645.77	Resident	0.30	1.07E-03	6.13E-03
702	366248.73	3762695.77	Worker	0.03	9.11E-04	5.01E-03
703	366248.73	3762745.77	Resident	0.23	7.87E-04	4.24E-03
704	366298.73	3761695.77	Resident	0.37	1.32E-03	6.15E-03
705	366298.73	3761745.77	Resident	0.45	1.61E-03	7.19E-03
706	366298.73	3761795.77	Worker	0.07	2.02E-03	8.59E-03
707	366298.73	3761845.77	Resident	0.74	2.62E-03	1.07E-02
708	366298.73	3762645.77	Resident	0.33	1.12E-03	5.85E-03
709	366298.73	3762695.77	Resident	0.28	9.51E-04	5.12E-03
710	366298.73	3762745.77	Resident	0.24	8.19E-04	4.53E-03
711	366298.73	3762795.77	Worker	0.02	7.13E-04	4.05E-03
712	366348.73	3761695.77	Worker	0.04	1.35E-03	6.57E-03
713	366348.73	3761745.77	Resident	0.46	1.66E-03	7.91E-03
714	366348.73	3761795.77	Worker	0.07	2.10E-03	9.72E-03
715	366348.73	3761845.77	Resident	0.77	2.76E-03	1.23E-02
716	366348.73	3762645.77	Resident	0.35	1.17E-03	5.84E-03
717	366348.73	3762695.77	Resident	0.30	9.86E-04	5.09E-03
718	366348.73	3762745.77	Worker	0.03	8.45E-04	4.50E-03
719	366348.73	3762795.77	Resident	0.22	7.34E-04	4.02E-03
720	366398.73	3761695.77	Resident	0.38	1.36E-03	6.57E-03
721	366398.73	3761745.77	Resident	0.46	1.67E-03	7.77E-03
722	366398.73	3761795.77	Worker	0.07	2.11E-03	9.43E-03
723	366398.73	3761845.77	Worker	0.09	2.78E-03	1.19E-02
724	366398.73	3761895.77	Worker	0.13	3.87E-03	1.58E-02
725	366398.73	3762645.77	Worker	0.04	1.21E-03	6.91E-03
726	366398.73	3762695.77	Resident	0.32	1.01E-03	6.04E-03
727	366398.73	3762745.77	Resident	0.27	8.67E-04	5.34E-03
728	366398.73	3762795.77	Worker	0.03	7.51E-04	4.73E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
729	366448.73	3761745.77	Worker	0.05	1.62E-03	7.76E-03
730	366448.73	3761795.77	Worker	0.07	2.04E-03	9.40E-03
731	366448.73	3761845.77	Worker	0.09	2.65E-03	1.15E-02
732	366448.73	3761895.77	Worker	0.12	3.54E-03	1.46E-02
733	366448.73	3762645.77	Resident	0.41	1.24E-03	6.62E-03
734	366448.73	3762695.77	Resident	0.34	1.04E-03	5.89E-03
735	366448.73	3762745.77	Worker	0.03	8.86E-04	5.25E-03
736	366448.73	3762795.77	Worker	0.03	7.65E-04	4.71E-03
737	366448.73	3762845.77	Resident	0.21	6.69E-04	4.24E-03
738	366498.73	3761745.77	Worker	0.05	1.55E-03	7.33E-03
739	366498.73	3761795.77	Worker	0.06	1.89E-03	8.98E-03
740	366498.73	3761845.77	Worker	0.08	2.36E-03	1.10E-02
741	366498.73	3761895.77	Worker	0.10	3.06E-03	1.32E-02
742	366498.73	3761945.77	Worker	0.13	4.12E-03	1.73E-02
743	366498.73	3762695.77	Worker	0.04	1.07E-03	5.14E-03
744	366498.73	3762745.77	Worker	0.03	9.04E-04	4.46E-03
745	366498.73	3762795.77	Worker	0.03	7.79E-04	4.02E-03
746	366498.73	3762845.77	Worker	0.02	6.80E-04	3.65E-03
747	366548.73	3761795.77	Worker	0.05	1.68E-03	8.08E-03
748	366548.73	3761845.77	Worker	0.07	2.05E-03	9.78E-03
749	366548.73	3761895.77	Worker	0.08	2.56E-03	1.18E-02
750	366548.73	3761945.77	Worker	0.11	3.27E-03	1.63E-02
751	366548.73	3762695.77	Worker	0.04	1.10E-03	5.51E-03
752	366548.73	3762745.77	Worker	0.03	9.25E-04	4.81E-03
753	366548.73	3762795.77	Worker	0.03	7.94E-04	4.22E-03
754	366548.73	3762845.77	Worker	0.02	6.91E-04	3.68E-03
755	366598.73	3761795.77	Worker	0.05	1.48E-03	7.64E-03
756	366598.73	3761845.77	Worker	0.06	1.77E-03	8.82E-03
757	366598.73	3761895.77	Worker	0.07	2.13E-03	1.15E-02
758	366598.73	3761945.77	Worker	0.08	2.59E-03	1.33E-02
759	366598.73	3761995.77	Worker	0.10	3.15E-03	1.44E-02
760	366598.73	3762645.77	Worker	0.05	1.37E-03	7.24E-03
761	366598.73	3762695.77	Worker	0.04	1.13E-03	6.34E-03
762	366598.73	3762745.77	Worker	0.03	9.50E-04	5.33E-03
763	366598.73	3762795.77	Worker	0.03	8.12E-04	4.44E-03
764	366648.73	3761845.77	Worker	0.05	1.52E-03	8.69E-03
765	366648.73	3761895.77	Worker	0.06	1.77E-03	9.73E-03
766	366648.73	3761945.77	Worker	0.07	2.08E-03	1.06E-02
767	366648.73	3761995.77	Worker	0.08	2.42E-03	1.13E-02
768	366648.73	3762645.77	Worker	0.05	1.42E-03	6.16E-03
769	366648.73	3762695.77	Worker	0.04	1.17E-03	5.71E-03
770	366648.73	3762745.77	Worker	0.04	9.77E-04	5.40E-03
771	366648.73	3762795.77	Worker	0.03	8.32E-04	4.91E-03
772	366698.73	3761845.77	Worker	0.04	1.30E-03	7.53E-03
773	366698.73	3761895.77	Worker	0.05	1.49E-03	8.07E-03
774	366698.73	3761945.77	Worker	0.06	1.70E-03	7.99E-03
775	366698.73	3761995.77	Worker	0.06	1.91E-03	9.47E-03
776	366698.73	3762045.77	Worker	0.07	2.14E-03	9.50E-03
777	366698.73	3762545.77	Worker	0.09	2.32E-03	6.63E-03
778	366698.73	3762595.77	Worker	0.07	1.82E-03	5.88E-03
779	366698.73	3762645.77	Worker	0.05	1.46E-03	5.23E-03
780	366698.73	3762695.77	Worker	0.04	1.20E-03	5.05E-03
781	366698.73	3762745.77	Worker	0.04	1.00E-03	4.87E-03
782	366698.73	3762795.77	Worker	0.03	8.51E-04	4.44E-03
783	366748.73	3761895.77	Worker	0.04	1.26E-03	6.39E-03
784	366748.73	3761945.77	Worker	0.05	1.40E-03	7.02E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
785	366748.73	3761995.77	Worker	0.05	1.55E-03	7.53E-03
786	366748.73	3762045.77	Worker	0.06	1.70E-03	7.84E-03
787	366748.73	3762095.77	Worker	0.07	1.86E-03	8.77E-03
788	366748.73	3762445.77	Worker	0.14	3.59E-03	8.62E-03
789	366748.73	3762495.77	Resident	1.21	2.92E-03	7.36E-03
790	366748.73	3762545.77	Resident	0.97	2.33E-03	6.88E-03
791	366748.73	3762595.77	Resident	0.77	1.86E-03	5.42E-03
792	366748.73	3762645.77	Worker	0.06	1.50E-03	4.95E-03
793	366748.73	3762695.77	Worker	0.05	1.23E-03	4.49E-03
794	366748.73	3762745.77	Worker	0.04	1.03E-03	4.23E-03
795	366798.73	3761895.77	Worker	0.04	1.08E-03	5.47E-03
796	366798.73	3761945.77	Worker	0.04	1.18E-03	6.18E-03
797	366798.73	3761995.77	Worker	0.04	1.28E-03	6.35E-03
798	366798.73	3762045.77	Worker	0.05	1.38E-03	6.59E-03
799	366798.73	3762095.77	Worker	0.05	1.50E-03	7.43E-03
800	366798.73	3762145.77	Worker	0.06	1.66E-03	8.76E-03
801	366798.73	3762195.77	Worker	0.08	1.94E-03	8.37E-03
802	366798.73	3762295.77	Worker	0.14	3.02E-03	1.09E-02
803	366798.73	3762345.77	Worker	0.29	5.23E-03	1.27E-02
804	366798.73	3762395.77	Worker	0.15	3.63E-03	1.05E-02
805	366798.73	3762445.77	Resident	1.36	3.22E-03	8.63E-03
806	366798.73	3762495.77	Resident	1.15	2.76E-03	6.88E-03
807	366798.73	3762545.77	Worker	0.09	2.28E-03	6.11E-03
808	366798.73	3762595.77	Resident	0.78	1.86E-03	5.78E-03
809	366798.73	3762645.77	Resident	0.63	1.52E-03	4.68E-03
810	366798.73	3762695.77	Worker	0.05	1.25E-03	4.30E-03
811	366848.73	3761945.77	Worker	0.03	1.00E-03	5.26E-03
812	366848.73	3761995.77	Worker	0.04	1.07E-03	5.53E-03
813	366848.73	3762045.77	Worker	0.04	1.15E-03	5.63E-03
814	366848.73	3762095.77	Worker	0.04	1.23E-03	6.40E-03
815	366848.73	3762145.77	Worker	0.05	1.35E-03	7.40E-03
816	366848.73	3762195.77	Worker	0.06	1.54E-03	7.06E-03
817	366848.73	3762245.77	Worker	0.07	1.83E-03	7.47E-03
818	366848.73	3762295.77	Resident	1.01	2.25E-03	9.19E-03
819	366848.73	3762345.77	Worker	0.15	2.93E-03	8.94E-03
820	366848.73	3762395.77	Worker	0.17	3.56E-03	9.87E-03
821	366848.73	3762445.77	Resident	1.25	2.87E-03	8.55E-03
822	366848.73	3762495.77	Resident	1.07	2.54E-03	6.79E-03
823	366848.73	3762545.77	Resident	0.91	2.19E-03	5.66E-03
824	366848.73	3762595.77	Resident	0.76	1.83E-03	5.18E-03
825	366848.73	3762645.77	Worker	0.06	1.52E-03	4.94E-03
826	366898.73	3761995.77	Worker	0.03	9.16E-04	4.84E-03
827	366898.73	3762045.77	Worker	0.03	9.72E-04	5.04E-03
828	366898.73	3762095.77	Worker	0.04	1.04E-03	5.60E-03
829	366898.73	3762145.77	Worker	0.04	1.12E-03	6.35E-03
830	366898.73	3762195.77	Worker	0.05	1.25E-03	6.03E-03
831	366898.73	3762245.77	Resident	0.60	1.45E-03	6.03E-03
832	366898.73	3762295.77	Resident	0.76	1.74E-03	7.60E-03
833	366898.73	3762345.77	Worker	0.10	2.12E-03	7.77E-03
834	366898.73	3762395.77	Worker	0.23	3.88E-03	9.97E-03
835	366898.73	3762445.77	Worker	0.12	2.63E-03	8.07E-03
836	366898.73	3762495.77	Resident	0.98	2.31E-03	6.99E-03
837	366898.73	3762545.77	Worker	0.08	2.05E-03	5.61E-03
838	366948.73	3762045.77	Worker	0.03	8.34E-04	4.54E-03
839	366948.73	3762095.77	Worker	0.03	8.83E-04	4.96E-03
840	366948.73	3762145.77	Resident	0.33	9.48E-04	5.52E-03

Table F-3. Combined Health Risk Assessment Results for All Receptors
Culver City Costco Fuel Station
Culver City, California

Receptor ID[1]	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Maximum Cancer Risk (in a million)	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
841	366948.73	3762195.77	Resident	0.40	1.04E-03	5.29E-03
842	366948.73	3762245.77	Resident	0.48	1.18E-03	5.16E-03
843	366948.73	3762295.77	Worker	0.06	1.38E-03	6.19E-03
844	366948.73	3762345.77	Resident	0.73	1.64E-03	6.86E-03
845	366948.73	3762395.77	Worker	0.10	2.03E-03	6.60E-03
846	366948.73	3762445.77	Worker	0.16	3.09E-03	9.23E-03
847	366998.73	3762245.77	Worker	0.04	9.86E-04	4.57E-03
848	365879.44	3762156.38	Sensitive	0.33	1.16E-03	5.19E-03
849	366918.12	3762381.3	Sensitive	1.16	2.29E-03	7.20E-03
850	365948	3761812.73	Sensitive	0.31	1.05E-03	6.22E-03
851	366260.81	3762127.74	Sensitive	5.20	1.68E-02	5.40E-02
852	366302.68	3762452.63	Sensitive	0.75	2.61E-03	1.31E-02
853	366498.73	3762195.77	Worker	1.13	3.02E-02	5.77E-02
854	366498.73	3762220.77	Worker	1.11	2.96E-02	5.79E-02
855	366498.73	3762245.77	Worker	0.97	2.54E-02	4.41E-02
856	366523.73	3762245.77	Worker	0.84	2.08E-02	4.23E-02
857	366523.73	3762220.77	Worker	0.87	2.22E-02	4.61E-02
858	366473.73	3762195.77	Worker	1.63	4.48E-02	8.19E-02
859	366473.73	3762170.77	Worker	1.58	4.25E-02	8.83E-02
860	366473.73	3762220.77	Worker	1.42	3.90E-02	6.64E-02
861	366448.73	3762195.77	Worker	2.44	6.83E-02	1.16E-01
862	366448.73	3762170.77	Worker	2.67	7.44E-02	1.30E-01
863	366423.73	3762195.77	Worker	3.60	1.03E-01	1.46E-01
864	366423.73	3762170.77	Worker	5.31	1.50E-01	2.51E-01
865	366423.73	3762145.77	Worker	4.94	1.37E-01	2.36E-01
866	366573.73	3762245.77	Worker	0.55	1.36E-02	3.07E-02
867	366573.73	3762270.77	Worker	0.52	1.30E-02	2.94E-02
868	366548.73	3762245.77	Worker	0.70	1.70E-02	3.77E-02
869	366548.73	3762270.77	Worker	0.62	1.55E-02	3.18E-02

Notes:

[1] Receptors 2, 8-11, 16-19, 24-28, 33, 34, and 41 were used for spatial averaging to represent Receptor 243 more accurately. Receptor 243 is presented as spatial averaged value in Table 5-5.

Attachment 4

Preliminary Final Hydrology/MS4 Study
Costco Culver City Gas Station Relocation for the Proposed Project,
prepared by Fuscoe Engineering, Inc., dated September 29, 2022, Revised May 31, 2024

(Attached)

FUSCOE ENGINEERING

HYDROLOGY/MS4 STUDY FOR PM24587

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DATE PREPARED: September 29, 2022
Revised May 31, 2024

PROJECT NUMBER: 156-030-12

full circle thinking®

HYDROLOGY/MS4 STUDY

T.G. 672-A5 & 672-B5

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GAS STATION RELOCATION

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1.0 INTRODUCTION

1.1 PROJECT INTRODUCTION AND BACKGROUND

The proposed project consists of the relocation of the existing fuel facility and the construction of a new parking lot at Costco Wholesale of Culver City. The existing site consists of the warehouse, fuel facility, associated parking, and adjacent commercial development. The project encompasses approximately 2.25 acres of this land. The scope of work to be performed consists of the demolition of the existing fuel facility, the construction of a new parking lot, the demolition of several retail buildings, and the construction of the new fuel facility. The project site is located at 13463 Washington Boulevard in the City of Culver City.

The project includes a new, approximately 13,000-square-foot fuel canopy, the installation of 15 new multi-product dispensers (MPDs), three (3) 40,000-gallon underground gasoline storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a new controller enclosure, a vapor processing unit, and associated site improvements, such as parking and landscaping. In addition, temporary noise barriers will be provided along the project's western property line, northern property line, and the existing fueling facility's eastern property line; the power construction equipment will contain noise shielding and muffling devices, consistent with manufacturers' standards; and a portion of the project construction activities will not occur concurrently with the City's Washington Boulevard Stormwater and Urban Runoff Project, as further described in the Noise Study, prepared by Acoustical Engineering Services, Inc., dated February 2023.

The existing fueling facility will be razed and removed from the site and the existing, currently unoccupied, commercial buildings will be demolished. The existing underground storage tanks and piping will be decommissioned and removed by state certified contractors. Following demolition, the existing fueling facility site will be improved with additional parking for the Costco Warehouse. The intent of the relocation is to install a new state of the art facility to provide a more efficient fuel purchasing experience for Costco members.

1.2 PURPOSE OF THIS REPORT

The purpose of this report is to analyze the pre and post development hydrologic conditions, and provide a water quality analysis with prescriptive treatment design.

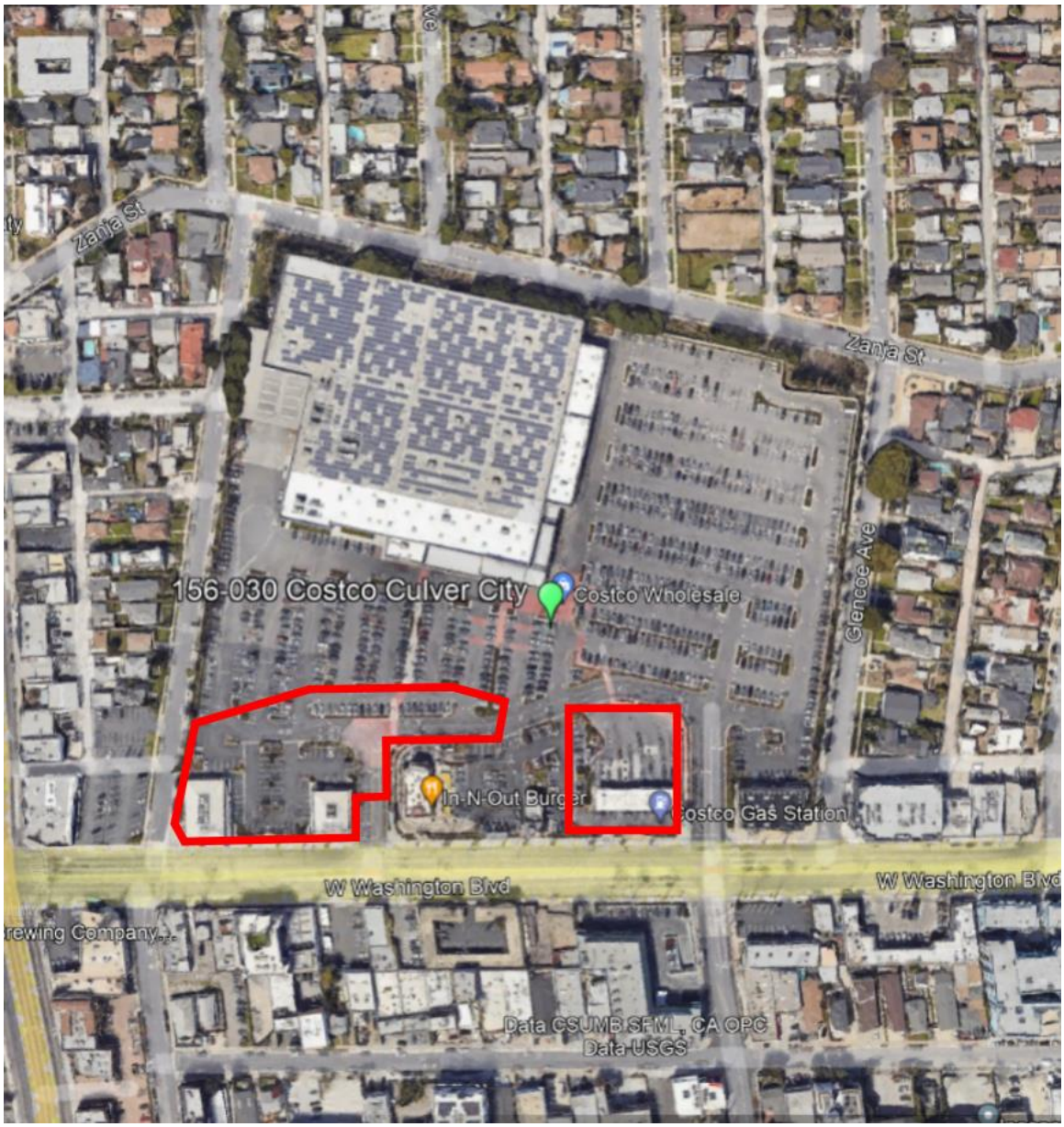
1.3 REFERENCES

Los Angeles County Hydrology Manual, January 2006

Los Angeles County LID Manual, February 2014

1.4 PROJECT SITE LOCATION MAP

The Project site is identified in red in the location map shown below.



2.0 EXISTING TOPOGRAPHIC & HYDROLOGIC CONDITIONS

2.1 EXISTING SITE LOCATION AND TOPOGRAPHY

The proposed Gas Station Relocation Project consists of approximately 2.25-acres of the larger Costco Wholesale Culver City property. The areas of work are located on the southern half of the property site. It is bounded by the main parking lot for the Costco Warehouse to the north, Washington Boulevard to the south, an existing driveway entrance to the east, and Walnut Avenue to the west. There are two commercial buildings located between the two areas of work which are not a part of this development.

As determined from aerial photos, topographic maps and contour data, the proposed fuel facility site is relatively flat and gradually slopes towards the western portion of the site. The site generally sits slightly above grade of the adjacent streets with the biggest difference located off Walnut Avenue, at approximately two feet.

2.2 EXISTING DRAINAGE PATTERN

The existing site is sloped in such a way to direct all drainage to on-site storm drain infrastructure. Overall, the site primarily drains via surface flow and cross gutters before being collected in catch basins. All stormwater is then routed offsite via reinforced-concrete pipes (RCP) that ultimately discharge into a 42-inch RCP on Washington Blvd.

At the existing fuel facility, there are a total of two existing catch basins located south of the canopy and north of Washington Blvd. These structures collect stormwater runoff and route it to the onsite storm drain system. The existing commercial development that will be converted into the new fuel facility to the west contains two cross gutters that collect stormwater runoff and route it to an existing catch basin where it joins the onsite storm drain system.

2.3 EXISTING STORM DRAIN FACILITIES

There is an existing private storm drain system located onsite, and all on-site drainage flows to existing catch basins. From there, it is routed into variously sized piping that directs flows to the southwest toward Washington Boulevard. After the drainage flows south off-site, it is ultimately discharged into the 48" RCP that flows southwest underneath Washington Boulevard in the public right-of-way.

3.0 HYDROLOGY

3.1 STORM FREQUENCY

Per the County of Los Angeles Hydrology Manual, all drainage facilities in developed areas not covered under the Capital Flood protection conditions must meet the Urban Flood level of protection. As defined by the County, an Urban Flood level is runoff from a 25-year frequency design storm falling on a saturated watershed. Based on these requirements for urban floods, the design storm for this project is the 25-year design storm event.

3.2 METHODOLOGY

This study was prepared using HydroCalc software in conformance with the Los Angeles County Hydrology Manual. Delta flow rates and volumes are provided for comparison purposes (see *Appendix C & D – Pre & Post Development Hydrology Calculations*).

3.3 EXISTING CONDITION HYDROLOGY

Currently, the project site drains via sheet flow over one catchment area as described in Section 2.2 (*see Appendix A – Existing Condition Hydrology Map*).

Based upon the County's guidelines, any additional runoff that exceeds that of the existing 25 year storm event must be detained onsite and released at a rate equivalent to the existing 25 year storm. The existing condition 25 year flow rates have been provided on the existing condition hydrology map (*see Appendix A - Existing Condition Hydrology Map*).

Based upon this study and as depicted in Table 3.3.1, approximately 2.25 acres *(Area A)* are tributary to Washington Boulevard. This yields a 25-year event flow rate of 4.63 cubic feet per second (cfs). With the project site being in the location of an existing parking lot and commercial development, approximately 95% of the site is impervious. See Table 3.3.2 for existing storm water discharges.

Table 3.3.1

DRAINAGE AREA	DRAINAGE AREA ACREAGE	IMPERVIOUS ACREAGE	IMPERVIOUS PERCENTAGE	RUNOFF COEFFICIENT, Cd
A	2.25	2.14	95%	0.89
Onsite Total	2.25	2.14	95%	0.89

Table 3.3.2

EXISTING CONDITION DISCHARGES (CFS)						
DRAINAGE MANAGEMENT AREA	2 YEAR EVENT	5 YEAR EVENT	10 YEAR EVENT	25 YEAR EVENT	50 YEAR EVENT	OUTFALL LOCATION
A	1.59	2.75	3.55	4.63	5.63	WASHINGTON
Onsite Total	1.59	2.75	3.55	4.63	5.63	-

3.4 PROPOSED CONDITION HYDROLOGY

Based on the proposed site development layout and grading, the site will follow similar drainage patterns as in the existing conditions, with flow being routed to on-site catch basins before ultimately being discharged to the existing infrastructure on Washington Boulevard. In the proposed grading design, new catch basins will be installed to collect storm water runoff before ultimately being routed to the existing 48" RCP main in Washington Boulevard. See *Appendix A – Proposed Condition Hydrology Map* for reference.

On-site drainage will be collected in a proposed private storm drain system and treated before discharging to the public street. Water quality treatment will be provided via a detention system and a proprietary biofiltration unit on the project site. Refer to Section 5 of this report for Low Impact Development (LID) design.

Based upon the proposed site plan, included as shown in the Post Development Hydrology Map, an average onsite impervious ratio of 95% was determined.

Using LA County's HydroCalc software, flow rates have been determined for the Low Impact Development (LID) 85th percentile storm event, as well as the 2, 5,10, 25, & 50 year storm events *(see Table 3.4.2)*.

The project site will maintain a single Drainage Management Area (DMA) for water quality design.

Table 3.4.1

PROPOSED CONDITION DRAINAGE MANAGEMENT AREA (DMA)				
DRAINAGE MANAGEMENT AREA	DMA ACREAGE	IMPERVIOUS ACREAGE	IMPERVIOUS PERCENTAGE	RUNOFF COEFFICIENT, Cd
A-1	2.25	2.14	95%	0.89
Onsite Total	2.25	2.14	-	-

Table 3.4.2

DRAINAGE MANAGEMENT AREA	LID EVENT	2 YEAR EVENT	5 YEAR EVENT	10 YEAR EVENT	25 YEAR EVENT	50 YEAR EVENT	OUTFALL LOCATION
A-1	0.19	1.40	2.52	3.23	4.38	5.29	WASHINGTON
Onsite Total	0.19	1.40	2.52	3.23	4.38	5.29	-

Based upon a comparison of discharge rates for the tributary area described above, discharge decreases in the post-development condition. This is due to a longer flow path for the post-development condition. As such, detention is not required. See comparison of pre and post conditions shown in Table 3.4.3

Table 3.4.3

ON SITE PRE & POST DISCHARGE DIFFERENCES (CFS)					
DRAINAGE MANAGEMENT AREA	2 YEAR EVENT	5 YEAR EVENT	10 YEAR EVENT	25 YEAR EVENT	50 YEAR EVENT
EXISTING	1.59	2.75	3.55	4.63	5.63
PROPOSED	1.40	2.52	3.23	4.38	5.29
DIFFERENCE	-0.19	-0.23	-0.32	-0.25	-0.34

3.5 CEQA THRESHOLD EVALUATIONS

The following section addresses California Environmental Quality Act (CEQA) threshold questions related to hydrology. Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Response: During construction, the Project would implement an Erosion Control Plan that specifies BMPs and erosion control measures to be used during construction to manage runoff flows. These BMPs would be designed to reduce runoff and pollutant levels in runoff during construction. Therefore, impacts to water surface water quality during construction would be less than significant.

During on-site grading and building construction, hazardous materials, such as fuels, paints, solvents, and concrete additives, could be used and would therefore require proper management and, in some cases, disposal. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials releases into groundwater. However, compliance with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous waste, would reduce the potential for the construction of the project to release contaminants into groundwater. Therefore, the project would not result in any substantial increase in groundwater contamination through hazardous materials releases and impacts on groundwater quality during construction would be less than significant.

Under the existing conditions, there are no water quality BMPs implemented within the project area. Under the proposed conditions, biofiltration BMPs will be implemented as part of the site design. Based on the implementation of water quality BMPs consistent with the MS4 Stormwater Permit, no violations of any water quality standards or waste discharge requirements are anticipated during operation and are considered less than significant. Infiltration has not been proposed as a storm water quality solution; therefore, groundwater quality would not be affected.

Operational activities which could affect groundwater quality include spills of hazardous materials and leaking underground storage tanks (USTs). The four USTs that will be installed as part of the project will undergo preinstallation testing to verify structural integrity and employ safety features such as primary and secondary containment systems, spill containment and overfill prevention systems, and leak detection systems. Therefore, with compliance with applicable regulations, impacts to groundwater from the USTs would be less than significant.

The development of the expanded fuel facility would incrementally increase the use of on-site hazardous materials during operations. However, compliance with all applicable regulations regarding the handling and potentially required cleanup of hazardous materials would prevent the project from affecting or expanding any potential areas of contamination, increasing the level of contamination, or causing

regulatory water quality standards at an existing production well to be violated. Furthermore, operation of the project would not require extraction from the groundwater supply. The project is not anticipated to result in releases or spills of contaminants that could reach a groundwater recharge area or spreading ground or otherwise reach groundwater through percolation. Therefore, impacts to groundwater quality would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Response: The existing site condition is 95% impervious, and infiltration and associated groundwater recharge is highly limited due to very little pervious area. Under the proposed condition, site perviousness will remain nearly the same and thus will allow the same or more incidental groundwater recharge through proposed landscaping areas. Neither the existing condition nor the proposed project include any groundwater pumping onsite. Therefore, impacts related to decreasing groundwater supplies is less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in a substantial erosion or siltation on- or off-site;

Response: During construction, the project would be required to comply with all applicable City grading permit regulations that require necessary measures, plans, and inspections to reduce sedimentation and erosion. Through compliance with all NPDES General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, project construction would not result in substantial erosion or siltation on- or off-site.

Under the existing condition, an existing storm drain system collects flows from the project areas and conveys flows to improved storm drain facilities on Washington Boulevard before being ultimately discharged into Marina Del Rey. The on-site and off-site storm drain systems are fully hardened and improved and are not susceptible to erosion. The site is currently 95% impervious.

Under the proposed condition, the site will remain 95% impervious, and the proposed on-site storm drain will not be susceptible to erosion. The existing off-site storm drain systems will continue to be utilized. Thus, the project will not result in any increase in erosion on or off-site, and impacts are considered less than significant.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

Response: Construction activities are temporary, and flow directions and runoff volumes during construction will be controlled. Through compliance with all NPDES

General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, the Project would not substantially alter the project site drainage patterns during construction in a manner that would result in flooding on- or off-site.

During operation, the proposed project will not significantly alter the rate or amount of surface runoff that could impact flooding on- or off-site. Under the proposed conditions, peak flow runoff will slightly decrease due to improved site design and a proposed storm drain system, which will collect runoff to minimize on-site flooding. Due to the slight decrease in proposed runoff conditions, impacts related to off- site flooding are considered less than significant.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Response: As discussed above, the project would implement an Erosion Control Plan that specifies BMPs and erosion control measures to be used during construction to manage runoff flows and prevent pollution. These BMPs would be designed to contain stormwater or construction watering on the Project Site such that runoff will not impact off-site drainage facilities or receiving water. Therefore, impacts during construction would be less than significant.

The proposed project will not create or contribute runoff that exceeds the existing capacity of the storm drain system. Implementation of biofiltration BMPs sized in accordance with the local MS4 Stormwater Permit will result in a decrease of proposed runoff. The existing and proposed storm drain systems are adequately sized to accommodate flood flows. Increases in runoff water will not exceed the capacity of existing or planned stormwater drainage systems. Therefore, impacts during operation would be less than significant.

iv) impede or redirect flood flows?

Response: The site is in FEMA flood zone X, and therefore is located within an area of minimum flood hazard. In addition, the existing and proposed storm drain systems are adequately sized to accommodate flood flows. Further, implementation of the project will result in a small decrease in proposed runoff. As such, the project would not alter the existing drainage pattern of the Project Site in a manner that would impede or redirect flood flows, and impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Response: The project is not located in an area subject to flood hazard, tsunami or seiche. The project is not located adjacent to a major body of water and is over 1.5 miles from the Pacific Ocean. The project site is not in a hillside area and is not at risk of mudflow. Therefore, impacts related to release of pollutants due to project inundation are considered less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Response: As discussed previously in the responses to (a) and (b), the project would implement BMPs to filter, treat, and reduce stormwater pollutants prior to discharge from the project site in accordance with applicable regulations. Non-stormwater runoff associated with typical operations of the Project Site would also be filtered by the BMPs provided on-site prior to discharging from the Project Site. Therefore, the Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

4.0 PROPOSED ONSITE STORM DRAIN FACILITIES

Culver City, as adopted from the County of Los Angeles, enforces LID design requirements for stormwater treatments. The purpose of LID is to reuse and/or eliminate the areas of the post-development hydrograph by reducing the peak discharge rate, volume, and duration of flow, through the use of site design and stormwater quality control measures. In general, all proposed projects must maximize on-site retention of the StormWater Quality Design Volume (SWQDv) through (in hierarchal order): Infiltration, Stormwater Capture and Reuse, Biofiltration, or a combination thereof. The impact (cost, size, etc.) of these implementations can be minimized by maximizing pervious surfaces whether by natural means such as landscape improvements or by introducing measures such as green roofing and/or permeable pavements (limitations notwithstanding).

The proposed onsite storm drain facilities will consist of a storm water detention chamber and a proprietary biofiltration system, which will intercept the low flows and provide water quality treatment in order to meet the LA County LID Ordinance. High flows and bypass flows will flow past these structures and be routed into the storm drain on Washington Boulevard.

The location of the detention chamber and the proprietary biofiltration system will be provided onsite. Please see *Appendix A – Proposed Condition LID Map* for reference. All onsite storm drain facilities will be privately owned and maintained by the site developer.

5.0 MS4 STORMWATER QUALITY DESIGN

This section covers the post-construction operations of the Gas Station Relocation at Costco Wholesale Culver City, within the County of Los Angeles, California. It has been developed as required under State Water Resources Control Board (SWRCB) Municipal NPDES Stormwater Permit for the County of Los Angeles and the Incorporated Cities of Los Angeles County (Order No. R4-2012-0175), and in accordance with good engineering practices.

This Municipal Separate Storm Sewer (MS4) Plan will identify, at a minimum, the project performance criteria specified in the Los Angeles County MS4 Permit, which details implementation of Best Management Practices (BMPs) that mitigate the project's Stormwater Quality Design Volume (SWQDv) defined as the runoff from the 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map. BMPs selected shall rely on infiltration, bioretention, stormwater rainfall capture and use, and/or biofiltration, as feasible.

The Los Angeles County MS4 Permit requires the implementation of LID BMPs in addition to site design and source control measures. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site. All designated projects must detain the water quality volume on-site through infiltration, evapotranspiration, detain water runoff, harvest and use, or a combination thereof unless it is demonstrated that it is technically infeasible to do so. The project is a Designated Project: Redevelopment project and retail gasoline outlet categories.

Per the Los Angeles County LID Standards Manual, a Redevelopment Project category is defined as a project that results in the creation, addition, or replacement of either: (1) 5,000 square feet or more of impervious surface on a site that was previously developed; or (2) 10,000 square feet or more of impervious surface area. Because the new development will be replacing more than 5,000 sf of impervious surface the project must meet County LID requirements. Retail gasoline outlets are categorized as having 5,000 square feet or more surface area, which is also applicable.

The County requires execution of a maintenance agreement to be recorded by the property owner for the on-going maintenance of any privately maintained stormwater quality measures. The property owner is responsible for compliance with the maintenance agreement.

5.1 PROJECT PERFORMANCE CRITERIA

As mentioned, the proposed development project must mitigate the Stormwater Quality Design Volume (SWQDv) defined as the 85th percentile depth 24-hour storm event, as determined from the Los Angeles County Hydrology GIS isohyetal map (*see Appendix B – Site Characteristics*) *(http://dpw.lacounty.gov/wrd/hydrologygis/)*.

Based on that electronic map, it was determined that the site 24-hour storm event has a rainfall depth of 1.08 inches, which was used as the LID rainfall depth in the HydroCalc software for the determination of the 24-hour runoffs. BMPs selected shall rely on infiltration, bioretention, rainfall harvest and use, and/or biofiltration, as feasible.

Due to the infeasibility of infiltration because of the shallow groundwater table, the project site will utilize a detention structure and a proprietary biofiltration system for treatment.

6.0 LOW IMPACT DEVELOPMENT (LID)

The Costco Gas Station Relocation project will implement LID BMPs in treating the site's storm water runoff mitigation requirements. The proposed project is considered a Designated Project because the redevelopment will be replacing more than 5,000 sf of impervious surface and is also a gasoline outlet with 5,000 square feet or more of surface area. As recommended by the County of Los Angeles Low Impact Development Standards Manual (February 2014), the selection of LID BMPs proposed for the project must follow the following order of preference: (1) infiltration, (2) capture and reuse, (3) biofiltration, and (4) other treatment BMPs at the discretion of the Director of Public Works that demonstrate compliance with LID design requirements to the maximum extent practicable.

6.1 INFILTRATION FEASIBILITY

Due to the nature of the project site being a gas station, infiltration will not be used.

6.2 LID CALCULATIONS

The table below outlines the input and output from the LA County HydroCalc software. As shown, the developed LID runoff total volume is approximately 2,374 ft^3. Since biofiltration will be implemented, the required volume is 1.5 times the SWQDv or 3,561 ft^3. The project shall use a detention structure to provide storage for the required treatment volume *(see Table 6.2.1)*. This detention structure consists of an ADS Stormtech MC-3500 chamber system that is able to contain the required SWQDv. Treatment will be handled by a proprietary Bioclean WetlandMod biofiltration unit. This structure will treat the SWQDv and then discharge into the storm drain system.

It shall be noted that the LID area required to be treated was further governed by an existing covenant agreement between Costco Wholesale and the City of Culver City. This document, titled "Cost Sharing Agreement and Memorandum of Understanding for the Washington Boulevard Stormwater and Urban Run-off Diversion System Project" outlines the agreement between the City and Costco for the funding and design of a Stormwater and Urban Run-off Diversion System. It is stated that this document represents the entire agreement between the City and Costco regarding Costco's SUSUMP requirements. Since a portion of the proposed fuel facility will be located on an adjacent outparcel, this additional 0.71-acre area will require stormwater treatment. As a result, new stormwater treatment will only be required and provided for this limited area. Please refer to *Appendix G* – Stormwater and Urban Run-Off Diversion System Agreement for the aforementioned document.

Table 6.2.1

PROPOSED CONDITION LID VOLUME CALCULATIONS										
DRAINAGE AREA	DRAINAGE AREA ACREAGE	IMPERVIOUS PERCENTAGE	RUNOFF COEFFICIENT, Cd	SOIL TYPE	RAINFALL AMOUNT (in.)	FLOW PATH LENGTH (ft.)	FLOW PATH SLOPE	Tc (min.)	PROPOSED REQUIRED LID VOLUME (ft^3)	PROPOSED REQUIRED LID VOLUME (ft^3) x 1.5
A-1	0.71	95%	.86	16	1.08	585	0.015	23	2,374	3,561
Total	*0.71*	--	--	--	--	--	--	--	*2,374*	*3,561*

6.3 SOURCE CONTROL BMPS

Hereon is a list of Source Control Measures to be implemented at the project site.

1) Storm Drain Message and Signage (S-1)
2) Outdoor Material Storage Area (S-2)
3) Outdoor Trash Storage/ Waste Handling Area (S-3)
4) Outdoor Vehicle/ Equipment Repair/ Maintenance Area (S-5)
5) Fuel and Maintenance Area (S-7)
6) Landscape Irrigation Practices (S-8)
7) Building Materials (S-9)

Refer to Appendix A - Post Development LID Exhibit for site plan and placement of specific stormwater treatment BMPs.

7.0 CONCLUSIONS

In conclusion, the proposed development's Hydrology and MS4 site program meets the design requirements as specified by the Culver City Hydrology and LID Manuals. The water quality BMPs are integrated into the site design. Please see Appendix F for BMP Information and Volume Calculations.

8.0 APPENDICES

Appendix A Hydrology Maps

Appendix B Site Characteristics

Appendix C Pre Development Hydrology Calculations

Appendix D Post Development Hydrology Calculations

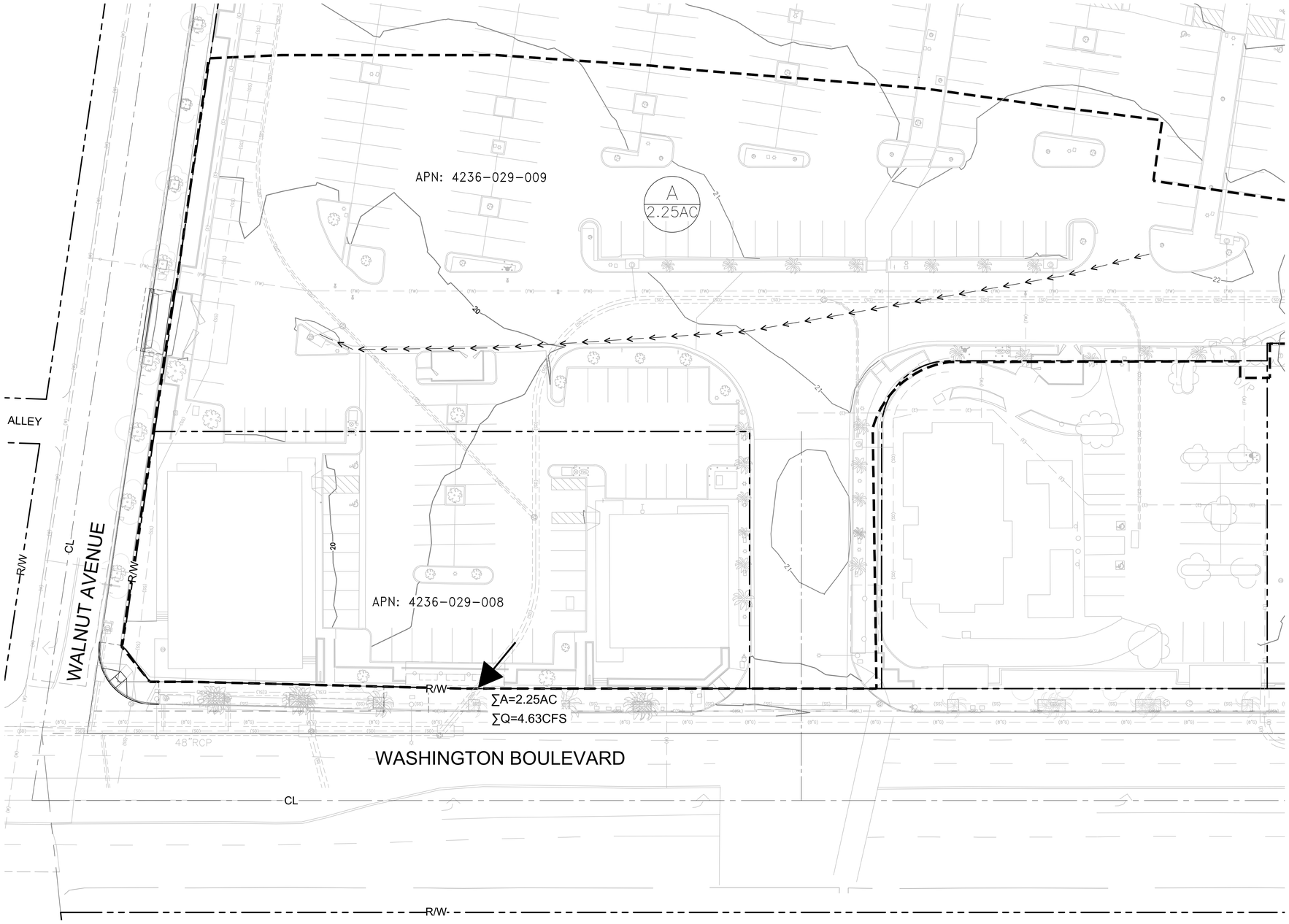
Appendix E 85th Percentile Hydrology Calculations

Appendix F BMP Information and Volume Calculations

Appendix G Stormwater and Urban Run-Off Diversion System Agreement

APPENDIX A

Hydrology Maps



LEGEND:

- PROJECT WATERSHED AREA (2.25 AC)
- X / X.XX — SUB-AREA NUMBER / ACREAGE
- FLOW DIRECTION
- FLOW DIRECTION OF DISCHARGE POINT

FLOOD HAZARD NOTES

1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE "A".

HYDRAULIC RUN-OFF CALCULATIONS

EXISTING IMPERVIOUS AREA: 93,110 SF (2.14 AC)

DESIGN STORM PARAMETERS: 50 YR ISOHYET = 5.48 IN
SOIL CLASSIFICATION = 16

SUB-AREA	AREA (AC)	%IMP	Q2 (CFS)	Q5 (CFS)	Q10 (CFS)	Q25 (CFS)	Q50 (CFS)
A	2.25	95%	1.59	2.75	3.55	4.63	5.63
TOTAL	**2.25**	**--**	**1.59**	**2.75**	**3.55**	**4.63**	**5.63**

Q's SHOWN HEREON ARE Q25 STORM EVENTS

EXISTING CONDITION HYDROLOGY MAP

COSTCO CULVER CITY - GAS STATION RELOCATION
13463 WASHINGTON BLVD

20' 0' 10' 20'
SCALE: 1" = 20'

FUSCOE ENGINEERING
600 Wilshire Blvd, Suite 1470
Los Angeles, Ca 90017
213.988.8802
fuscoe.com

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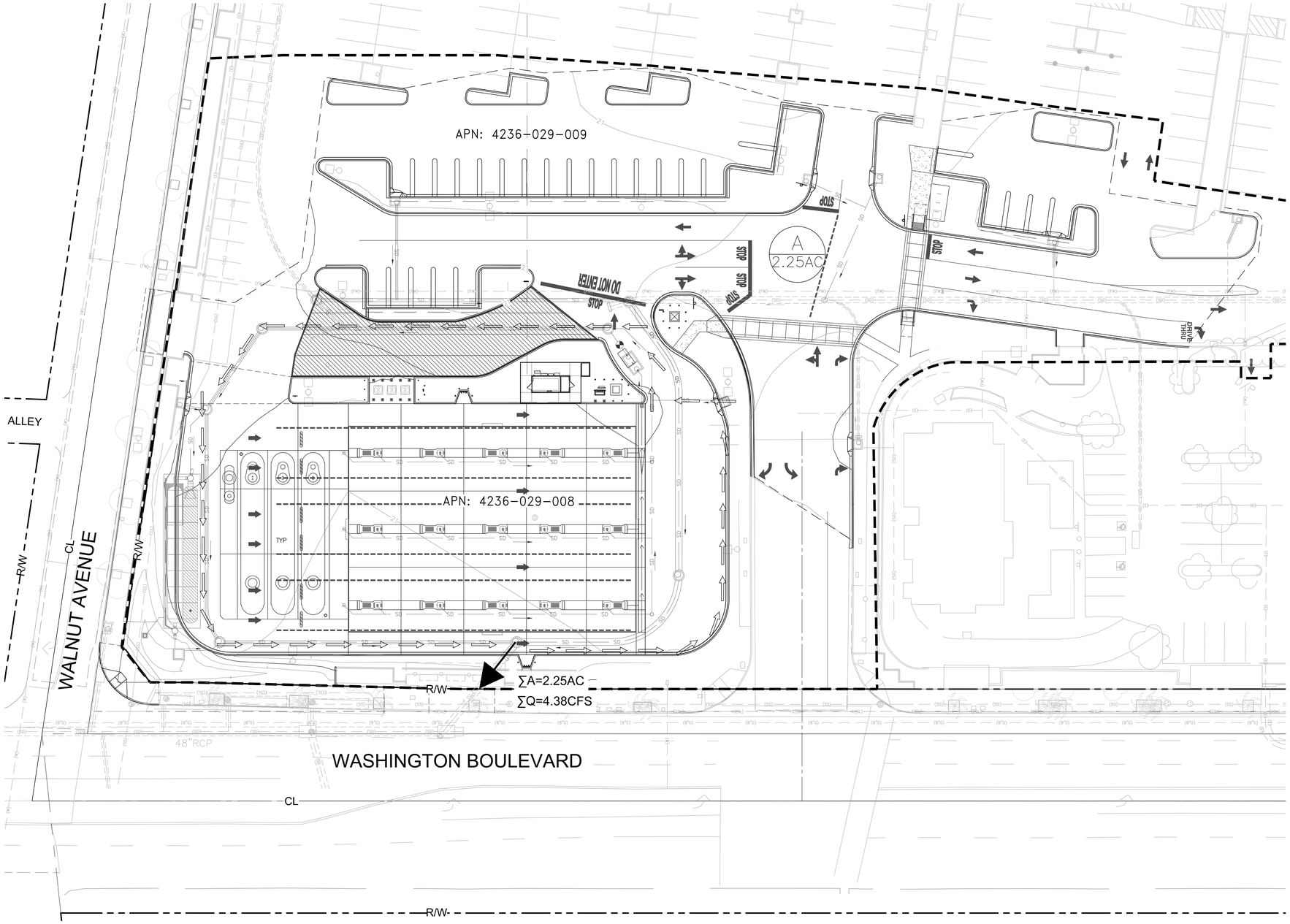

LEGEND:

- PROJECT WATERSHED AREA (2.25 AC)
- X / X.XX — SUB-AREA NUMBER / ACREAGE
- FLOW DIRECTION
- FLOW DIRECTION OF DISCHARGE POINT

FLOOD HAZARD NOTES

1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE "A".

HYDRAULIC RUN-OFF CALCULATIONS

PROPOSED IMPERVIOUS AREA: 93,110 SF (2.14 AC)

DESIGN STORM PARAMETERS: 50 YR ISOHYET = 5.48 IN
SOIL CLASSIFICATION = 16

SUB-AREA	AREA (AC)	%IMP	QPM (CFS)	Q2 (CFS)	Q5 (CFS)	Q10 (CFS)	Q25 (CFS)	Q50 (CFS)
A	2.25	95%	0.19	1.40	2.52	3.23	4.38	5.29
TOTAL	**2.25**	**--**	**0.19**	**1.40**	**2.52**	**3.23**	**4.38**	**5.29**

Q's SHOWN HEREON ARE Q25 STORM EVENTS

PROPOSED CONDITION HYDROLOGY MAP

COSTCO CULVER CITY - GAS STATION RELOCATION
13463 WASHINGTON BLVD

20' 0' 10' 20'
SCALE: 1" = 20'

FUSCOE ENGINEERING
600 Wilshire Blvd., Suite 1470, Los Angeles, California 90017
tel 213.988.8802 ◦ fax 213.988.8803 ◦ www.fuscoe.com

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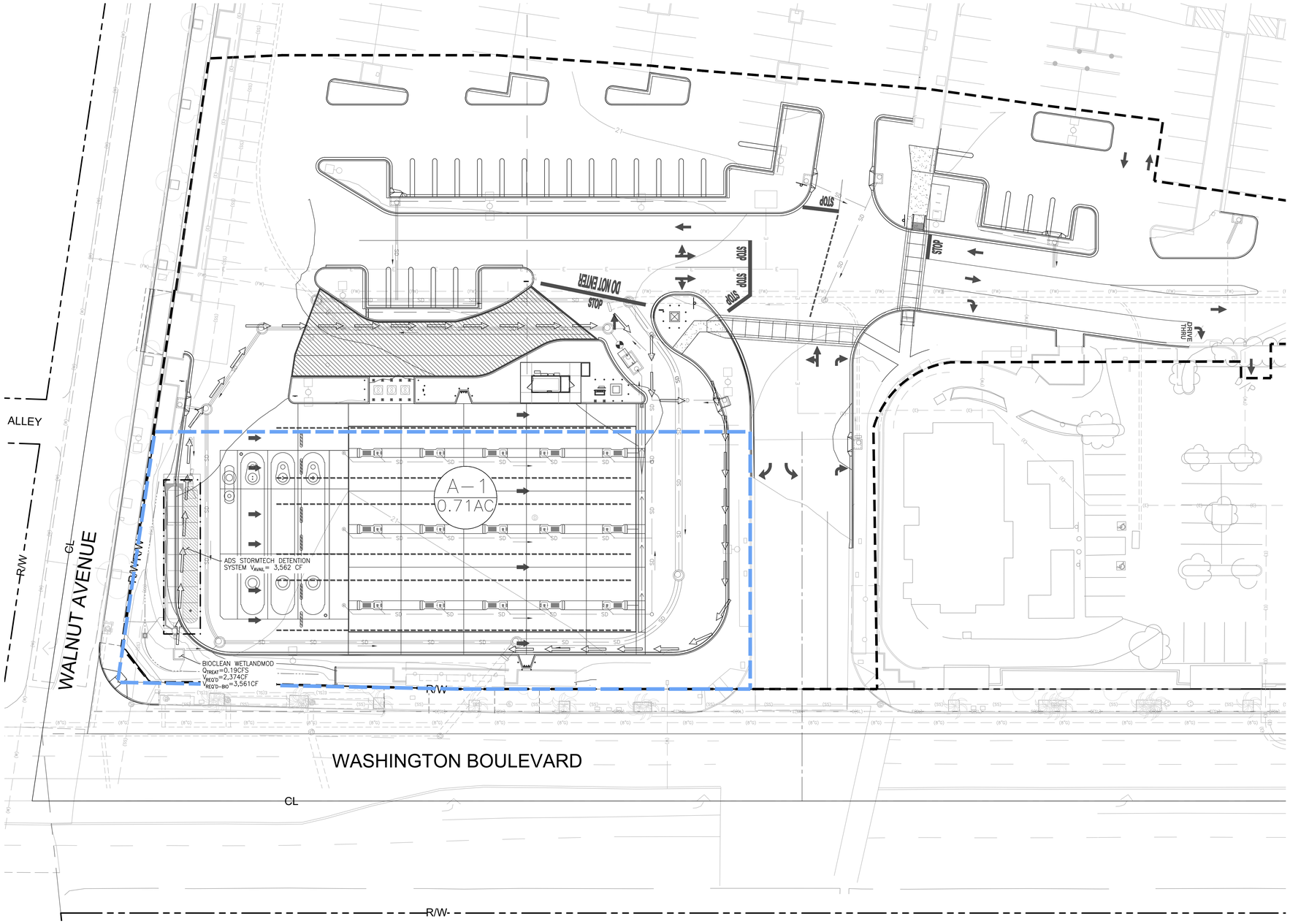

LEGEND:

- PROJECT WATERSHED AREA (2.25 AC)
- LID/OUTPARCEL BOUNDARY
- X — SUB-AREA NUMBER
- X.XX — ACREAGE
- FLOW DIRECTION

FLOOD HAZARD NOTES

1. NOT WITHIN COUNTY ADOPTED FLOODWAY.
2. NOT WITHIN FEMA FLOOD ZONE "A".

HYDRAULIC RUN-OFF CALCULATIONS

PROPOSED IMPERVIOUS AREA: 29,381 SF (0.67 AC)

DESIGN STORM PARAMETERS:
50 YR ISOHYET = 5.48 IN
85TH PERCENTILE ISOHYET = 1.08 IN
SOIL CLASSIFICATION = 16
SWQDV = 2,374 CF
LID SOLUTION = BIOFILTRATION

COSTCO CULVER CITY GAS RELOCATION PROP HYDROLOGY - 85th Percecntle

Subarea	Area (Ac)	Length (Ft)	Slope % (Ft/Ft)	I_{85th}	% Impervious	SOIL TYPE	C_u	C_d	T_t (Min)	Q_{tot} (cfs)	SWQDV (Cu-Ft)
A-1	0.71	585	0.015	1.08	0.95	16	0.10	0.86	24	0.19	2,374
									Total	**0.19**	**2,374**

COSTCO CULVER CITY GAS RELOCATION PROP LID - 85th PERCENTILE

Subarea	Area (Ac)	SWQDV (Cu-Ft)	*Treatment Req'd (Cu-Ft)	Treatment Capacity (Cu-Ft)
A-1	0.71	2,374	3,561	3,562
Total		**2,374**	3,561	3,562

* VOLUME IS 1.5 TIMES FOR BIOFILTRATION TREATMENT

LOW IMPACT DEVELOPMENT (LID) NOTES

1. PER COST SHARING AGREEMENT BETWEEN COSTCO AND THE CITY OF CULVER CITY, LID TREATMENT FOR THE COSTCO BOUNDARY HAS BEEN ACCOUNTED FOR AS PART OF THE WASHINGTON BOULEVARD STORMWATER AND URBAN RUN-OFF DIVERSION SYSTEM PROJECT. THE OUTPARCEL WHERE A PORTION OF THE PROPOSED FUEL FACILITY WILL BE LOCATED WAS NOT INCLUDED IN THAT AGREEMENT, THEREFORE LID TREATMENT FOR THE PROJECT DEVELOPMENT WILL BE LIMITED TO THE OUTPARCEL BOUNDARY AREA.

Q's SHOWN HEREON ARE Q50 STORM EVENTS

PROPOSED CONDITION LID MAP

COSTCO CULVER CITY - GAS STATION RELOCATION
13463 WASHINGTON BLVD

20' 0' 10' 20'
SCALE: 1" = 20'

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600 Wilshire Blvd., Suite 1470, Los Angeles, California 90017
tel 213.988.8802 ◦ fax 213.988.8803 ◦ www.fuscoe.com

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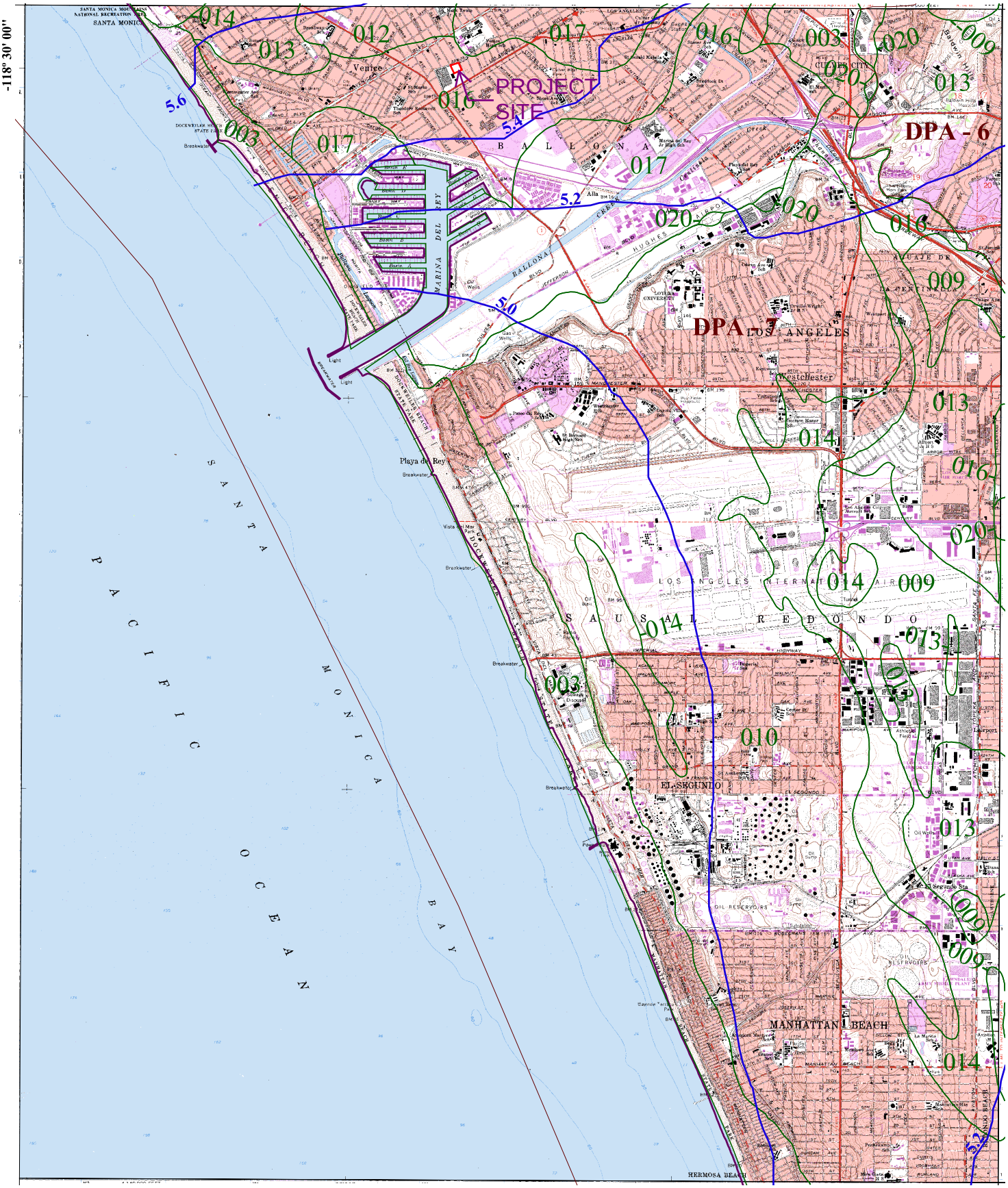
APPENDIX B

Site Characteristics



016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878

10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

V E N I C E

50-YEAR 24-HOUR ISOHYET

1-H1.7

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

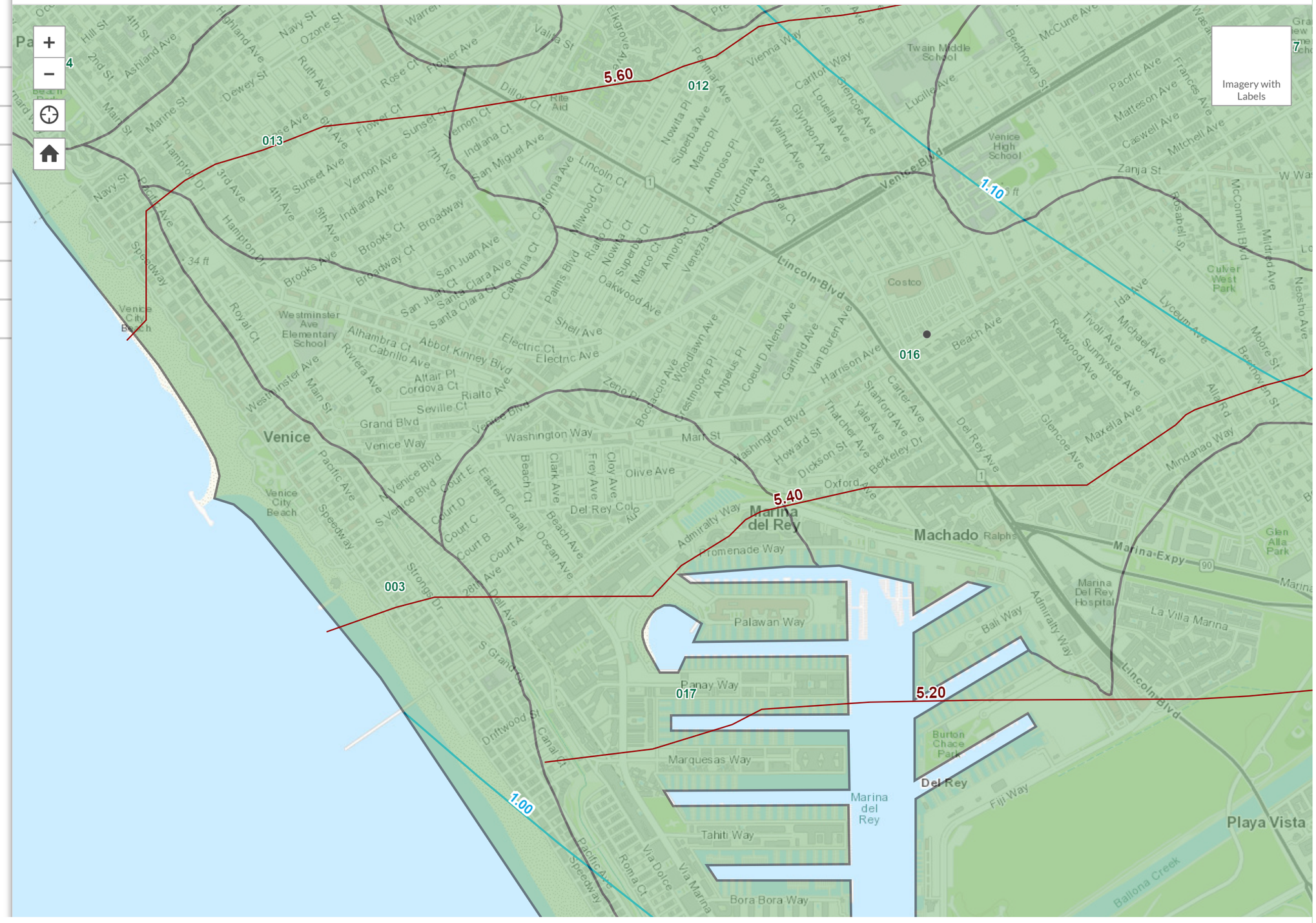
About | Legend | Layers

Layers

- [x] 50yr Two Tenths (Rainfall)
- [ ] DPA Zones
- [x] Soils 2004
- [x] Final 85th Percentile, 24-hr Rainfall
- [ ] Final 95th Percentile, 24-hr Rainfall
- [ ] 1-year, 1-hour Rainfall Intensity
- [ ] LA County Parcel

LA County Hydrology Map

13463 washington blvd,



Geotechnical Investigation Report
Infiltration Study
Marina Del Rey Watershed BMP Design
Los Angeles, California

Weston Solutions, Inc.
5817 Dryden Place, Suite 101
Carlsbad, CA 92008

February 25, 2015
GDC Project No. LA-1225

GROUP DELTA

Weston Solutions, Inc.
5817 Dryden Place, Suite 101
Carlsbad, CA 92008

February 25, 2015
Project No. LA-1225

Attention: Ms. Andrea Crumpacker
Southern California Resource Director

Subject: Geotechnical Investigation Report
Infiltration Study
Marina Del Rey Watershed BMP Design
Los Angeles, California

Dear Ms. Crumpacker,

Group Delta Consultants, Inc. (GDC) is pleased to submit our Geotechnical Investigation Report for the Infiltration Study conducted for the Marina Del Rey Watershed BMP Design.

We appreciate the opportunity to provide geotechnical services for this project. If you have any questions pertaining to this report, or if we can be of further service, please do not hesitate to contact us.

Sincerely,
Group Delta Consultants

Thomas D. Swantko, GE #813
Principal Geotechnical Engineer

Justin Spring, EIT
Staff Engineer

Distribution: (4) Addressee

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1.0 PROJECT DESCRIPTION 1
2.0 SCOPE OF WORK 1
3.0 FIELD EXPLORATION AND LABORATORY TESTING 1
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6.0 LIMITATIONS 6
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LIST OF FIGURES

Figure 1 Vicinity Map
Figure 1A Site Map
Figure 2-9 Boring Location Maps

APPENDICES

Appendix A Field Investigation
Appendix B Infiltration Testing Calculations

Geotechnical Investigation Report
Infiltration Study
Marina Del Rey Watershed BMP Design
Los Angeles, California

1.0 PROJECT DESCRIPTION

This report presents the results of a field infiltration testing program conducted at various sites within the Marina Del Rey Watershed to assist in evaluating the Best Management Practices (BMP) design for infiltration of rain runoff. The general location of the project is shown on the Vicinity Map, Figure 1. A site plan showing the street locations where borings/field testing was performed is presented on Figure 1A. The individual boring and test locations are also indicate in Figures 2 through 9.

2.0 SCOPE OF WORK

Our scope of work included:

- Drilling a total of 11 borings ranging in depth from 6 to 25 feet.
- Performing 8 infiltration tests in temporary wells installed to depths ranging in depth from 2.5 to 15 feet.
- Performing laboratory testing on representative samples of the soils encountered to assist in classification of the soils.
- A falling head permeability test was performed in each test well, after saturating the adjacent soils.
- Performing analysis of the field test data and calculation of soil infiltration rates.
- Preparation of this report.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

3.1 Field Exploration Program

The field program included drilling a total of 11 borings, using hollow stem auger equipment. Falling head permeability tests were performed in 8 of the borings, established as temporary wells. The locations and depths for the borings/wells were provide to us by Weston Solutions. Locations are shown in Figure 1A and also in Figures 2 through 9.

The borings were advanced to depths ranging from 6 to 25 feet. Borings B-5 through B-7 are located in what is referred to as Green Streets Area 1, which includes locations in Penmar Avenue near Venice Boulevard, Walgrove Avenue and Carlton Way. Borings B-1 through B-4 are located in Green Streets Area 2, which includes locations in McKinley Avenue, Clement Avenue, Frey

Avenue and Boone Avenue. Borings B-8 through B-10 are located in the Costco parking lot. Two borings were drilled at location #6, to evaluate the infiltration rate at depths of 6 to 10 feet and also at 12 to 15 feet.

The borings were performed under the observation of our staff engineer, who maintained a detailed log of each boring and assisted in obtaining soil samples. Boring logs are provided in Appendix A. Details regarding installation of the wells and conducting the infiltration tests are provided in Sections 3.2 and 5.1, respectively.

3.2 Installation of Test Wells

Temporary test wells were installed at depth of 2.5 to 17 feet in Borings B-3, B-4, B-5, B-6A, B-6B, B-7, B-9 and B-10. The wells consisted of 2.25-inch outside diameter PVC pipe. The bottom 2 to 5 feet of the pipe was slotted in the zone to be tested. The bottom end of the pipe was capped and set on a 1.5-foot layer of bentonite chips. In the slotted portion of the pipe gravel was used as backfill outside of the pipe. The gravel backfill was sealed just above the slotted portion of the pipe with bentonite chips, followed by native soil backfill to surface.

Before performing the infiltration tests, each well was filled with water to saturate the surrounding soils within the test zone (Los Angeles County GS200.1). After completion of the field test, the test wells were abandoned. The entire length of the casing was removed, and the hole was backfilled with bentonite. The top 3 feet was backfilled with soil, and the hole capped with quickset concrete or asphalt cold patch.

3.3 Laboratory Testing

Representative samples of the soils encountered in the borings were obtained and returned to our laboratory for further visual examination and laboratory testing. Laboratory tests were performed to assist in classifying the soils and included the percent passing #200 sieve, to evaluate the fines content of the samples. Discussion of the laboratory test results is provided in Section 4.2. Test results are shown on the boring logs

4.0 SITE CONDITIONS

4.1 Surface Conditions

Borings B-1 through B-7 are located in city streets. The pavement in the streets typically consisted of 5 to 8 inches of concrete over 3 to 6 inches of aggregate base, or 4 to 5 inches of asphalt over 5 to 6 inches of base. Borings B-8 through B-10 are located in the parking lot of Costco, located on the northeast corner of W. Washington Boulevard and Walnut Avenue. At test locations, the parking lot was found to have a pavement consisting of 5 inches of asphalt over 4 inches of base.

4.2 Subsurface Conditions

Detailed logs of the borings are provided in Appendix A. The subsurface conditions encountered In Green Streets 1 Area (B-5, B-6A, B-6B and B-7), Green Streets Area 2 (B-1 through B-4) and in the Costco parking lot (B-8 through B-10) are summarized in the following table. Two distinct soil layers were encountered in most borings, as indicated in the table.

Location	Boring	Total Depth(ft)	Layer 1		Layer 2	
			Depth (ft)	Soil - % Fines	Depth (ft)	Soil - % Fines
Green Streets 2	B-1	6.5	1 – 6.5	Clayey Sand – 41%	--	--
	B-2	10	1 - 6	Clayey Sand	6 - 10	Sand – 12 to 44%
	B-3	7	1 - 4	Sand – 24%	4 - 7	Clay - 70%
	B-4	11	1 - 5	Sandy Clay - 61%	5 - 11	Clayey Sand
Green Streets 1	B-5	10	1 - 5	Clay – 79%	5 – 10	Sand – 18%
	B-6A	10	1 – 10	Clay – 95%	--	--
	B-6B	15	1 – 12	Clay – 87%	12 - 15	Sand
	B-7	22	1 – 8	Clay – 67 to 74%	8 – 22	Sand – 10%
Costco	B-8	25	1 – 9	Clayey Silt	9 - 25	Sand
	B-9	17	1 – 12	Clay	12 – 17	Sand – 22%
	B-10	17	1 – 12	Clay	12- 17	Sand – 44%

In Green Streets Area 1, the borings generally encountered clayey sand to sandy clay, which laboratory tests showed had 41 to 70 % fines (silt and clay content). B-3 found silty sand to a depth of about 4 feet, with 24% fines, and B-2 encountered silty to clayey sand at a depth of 6 to 10 feet, which had 12 to 44% fines.

In Green Streets Area 2 the borings found clay extending to a depth of 5 to 12 feet. The clay had 67 to 95% fines. Sand was encountered in B-5 at a depth of 5 to 10 feet, Boring B-6B between 12 and 15 feet, and B-7 between 8 and 22 feet. The sand had 10 to 44% fines.

At the Costco site, the borings found clay soils extending to a depth of 9 to a 12 that was underlain with sand to the maximum depts. Explored, which ranged from 17 to 25 feet. It is noted that

similar conditions were also encountered in the extensive borings performed at the site by Kleinfelder (Kleinfelder, 1998) during their investigation for the Costco development.

4.3 Ground Water

Ground water was encountered in five of the borings at the time of drilling. The groundwater depths are summarized in the table below. In Area 1 and at Costco, the ground water was found at a depth of about 21 feet below the existing grade. In Area 2 the ground water was encountered at a depth of about 5.5 feet to 10 feet. It is noted that during the Kleinfelder investigation for Costco, ground water was found at depths generally ranging from about 15 to 20 feet. The highest historic ground water level within the general area of the project is at a depth of 5 to 10 feet reported (CDMG, 1998). However, there is a potential for perched water to occur anywhere in the project area, where the water "perches" on top of a clay layer.

Table 1: Summary of Groundwater Depth

Project Area	Boring	Location	Groundwater Depth (feet bgs)
Area 2	B-1	McKinley Ave. and Harbor St.	5.5
Area 2	B-2	Clement Ave. and Harbor St.	9
Area 2	B-4	Boone Ave. and Harbor St.	10
Area 1	B-7	Carlton Way and Penmar Ave.	21
Costco	B-8	Costco Parking Lot	21

5.0 DISCUSSION

5.1 Infiltration Test Results

Following saturation, falling head permeability tests were conducted in each test well in general accordance with ASTM 5912-96 and Los Angeles County GS200.1. The well casing was filled with water and then the level of water in the well was recorded at 20 to 30 second intervals.

For calculation of the permeability, the following formula derived by Jarvis (1953) as recommended in the Ground Water Manual (US Bureau of Reclamation) was used:

$$K = (r_1)^2 / (2A\,\Delta t)\,\{[(\sinh^{-1}(A/r_e))/2]\,\ln[(2H_1-A)/(2H_2-A)] - \ln[(2H_1 H_2-A H_2)/(2 H_1 H_2-A H_1)]\}$$

Where:

K = average permeability of test section: m/sec, ft/sec
A = length of the test section: m, ft (2 or 5 feet)
r_1 = inside radius of drop pipe: m, ft (0.167 feet)
r_e = effective radius of test section: m, ft (0.334 feet)
Δt = time intervals t_1-t_0 , t_2-t_1, seconds
$\sinh^{-1}$ = inverse hyperbolic sine
ln = natural logarithm
H = length of the water column from bottom of the test interval to water surface in the stand pipe, meters (feet) H_0, H_1, H_2 lengths at time of measurement t_0 , t_1, and t_2 etc.

The calculated results are summarized in Table 2, and are discussed in the following Section. Calculations are provided in Appendix B.

Table 2: Summary of Infiltration Tests

Boring	Project Area	Zone Evaluated (feet below grade)	Field Permeability (cm/sec)	Permeability Rate (in/hr)	Material
B-1	Area 2	--	--	--	Used for Ground Water
B-2		--	--	--	Used for Ground Water
B-3		4-6	4.4 E-05	0.06	Lean Clay
B-4		0.5-2.5	2.6 E-05	0.04	Sandy Lean Clay
B-5	Area 1	6-10	4.5 E-04	0.65	Silty Sand with Gravel
B-6A		6-10	3.2 E-06	0.005	Lean Clay with Sand
B-6B		12-15	7.1 E-04	1.0	Poorly Graded Sand with Silt
B-7		8-12	5.5 E-04	0.78	Poorly Graded Sand with Silt and Gravel
B-8	Costco	--	--	--	Used for Ground Water
B-9		12-17	4.6 E-03	6.5	Silty Sand
B-10		12-17	1.2 E-03	1.7	Silty Sand

5.2 Discussion of Results

The following summarizes the findings of the field testing and are provided for the purpose of assessing the feasibility of this project and performing design analysis:

1. The calculated infiltration rates are summarized in Table 1 and range from 0.005 to 0.06 inches per hour for clay layers and 0.65 to 6.5 inches per hour for sand layers. Calculated field permeability ranged from 3.2×10^{-6} to 1.2×10^{-3} cm/sec. The calculated permeability rates are consistent with the permeability of the clay, poorly graded sand, silty sand, and gravelly sand layers encountered in the borings (Holtz et al, 1981).

2. It should be cautioned that the soil permeability and infiltration rate can decrease with time, if fines are carried into the soil by the infiltrating water.

3. We recommend that infiltration structures should be kept at least 30 feet away from buildings.

6.0 LIMITATIONS

The conclusions and recommendations contained in this report are professional opinions intended for the use of Weston Solutions for the proposed infiltration project. The recommendations should not be extrapolated to areas not covered by this report, or used for other facilities without the review and approval of GDC. If this report, or portions of this report, is provided to contractors, or included in specifications, it should be understood that they are provided for information only.

Our investigation and evaluations were performed in accordance with generally accepted local and state standards using that degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report.

7.0 REFERENCES

California Department of Conservation, Division of Mines and Geology, Seismic Hazard Evaluation of The Venice 7.5 Minute Quadrangle, Los Angeles County, California, OFR 98-27, 1998.

California Department of Water Resources, Bulletin 104, Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County, Appendix A, Groundwater Geology; June 1961.

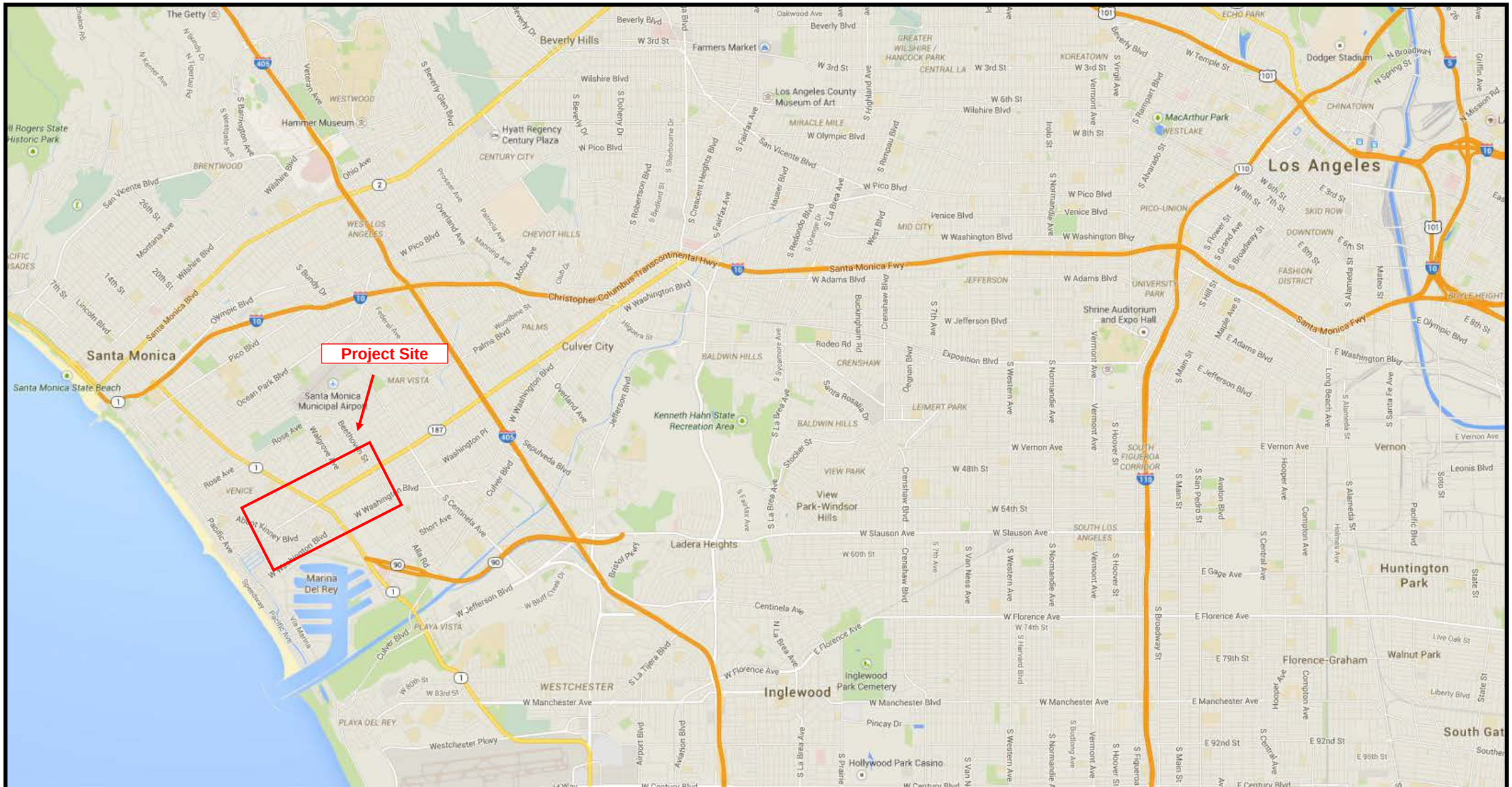
Holtz, Robert D., Kovacs, William D., An introduction to Geotechnical Engineering, Figure 7.6, pp. 210-211, 1983.

Kleinfelder, Supplemental Geotechnical Investigation, Proposed Costco Wholesale Plaza (Tract 52282), 13401-13499 Washington Boulevard, Culver City, California, dated November 17, 1998.

Los Angeles County, Administrative Manual, Department of Public Works, Geotechnical and Materials Engineering division, Guidelines for Design, Investigation and Reporting, Low Impact Development Stormwater Infiltration, GS200.1, dated June 30, 2014.

US Department of Army, Air Force and Navy, 1983, Dewatering and Groundwater Control.

FIGURES



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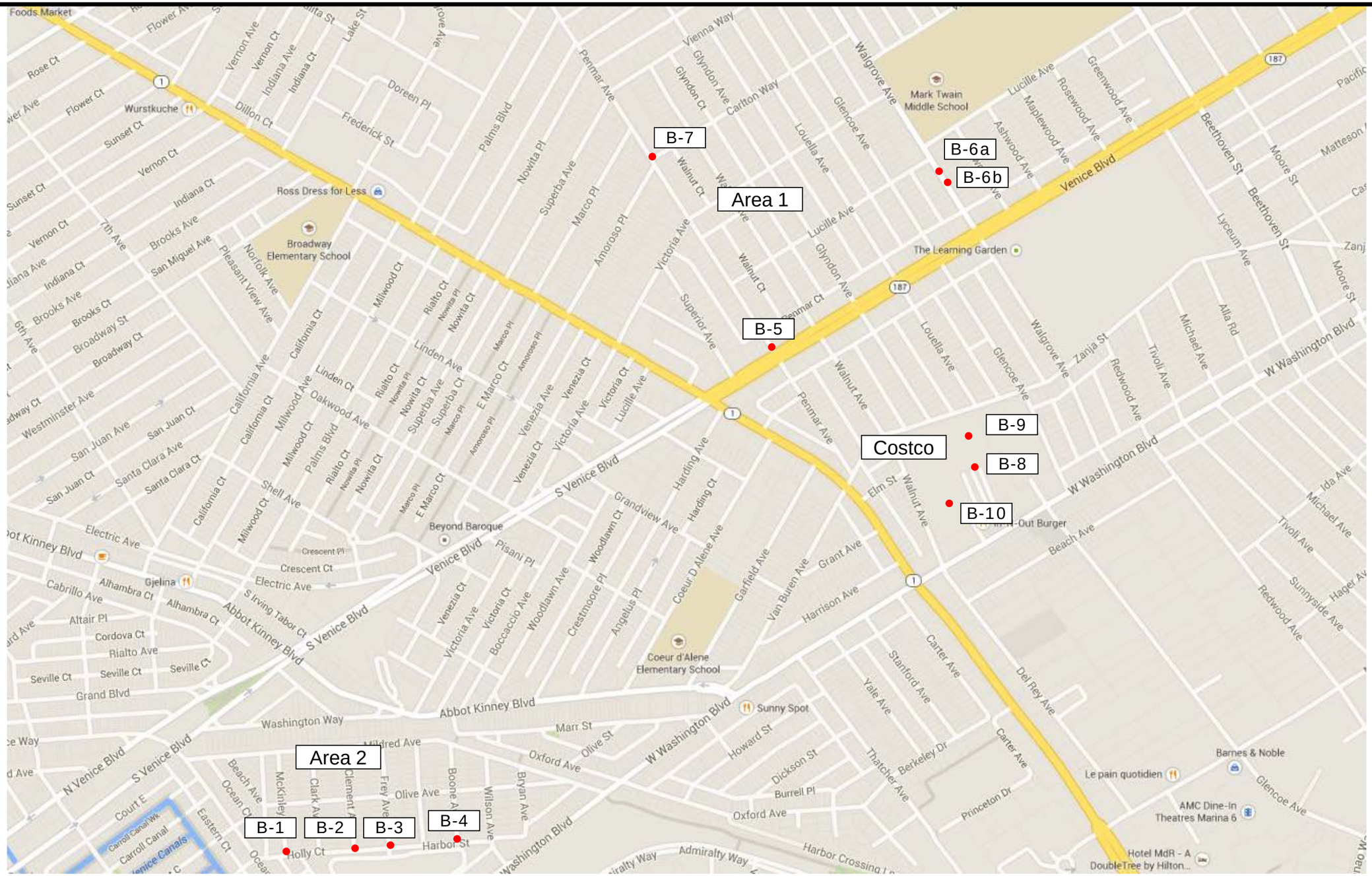
Reference: Google Maps

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Vicinity Map**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **1**



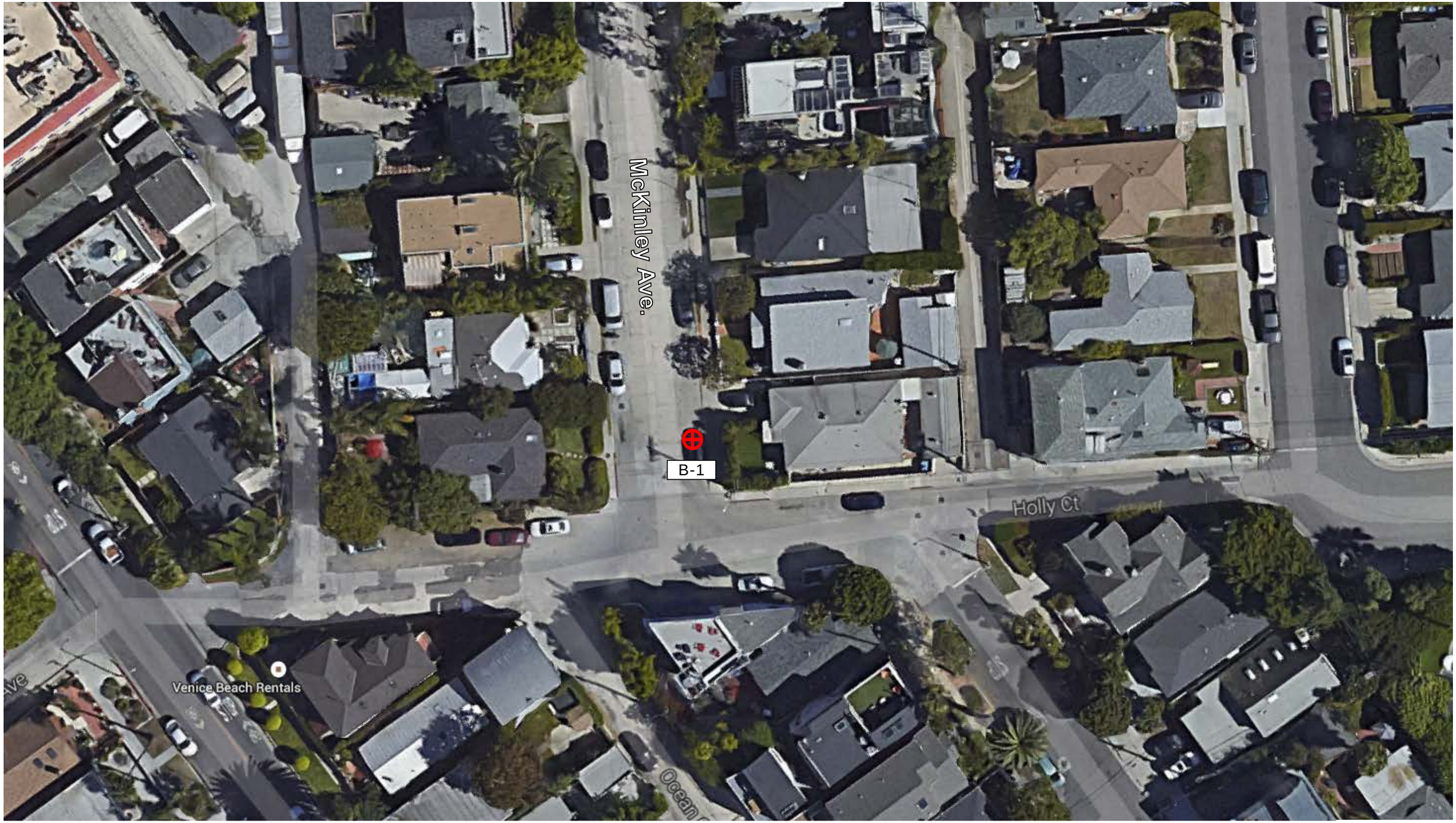
Legend

- Boring Location

N

Reference: Google Maps

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Vicinity Map**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **1A**



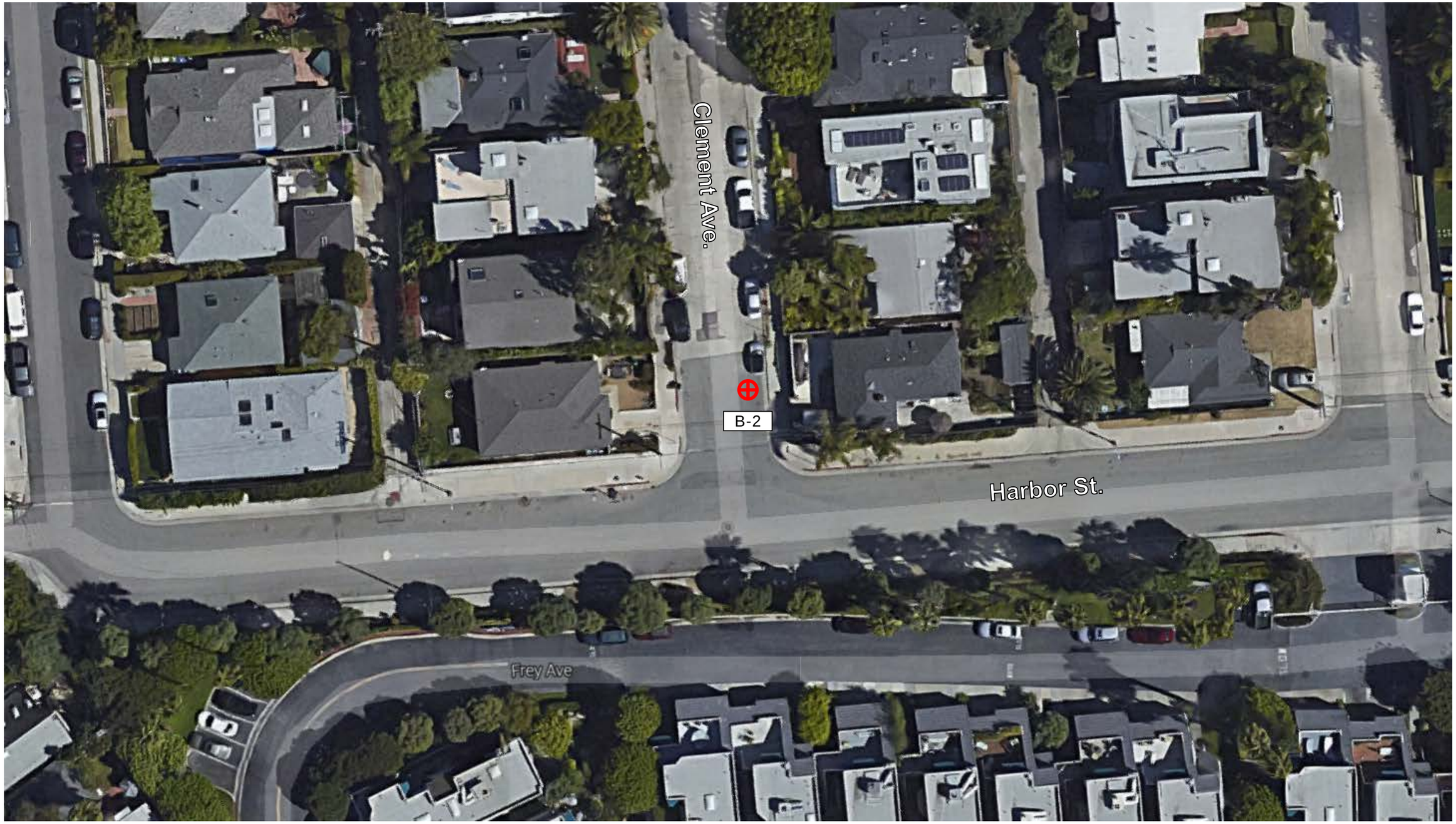
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**McKinley Ave. and Harbor St.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **2**



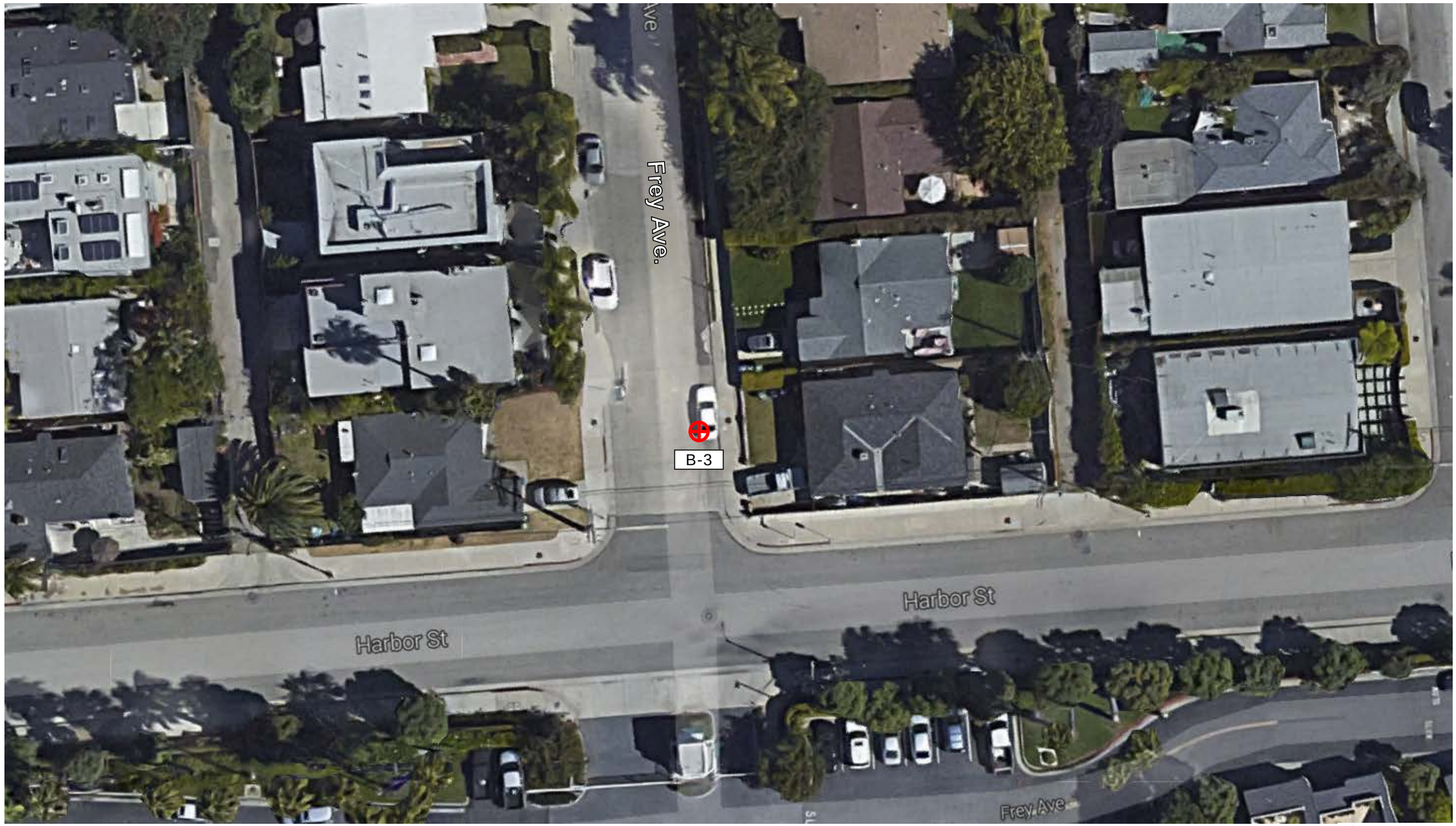
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Clement Ave. and Harbor St.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **3**



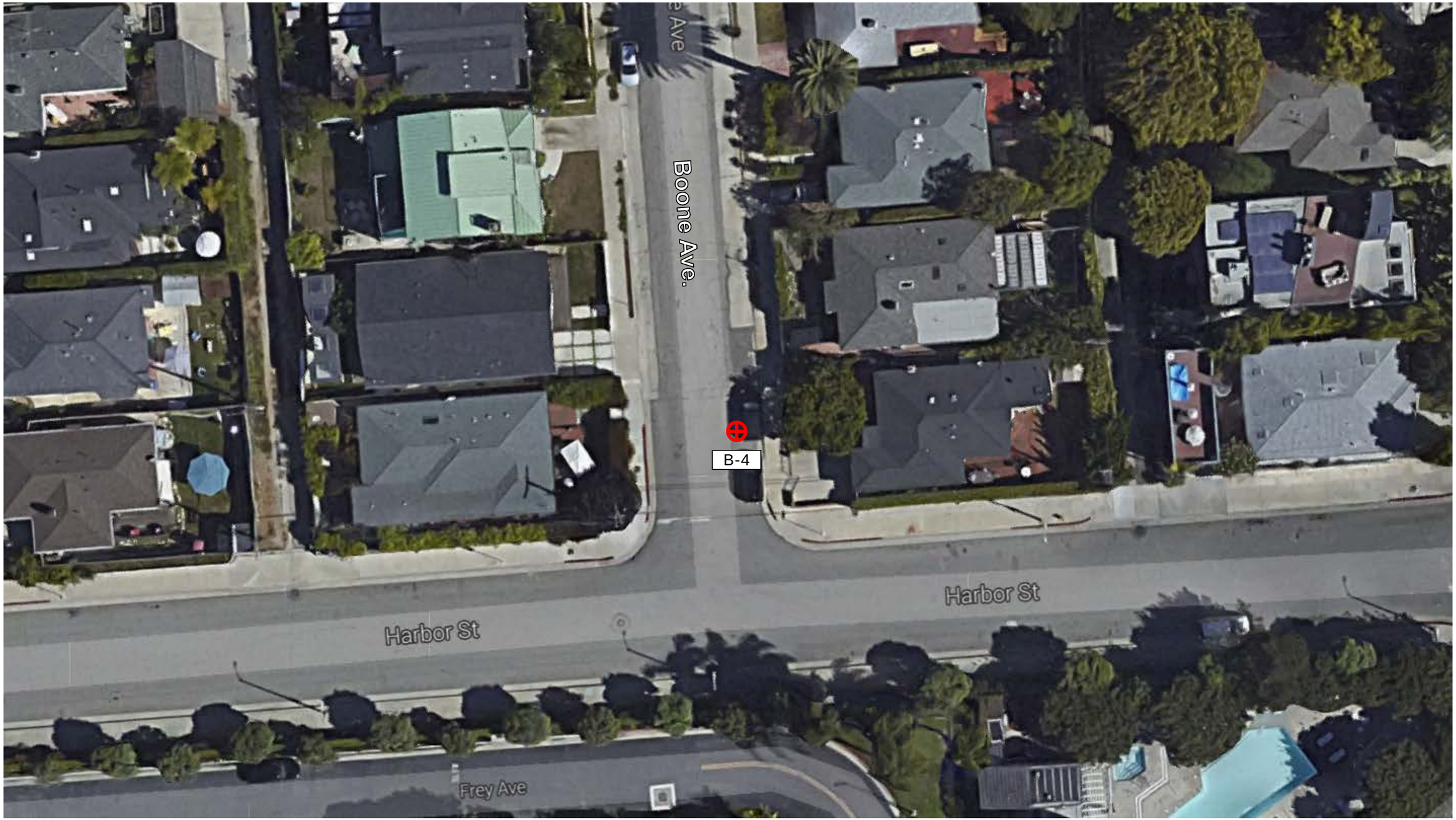
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Frey Ave. and Harbor St.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **4**



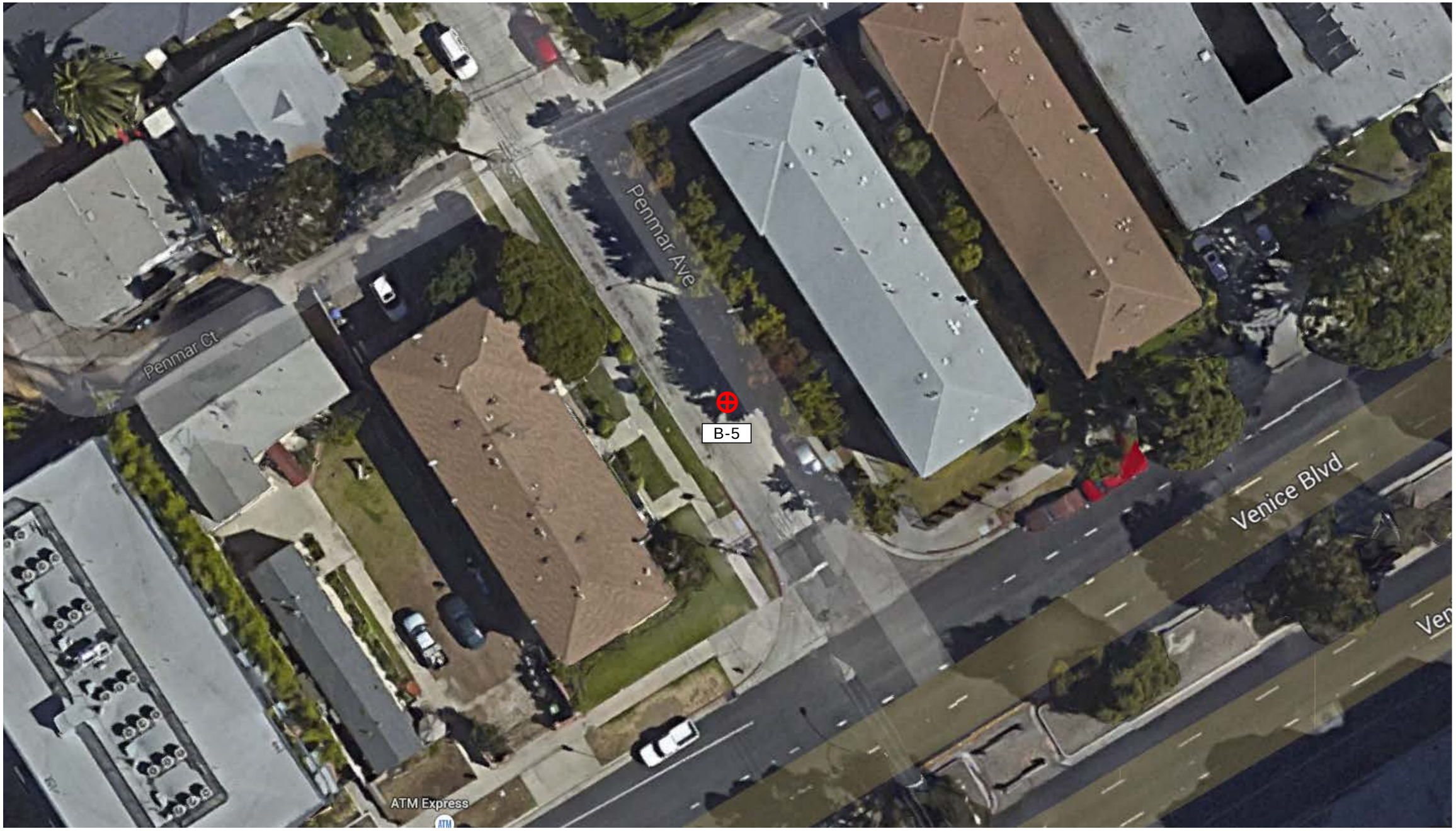
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Boone Ave. and Harbor St.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **5**



Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Penmar Ave. and Venice Blvd.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **6**

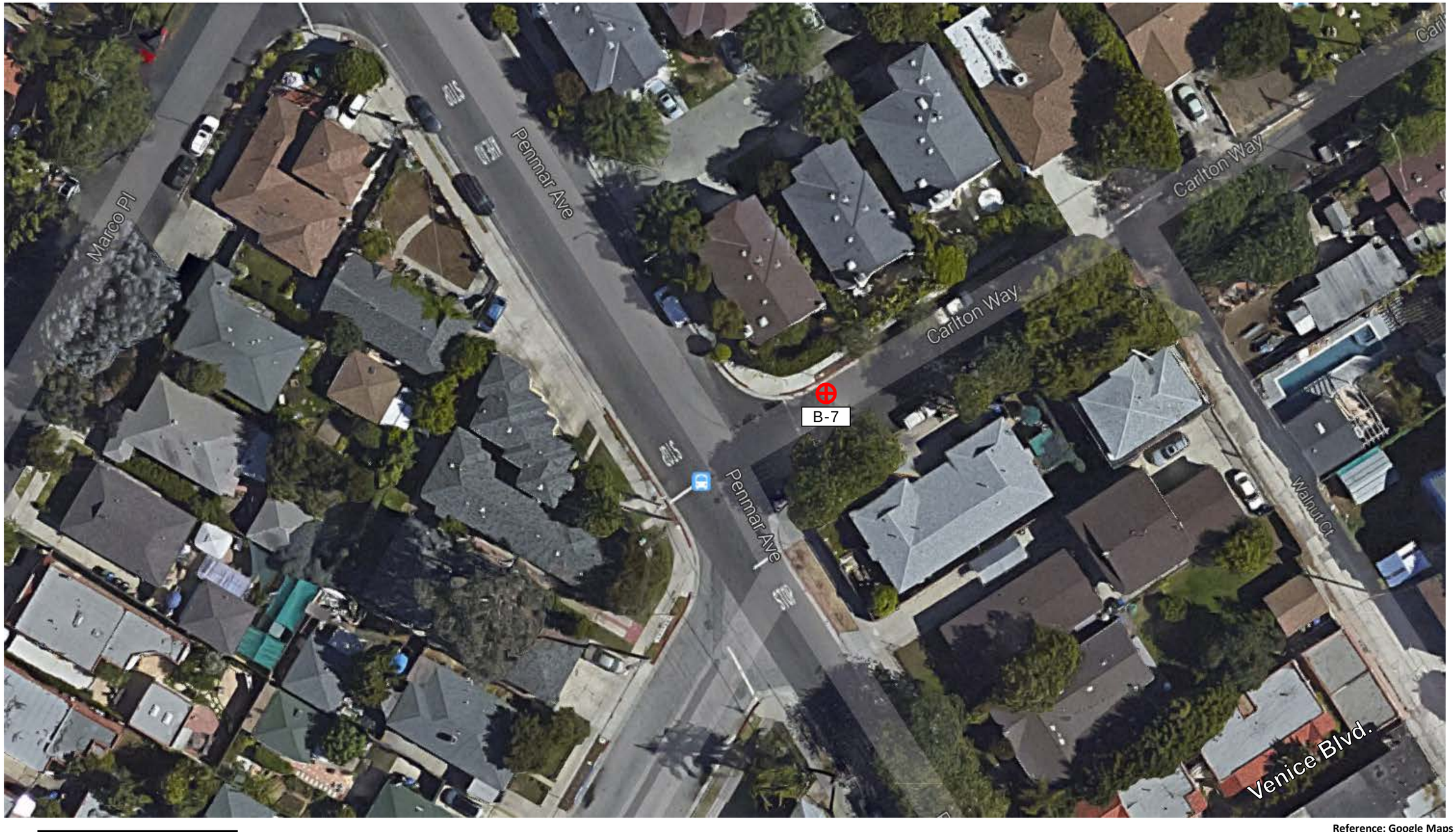
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Walgrove Ave. and Venice Blvd.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **7**



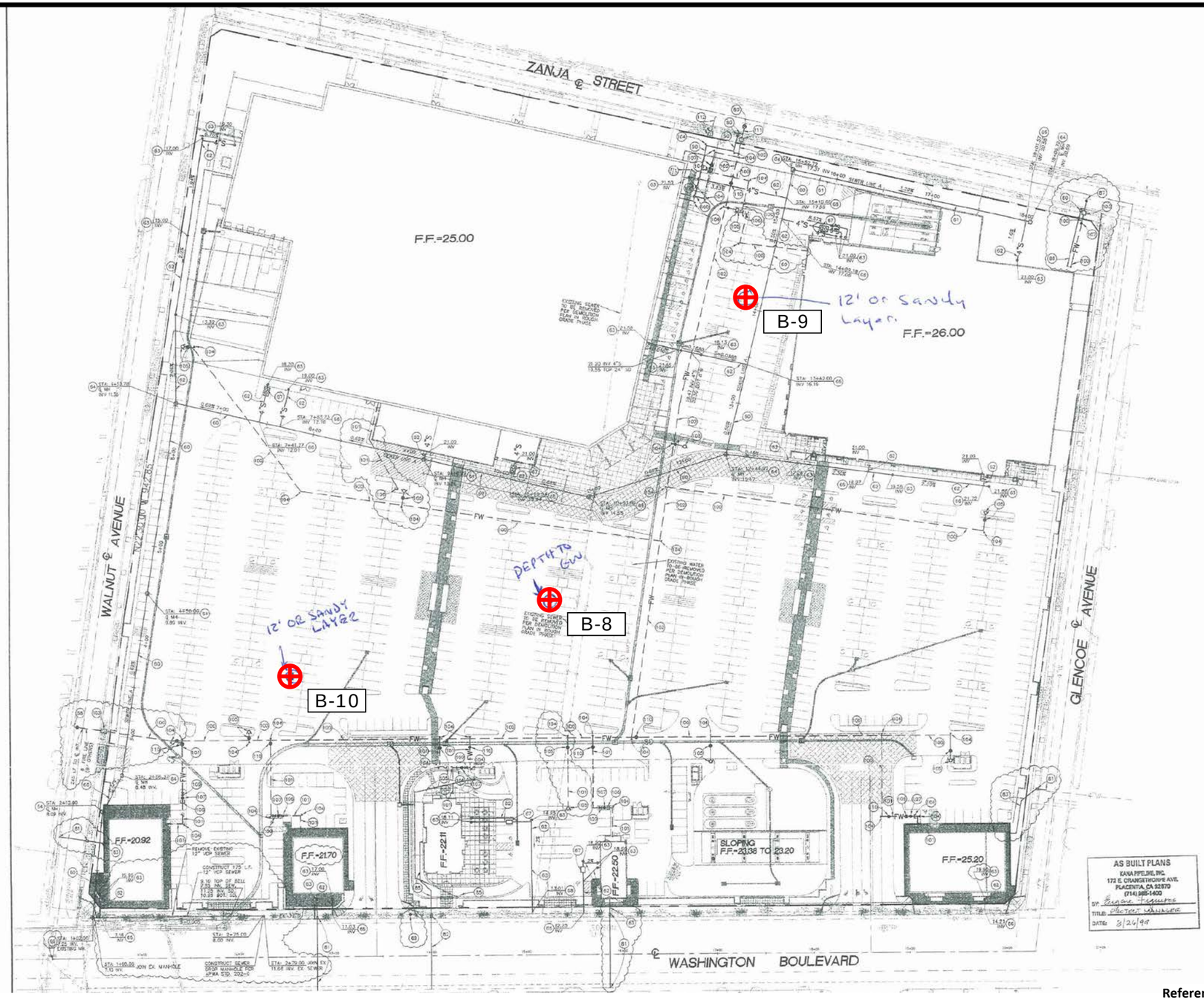
Reference: Google Maps

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Carlton Wy. and Penmar Ave.**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **8**



Reference: Grading , Paving and Drainage Plan

Legend

⊕ Boring Location

N

GROUP DELTA	**GROUP DELTA CONSULTANTS, INC** **370 Amapola Ave.** **Suite 212** **Torrance, CA 90501**	**Costco, 13463 Washington Blvd. Marina Del Rey, CA 9092**	PROJECT NUMBER: **LA-1225**
		Weston Solutions – BMP Infiltration	FIGURE NUMBER: **9**

APPENDIX A
FIELD INVESTIGATION

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-1**

SITE LOCATION	START	FINISH	SHEET NO.
McKinley Ave. and Harbor St.	2/3/2015	2/3/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	6.5	5	▽ 5.5 / *-0.5* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														6" of Concrete with 6" of base.
			B-1					41						**Clayey SAND (SC)**; brown, moist, mostly fine sand.
5	0													▽
														End of Boring at 6.5 feet bgs. Groundwater measured at 5.5 feet bgs. No percolation test was performed. Backfilled with soil cuttings and hydrated bentonite chips.
10	-5													
15	-10													
20	-15													

GDC_LOG_BORING_2011 LA1225 - B-1.GPJ GDCLOG.GDT 2/27/15

GROUP DELTA CONSULTANTS, INC.
370 Amaploa Ave., Suite 212
Torrance, CA 90501

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE
A-1

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-2**

SITE LOCATION	START	FINISH	SHEET NO.
Clement Ave. and Harbor St.	2/3/2015	2/3/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	9	4	▽ 9.0 / *-5.0* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														5" of Concrete with 5" of base.
	0													**Clayey SAND (SC)**; olive grey, moist, mostly fine SAND, few GRAVEL.
5														
			B-1					44						**Poorly Graded SAND with SILT and GRAVEL (SP-SM)** yellowish brown, moist to wet, mostly fine SAND, some GRAVEL. ▽
	-5		B-2					12						
10														End of Boring at 10 feet bgs. Groundwater measured at 9 feet bgs. No percolation test was performed. Backfilled with soil cuttings and hydrated bentonite chips.
	-10													
15														
	-15													
20														
	-20													

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FIGURE
A-2

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-3**

SITE LOCATION	START	FINISH	SHEET NO.
Frey Ave. and Harbor St.	2/2/2015	2/2/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	7	3	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														6.5" of Concrete with 3.5" of base.
	0		B-1					24						**SILTY SAND with GRAVEL(SM)** olive brown, moist, mostly fine SAND, few GRAVEL.
5			B-2					70						**Lean CLAY with SAND (CL)**; grey, moist, little fine SAND, trace GRAVEL.
	-5													End of Boring at 7 feet bgs. Groundwater not encountered. Percolation test was performed 4'-6'. Backfilled with soil cuttings and hydrated bentonite chips.
10														
	-10													
15														
	-15													
20														
	-20													

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FIGURE
A-3

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-4**

SITE LOCATION	START	FINISH	SHEET NO.
Boone Ave. and Harbor St.	2/3/2015	2/3/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	11	2	▽ 10.0 / *-8.0* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	AFTER DRILLING
None		▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														5" of Asphalt with 5" of base.
	0		B-1					61						**SANDY Lean CLAY (CL)**; olive grey, moist, some fine SAND.
5														
	-5		B-2					40						**CLAYEY SAND (SC)**; brown, moist, mostly fine SAND.
10														▽
	-10													End of Boring at 11 feet bgs. Groundwater measured at 10 feet bgs. Percolation test was performed .5'-2.5'. Backfilled with soil cuttings and hydrated bentonite chips.
15														
	-15													
20														
	-20													

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FIGURE
A-4

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-5**

SITE LOCATION	START	FINISH	SHEET NO.
Penmar Ave. and Venice St.	2/4/2015	2/4/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	10	25	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	AFTER DRILLING
None		▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														6" of Concrete with 6" of base.
			B-1					79						**Lean CLAY with SAND (CL)**; brown, moist, little fine SAND, trace GRAVEL.
5	20													
			B-2					18						**SILTY SAND with GRAVEL (SM)**; yellowish brown, moist, mostly fine SAND, little GRAVEL.
10	15													
														End of Boring at 10 feet bgs. Groundwater not measured. Percolation test was performed 6'-10'. Backfilled with soil cuttings and hydrated bentonite chips.
15	10													
20	5													

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Torrance, CA 90501

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FIGURE
A-5

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-6A**

SITE LOCATION	START	FINISH	SHEET NO.
Walgrove Ave. and Venice St.	2/2/2015	2/2/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	10	26	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	AFTER DRILLING
None		▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	25													4" of Asphalt with 6" of base.
														Lean CLAY with SAND (CL) olive brown, moist, trace fine SAND.
5	20													
			B-1					95						
10	15													End of Boring at 10 feet bgs. Groundwater not measured. Percolation test was performed 6'-10'. Backfilled with soil cuttings and hydrated bentonite chips.
15	10													
20	5													

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FIGURE
A-6

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-6B**

SITE LOCATION	START	FINISH	SHEET NO.
Walgrove Ave. and Venice St.	2/2/2015	2/2/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	15	26	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	AFTER DRILLING
None		▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	25													4" of Asphalt with 6" of base.
														Lean CLAY with SAND (CL) olive brown, moist, trace fine SAND.
5	20		B-1					87						
10	15													
														Poorly-graded SAND with SILT and GRAVEL (SP-SM) yellowish brown, moist, mostly fine SAND, some GRAVEL.
15	10		B-2					13						
														End of Boring at 15 feet bgs. Groundwater not measured. Percolation test was performed 12'-15'. Backfilled with soil cuttings and hydrated bentonite chips.
20	5													

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370 Amaploa Ave., Suite 212
Torrance, CA 90501

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FIGURE
A-7

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-7**

SITE LOCATION	START	FINISH	SHEET NO.
Carlton Way and Penmar Ave.	2/4/2015	2/4/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	Hollow Stem Auger	CL	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	22	27	▽ 21.0 / *6.0* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														8" of Concrete with 3" of base.
	25		B-1					74						**Lean CLAY with SAND (CL)**, brown, moist, little fine SAND, trace GRAVEL.
5														
	20		B-2					67						
														Poorl-graded SAND with SILT and GRAVEL (SP-SM) yellowish brown, moist, mostly fine SAND, little GRAVEL.
10			B-3					10						
	15													
15														
	10													
20														
	5													End of Boring at 22 feet bgs. Groundwater measured at 21 feet bgs. Percolation test was performed 8'-12'. Backfilled with soil cuttings and hydrated bentonite chips.

GDC_LOG_BORING_2011 LA1225 - B-7.GPJ GDCLOG.GDT 2/27/15

GROUP DELTA CONSULTANTS, INC.
370 Amaploa Ave., Suite 212
Torrance, CA 90501

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE
A-8

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-8**

SITE LOCATION	START	FINISH	SHEET NO.
13463 W. Washington Blvd	2/17/2015	2/17/2015	1 of 2

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
Gregg Drilling and Testing	CME 95	Hollow Stem Auger	JS	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	25	25	▽ 21.0 / *4.0* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														5" of Asphalt 4" of base.
														CLAYEY SILT (ML); brown, slightly moist, very stiff, some fine sand.
5	20													
														SILTY SAND (SM); brown, moist, medium dense, mostly fine sand.
10	15													
														SAND with SILT; brown, moist, fine to medium sand, some coarse sand, trace gravel
15	10													
														▽
20	5													

GDC_LOG_BORING_2011 LA1225 - COSTCO.GPJ GDCLOG.GDT 2/27/15

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FIGURE

A-9 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-8**

SITE LOCATION	START	FINISH	SHEET NO.
13463 W. Washington Blvd	2/17/2015	2/17/2015	2 of 2

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
Gregg Drilling and Testing	CME 95	Hollow Stem Auger	JS	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	25	25	▽ 21.0 / *4.0* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		AFTER DRILLING ▼ / *na*

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
30	-5													End of Boring at 25 feet bgs. Groundwater measured at 21 feet bgs. Backfilled with grout, 3 feet of soil, and hydrated bentonite chips.
35	-10													
40	-15													
45	-20													

GDC_LOG_BORING_2011 LA1225 - COSTCO.GPJ GDCLOG.GDT 2/27/15

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FIGURE

A-9 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-9**

SITE LOCATION	START	FINISH	SHEET NO.
13463 W. Washington Blvd	2/17/2015	2/18/2015	1 of 1

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
Gregg Drilling and Testing	CME 95	Hollow Stem Auger	JS	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	17	26	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		▼ NM / *na* AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	25													5" of Asphalt 4" of base.
														SILTY CLAY (CL); brown, slightly moist, few fine sand.
5	20													
10	15													
			B-1					22						**SILTY SAND (SM)**; brown, moist, mostly fine sand, few gravel.
15	10													
20	5													End of Boring at 17 feet bgs. Groundwater not encountered. Backfilled with grout, 3 feet of soil, and hydrated bentonite chips.

GDC_LOG_BORING_2011 LA1225 - COSTCO.GPJ GDCLOG.GDT 2/27/15

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FIGURE
A-10

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-10**

SITE LOCATION	START	FINISH	SHEET NO.
13463 W. Washington Blvd	2/17/2015	2/18/2015	1 of 2

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
Gregg Drilling and Testing	CME 95	Hollow Stem Auger	JS	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	17	25	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		▼ NM / *na* AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														5" of Asphalt 4" of base.
														SILTY CLAY (CL); brown, slightly moist, few fine sand.
5	20													
10	15													
			B-1					44						**SILTY SAND (SM)**; brown, moist, mostly fine sand.
15	10													
20	5													

GDC_LOG_BORING_2011 LA1225 - COSTCO.GPJ GDCLOG.GDT 2/27/15

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FIGURE
A-11 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
Weston Solutions - BMP Infiltration	LA-1225	**B-10**

SITE LOCATION	START	FINISH	SHEET NO.
13463 W. Washington Blvd	2/17/2015	2/18/2015	2 of 2

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
Gregg Drilling and Testing	CME 95	Hollow Stem Auger	JS	TS

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
None		8"	17	25	▽ NM / *na* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	
None		▼ NM / *na* AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOW/FT "N"	MOISTURE (%)	DRY DENSITY (PCF)	PASSING #200 (%)	ATTERBERG LIMITS (LL:PL:PI)	POCKET PEN (TSF)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
														End of Boring at 17 feet bgs. Groundwater not encountered. Backfilled with grout, 3 feet of soil, and hydrated bentonite chips.
30	-5													
35	-10													
40	-15													
45	-20													

GDC_LOG_BORING_2011 LA1225 - COSTCO.GPJ GDCLOG.GDT 2/27/15

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE

A-11 b

APPENDIX B
INFILTRATION TESTING CALCULATIONS

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-3
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		2
Top of casing above bottom of test section		6
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/02/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/02/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	300
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		1

Calculation

Time Change - seconds	300.0
First Height - above bottom of Test Section	6
Second Height - above bottom of Test Section	5

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000060800532		
B=ASINH(A/re)/2	1.246383377		
C=2H1-A	10		
D=2H2-A	8		
E=2H1H2-Ah2	50		
F=2H1H2-Ah1	48		
K=A(B*ln(C/D)-ln(E/F))		**1.44E-06**	**feet/sec**
		4.40E-05	**cm/sec**
		0.062	inch/hour
		4.4E-05	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000		
m = (kh/kv)0.5	100		
x = 4Lm/D	2402.4		
Y = h1/h2	1.2		
t = t1-t2	300.0		
K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))		**2.2E-06**	**feet/ sec**
		6.58E-05	**cm/sec**
		0.093	inch/hour
		6.6E-05	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-4
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		2
Top of casing above bottom of test section		2.5
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/03/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/03/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	250
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		0.16

Calculation

Time Change - seconds	250.0
First Height - above bottom of Test Section	2.5
Second Height - above bottom of Test Section	2.34

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000072960639		
B=ASINH(A/re)/2	1.246383377		
C=2H1-A	3		
D=2H2-A	2.68		
E=2H1H2-Ah2	7.02		
F=2H1H2-Ah1	6.7		
K=A(B*ln(C/D)-ln(E/F))		**6.85E-07**	**feet/sec**
		2.09E-05	**cm/sec**
		0.030	inch/hour
		2.1E-05	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000		
m = (kh/kv)0.5	100		
x = 4Lm/D	2402.4		
Y = h1/h2	1.1		
t = t1-t2	250.0		
K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))		**9.4E-07**	**feet/ sec**
		2.86E-05	**cm/sec**
		0.041	inch/hour
		2.9E-05	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-5
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		4
Top of casing above bottom of test section		10
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/04/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/04/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	106
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		6

Calculation

Time Change - seconds	106.0
First Height - above bottom of Test Section	10
Second Height - above bottom of Test Section	4

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000086038489
B=ASINH(A/re)/2	1.590391243
C=2H1-A	16
D=2H2-A	4
E=2H1H2-Ah2	64
F=2H1H2-Ah1	40

K=A(B*ln(C/D)-ln(E/F))	**1.49E-05**	**feet/sec**
	4.55E-04	**cm/sec**
	0.645	inch/hour
	4.5E-04	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000
m = (kh/kv)0.5	100
x = 4Lm/D	4804.8
Y = h1/h2	2.5
t = t1-t2	106.0

K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))	**1.7E-05**	**feet/ sec**
	5.09E-04	**cm/sec**
	0.722	inch/hour
	5.1E-04	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-6a
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		4
Top of casing above bottom of test section		10
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/02/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/02/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	380
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		0.25

Calculation

Time Change - seconds	380.0
First Height - above bottom of Test Section	10
Second Height - above bottom of Test Section	9.75

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000024000210
B=ASINH(A/re)/2	1.590391243
C=2H1-A	16
D=2H2-A	15.5
E=2H1H2-Ah2	156
F=2H1H2-Ah1	155

K=A(B*ln(C/D)-ln(E/F))	**1.06E-07**	**feet/sec**
	3.22E-06	**cm/sec**
	0.005	inch/hour
	3.2E-06	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000
m = (kh/kv)0.5	100
x = 4Lm/D	4804.8
Y = h1/h2	1.0
t = t1-t2	380.0

K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))	**1.3E-07**	**feet/ sec**
	3.93E-06	**cm/sec**
	0.006	inch/hour
	3.9E-06	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-6b
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		3
Top of casing above bottom of test section		15
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/02/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/02/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	135
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		12

Calculation

Time Change - seconds	135.0
First Height - above bottom of Test Section	15
Second Height - above bottom of Test Section	3

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000090074863		
B=ASINH(A/re)/2	1.447219186		
C=2H1-A	27		
D=2H2-A	3		
E=2H1H2-Ah2	81		
F=2H1H2-Ah1	45		
K=A(B*ln(C/D)-ln(E/F))		**2.33E-05**	**feet/sec**
		7.12E-04	**cm/sec**
		1.009	inch/hour
		7.1E-04	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000		
m = (kh/kv)0.5	100		
x = 4Lm/D	3603.6		
Y = h1/h2	5.0		
t = t1-t2	135.0		
K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))		**3.0E-05**	**feet/ sec**
		9.05E-04	**cm/sec**
		1.282	inch/hour
		9.0E-04	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-7
Date	05-Feb-15

INPUT DATA

Length of Test Section - feet		4
Top of casing above bottom of test section		12
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/04/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/04/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	104
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		8

Calculation

Time Change - seconds	104.0
First Height - above bottom of Test Section	12
Second Height - above bottom of Test Section	4

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000087693076
B=ASINH(A/re)/2	1.590391243
C=2H1-A	20
D=2H2-A	4
E=2H1H2-Ah2	80
F=2H1H2-Ah1	48

K=A(B*ln(C/D)-ln(E/F))	**1.80E-05**	**feet/sec**
	5.48E-04	**cm/sec**
	0.776	inch/hour
	5.5E-04	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000
m = (kh/kv)0.5	100
x = 4Lm/D	4804.8
Y = h1/h2	3.0
t = t1-t2	104.0

K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))	**2.0E-05**	**feet/ sec**
	6.22E-04	**cm/sec**
	0.882	inch/hour
	6.2E-04	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-9
Date	18-Feb-15

INPUT DATA

Length of Test Section - feet		5
Top of casing above bottom of test section		17
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/18/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/18/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	7
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		9

Calculation

Time Change - seconds	7.0
First Height - above bottom of Test Section	17
Second Height - above bottom of Test Section	8

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0001042294878
B=ASINH(A/re)/2	1.701652466
C=2H1-A	29
D=2H2-A	11
E=2H1H2-Ah2	232
F=2H1H2-Ah1	187

K=A(B*ln(C/D)-ln(E/F))	**1.49E-04**	**feet/sec**
	4.56E-03	**cm/sec**
	6.457	inch/hour
	4.6E-03	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000
m = (kh/kv)0.5	100
x = 4Lm/D	6006.0
Y = h1/h2	2.1
t = t1-t2	7.0

K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))	**1.7E-04**	**feet/ sec**
	5.21E-03	**cm/sec**
	7.382	inch/hour
	5.2E-03	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

Calculation of Borehole Permeability

Project Name	Weston Solutions-BMP Infiltration
Project Number	LA-1225
Location	Marina Del Rey
Boring	B-10
Date	18-Feb-15

INPUT DATA

Length of Test Section - feet		5
Top of casing above bottom of test section		17
Inside Radius Test Section		0.085417
Effective Radius of Test Section		0.333
Date of First Reading		02/18/15
Time of First Reading	Hours	0
	Minutes	0
	Seconds	0
Date of Second Reading		02/18/15
Time of Second Reading	Hours	0
	Minutes	0
	Seconds	26
First Reading - below top of casing (feet)		0
Second Reading - below top of casing (feet)		9

Calculation

Time Change - seconds	26.0
First Height - above bottom of Test Section	17
Second Height - above bottom of Test Section	8

Equation 4 by Jarvis in Groundwater Manual page 284

A=r^2/2At	0.0000280617844		
B=ASINH(A/re)/2	1.701652466		
C=2H1-A	29		
D=2H2-A	11		
E=2H1H2-Ah2	232		
F=2H1H2-Ah1	187		
K=A(B*ln(C/D)-ln(E/F))		**4.02E-05**	**feet/sec**
		1.23E-03	**cm/sec**
		1.738	inch/hour
		1.2E-03	cm/sec

Equation by Hvorslev, Case D, Figure 2.20 page 63 Cedergren

kh/kv (1)	10000		
m = (kh/kv)0.5	100		
x = 4Lm/D	6006.0		
Y = h1/h2	2.1		
t = t1-t2	26.0		
K = d2*ln(x)*ln(Y)/(8*L*(t2-t1))		**4.6E-05**	**feet/ sec**
		1.40E-03	**cm/sec**
		1.988	inch/hour
		1.4E-03	cm/sec

(1) For a bottom seal at the well, used kh/kv = 10000

References: Cedergren, H. R/, " Seepage, Drainage and Flow Nets," 3rd Edition, John Wiley & Sons, N.Y.

U.S. Department of the Interior, Bureau of Reclamation, " Groundwater Manual, A water Resources Technical Publication, " Reprint 1985.

APPENDIX C

Pre Development Hydrology Calculations

Peak Flow Hydrologic Analysis

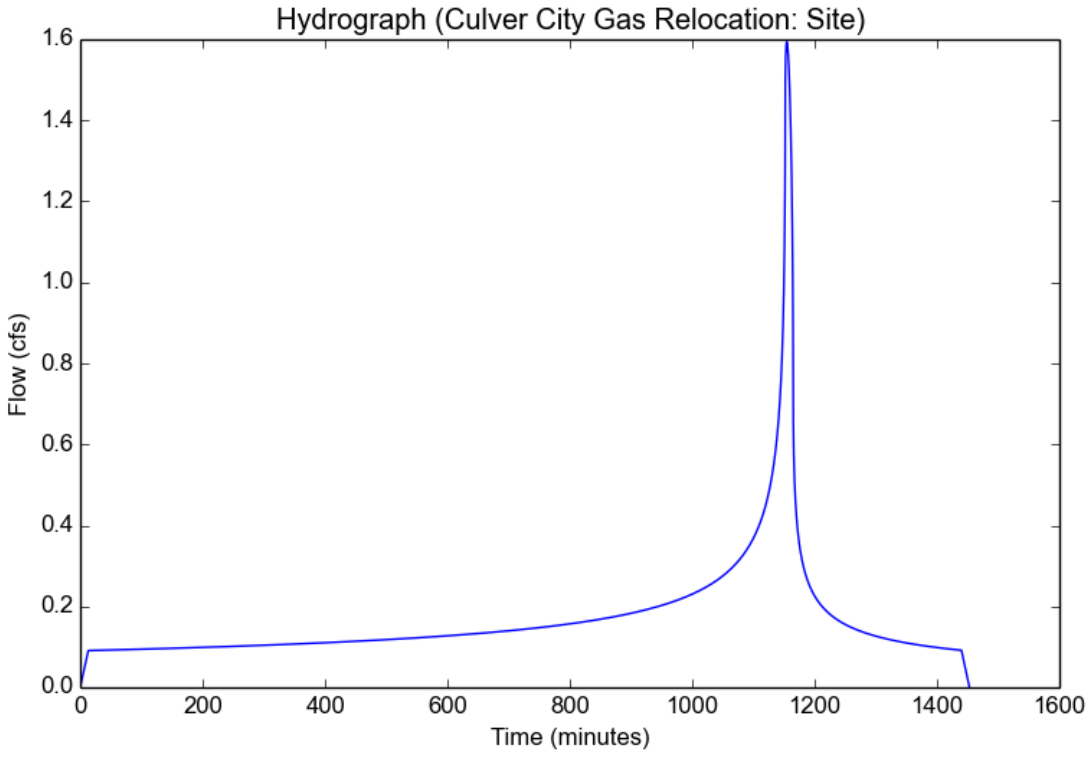
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix C - Pre Dev Hydro Calcs/156-030-Pre-2yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	552.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	2.1208
Peak Intensity (in/hr)	0.8075
Undeveloped Runoff Coefficient (Cu)	0.4462
Developed Runoff Coefficient (Cd)	0.8773
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	1.594
Burned Peak Flow Rate (cfs)	1.594
24-Hr Clear Runoff Volume (ac-ft)	0.3396
24-Hr Clear Runoff Volume (cu-ft)	14793.872



Peak Flow Hydrologic Analysis

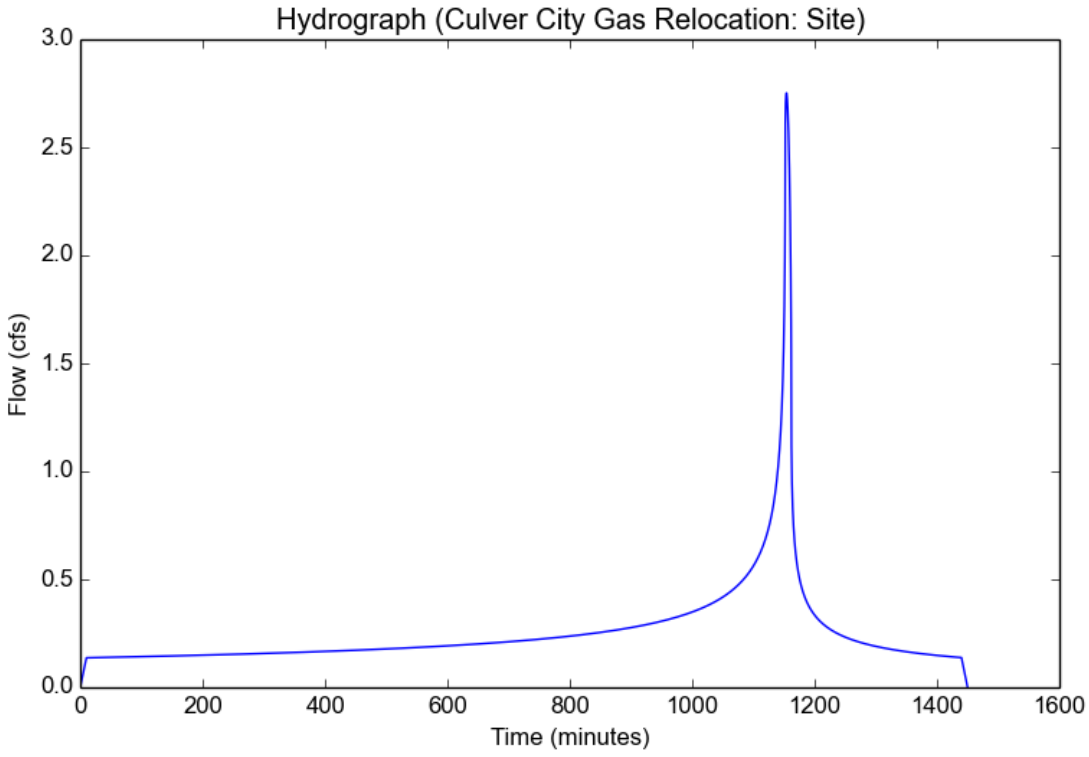
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix C - Pre Dev Hydro Calcs/156-030-Pre-5yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	552.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	3.2003
Peak Intensity (in/hr)	1.3785
Undeveloped Runoff Coefficient (Cu)	0.6442
Developed Runoff Coefficient (Cd)	0.8872
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	2.7518
Burned Peak Flow Rate (cfs)	2.7518
24-Hr Clear Runoff Volume (ac-ft)	0.5132
24-Hr Clear Runoff Volume (cu-ft)	22353.1912



Peak Flow Hydrologic Analysis

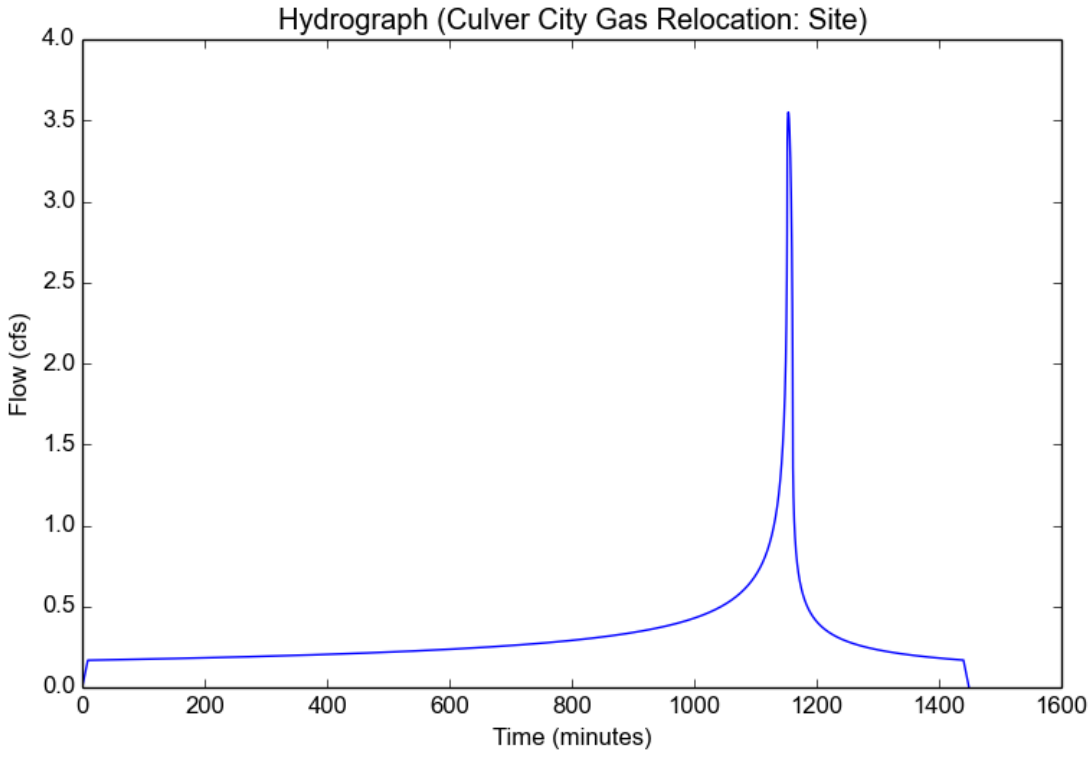
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix C - Pre Dev Hydro Calcs/156-030-Pre-10yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	552.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	3.9127
Peak Intensity (in/hr)	1.7709
Undeveloped Runoff Coefficient (Cu)	0.7209
Developed Runoff Coefficient (Cd)	0.891
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	3.5505
Burned Peak Flow Rate (cfs)	3.5505
24-Hr Clear Runoff Volume (ac-ft)	0.6279
24-Hr Clear Runoff Volume (cu-ft)	27350.3349



Peak Flow Hydrologic Analysis

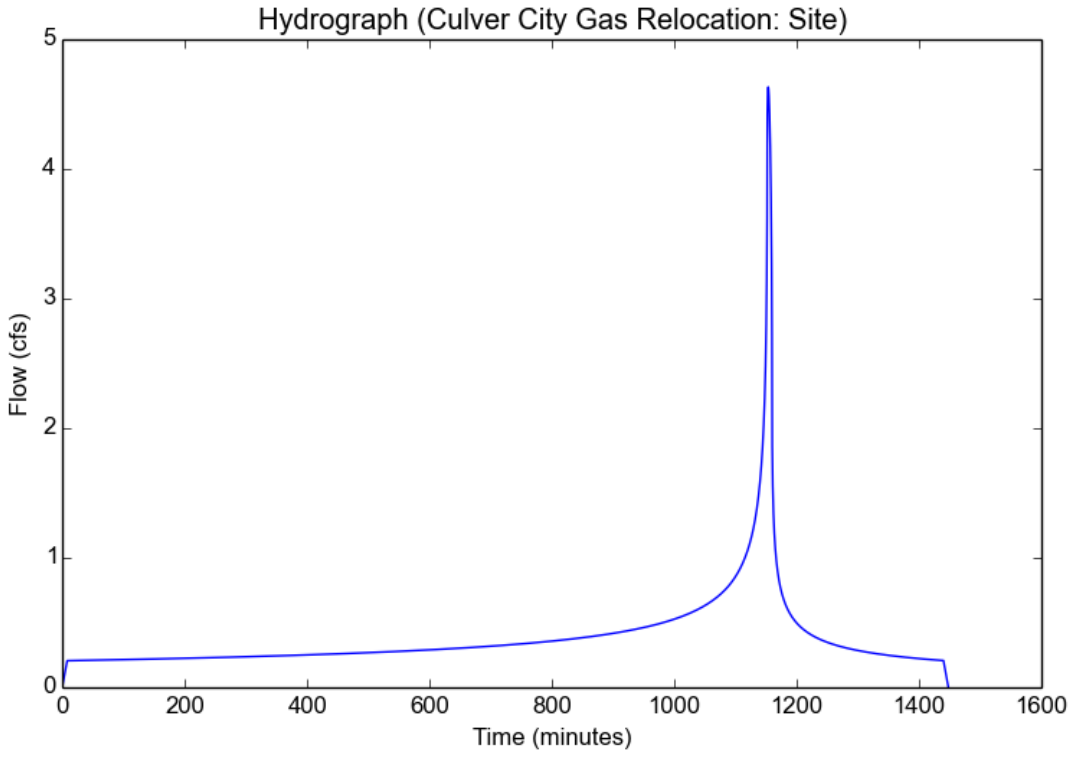
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix C - Pre Dev Hydro Calcs/156-030-Pre-25yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	552.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	4.8114
Peak Intensity (in/hr)	2.3017
Undeveloped Runoff Coefficient (Cu)	0.7896
Developed Runoff Coefficient (Cd)	0.8945
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	4.6323
Burned Peak Flow Rate (cfs)	4.6323
24-Hr Clear Runoff Volume (ac-ft)	0.7728
24-Hr Clear Runoff Volume (cu-ft)	33665.2959



Peak Flow Hydrologic Analysis

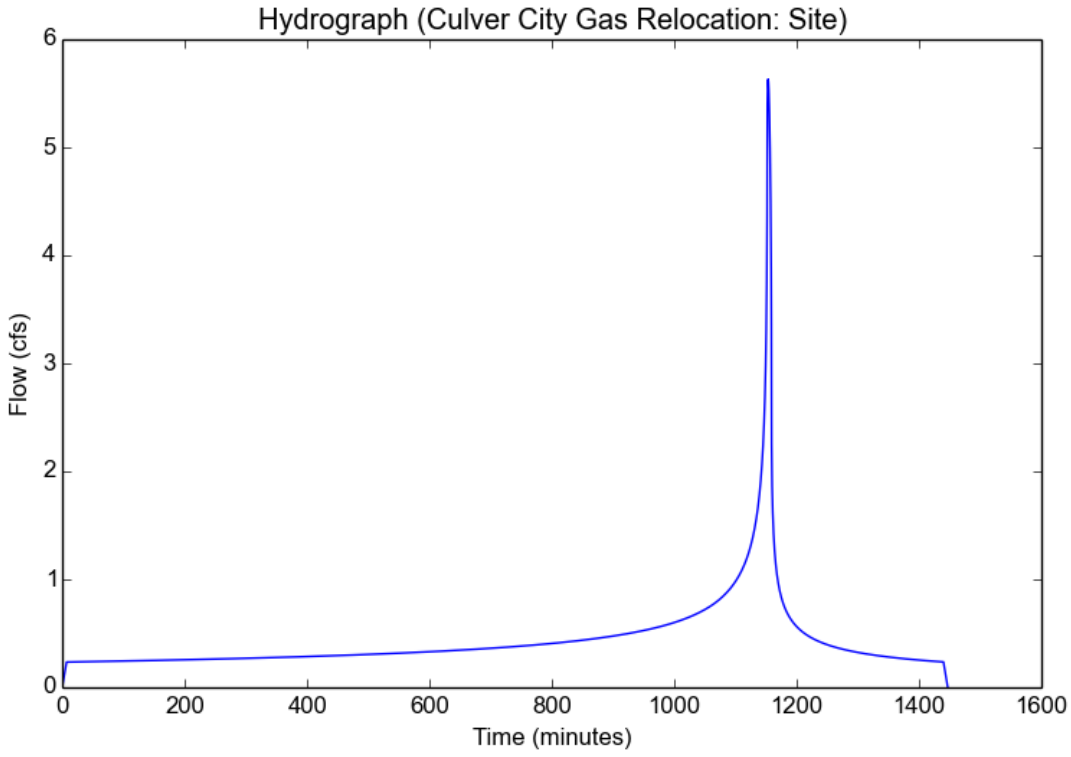
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix C - Pre Dev Hydro Calcs/156-030-Pre-50yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	552.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.48
Peak Intensity (in/hr)	2.7913
Undeveloped Runoff Coefficient (Cu)	0.8333
Developed Runoff Coefficient (Cd)	0.8967
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	5.6314
Burned Peak Flow Rate (cfs)	5.6314
24-Hr Clear Runoff Volume (ac-ft)	0.8809
24-Hr Clear Runoff Volume (cu-ft)	38371.3393



APPENDIX D

Post Development Hydrology Calculations

Peak Flow Hydrologic Analysis

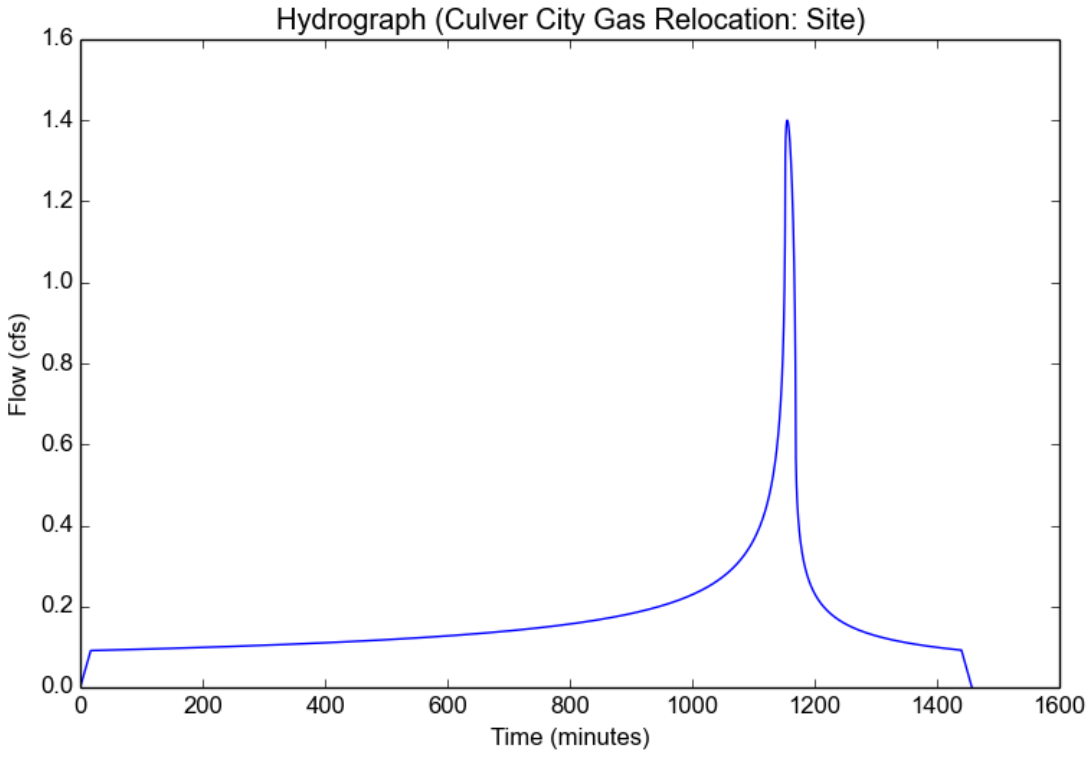
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix D - Post Dev Hydro Calcs/156-030-Post-2yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	708.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	2.1208
Peak Intensity (in/hr)	0.7119
Undeveloped Runoff Coefficient (Cu)	0.3837
Developed Runoff Coefficient (Cd)	0.8742
Time of Concentration (min)	17.0
Clear Peak Flow Rate (cfs)	1.4002
Burned Peak Flow Rate (cfs)	1.4002
24-Hr Clear Runoff Volume (ac-ft)	0.3396
24-Hr Clear Runoff Volume (cu-ft)	14790.8983



Peak Flow Hydrologic Analysis

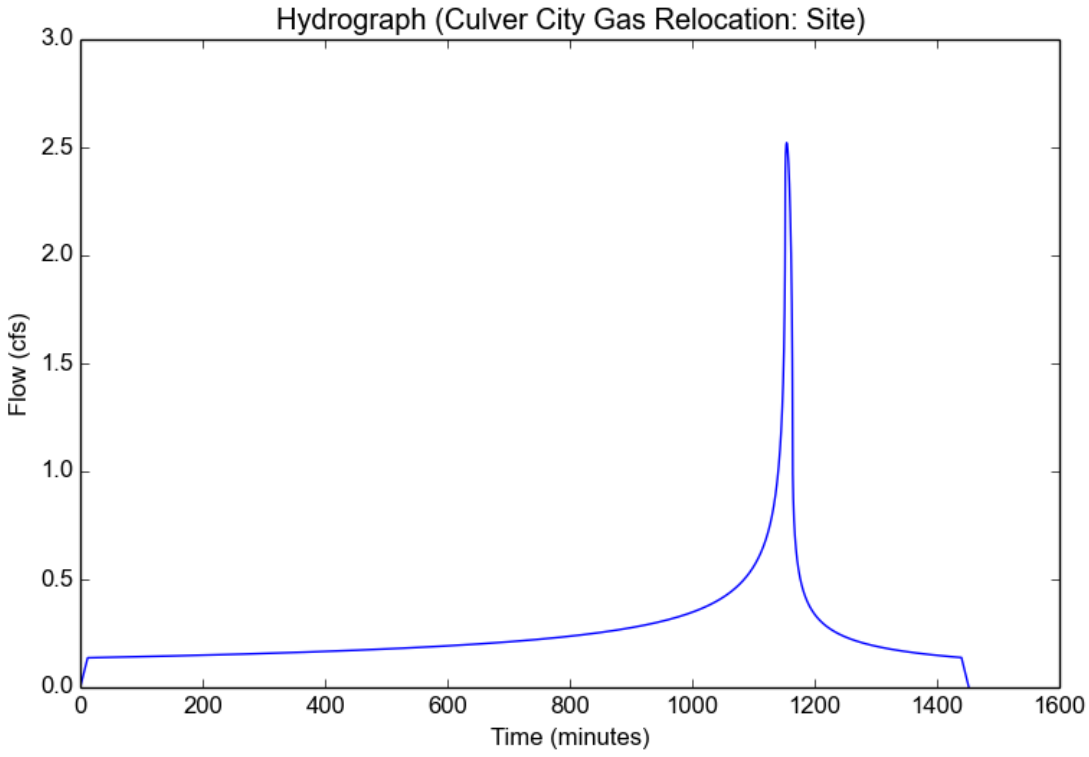
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix D - Post Dev Hydro Calcs/156-030-Post-5yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	708.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	3.2003
Peak Intensity (in/hr)	1.2653
Undeveloped Runoff Coefficient (Cu)	0.6129
Developed Runoff Coefficient (Cd)	0.8856
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	2.5214
Burned Peak Flow Rate (cfs)	2.5214
24-Hr Clear Runoff Volume (ac-ft)	0.5131
24-Hr Clear Runoff Volume (cu-ft)	22352.3609



Peak Flow Hydrologic Analysis

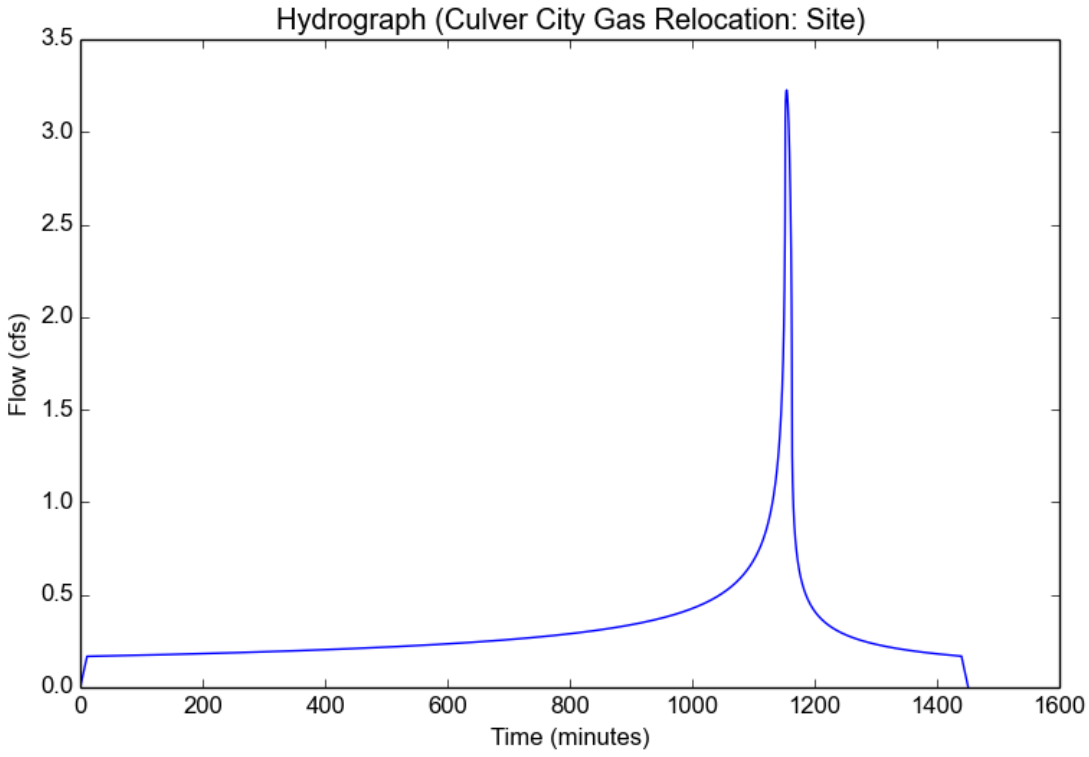
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix D - Post Dev Hydro Calcs/156-030-Post-10yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	708.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	3.9127
Peak Intensity (in/hr)	1.6115
Undeveloped Runoff Coefficient (Cu)	0.6955
Developed Runoff Coefficient (Cd)	0.8898
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	3.2263
Burned Peak Flow Rate (cfs)	3.2263
24-Hr Clear Runoff Volume (ac-ft)	0.6279
24-Hr Clear Runoff Volume (cu-ft)	27349.7244



Peak Flow Hydrologic Analysis

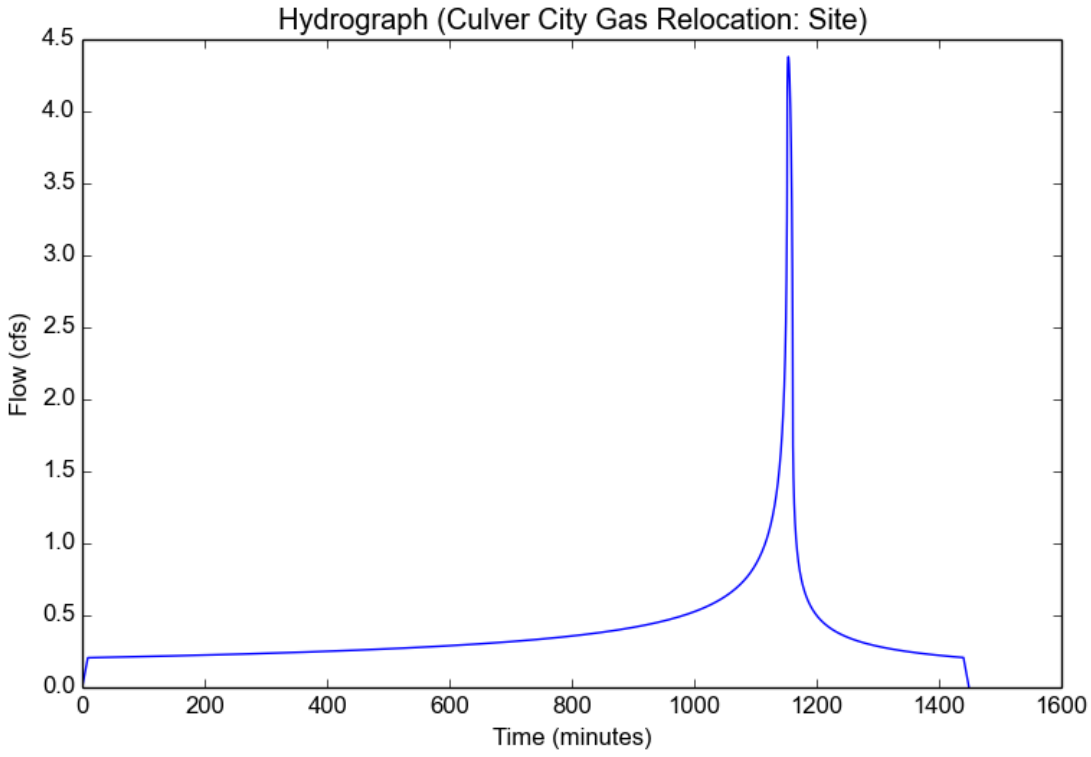
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix D - Post Dev Hydro Calcs/156-030-Post-25yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	708.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	4.8114
Peak Intensity (in/hr)	2.1777
Undeveloped Runoff Coefficient (Cu)	0.7763
Developed Runoff Coefficient (Cd)	0.8938
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	4.3796
Burned Peak Flow Rate (cfs)	4.3796
24-Hr Clear Runoff Volume (ac-ft)	0.7728
24-Hr Clear Runoff Volume (cu-ft)	33664.9606



Peak Flow Hydrologic Analysis

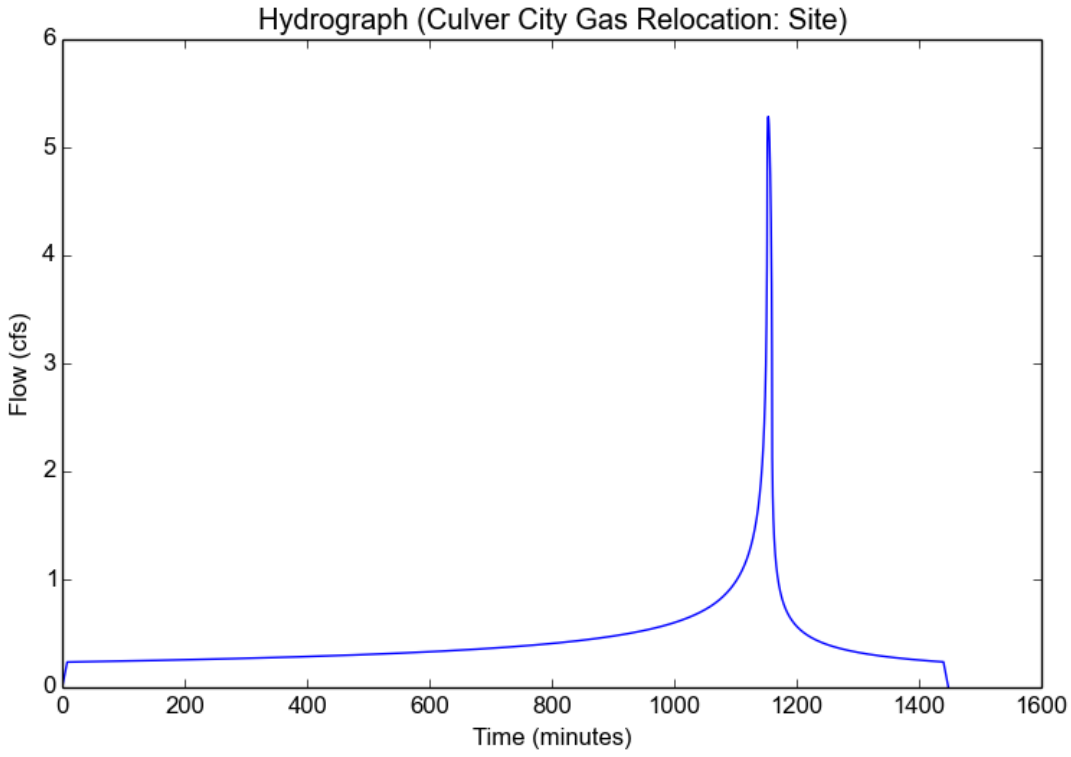
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix D - Post Dev Hydro Calcs/156-030-Post-50yr-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	2.25
Flow Path Length (ft)	708.0
Flow Path Slope (vft/hft)	0.015
50-yr Rainfall Depth (in)	5.48
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.48
Peak Intensity (in/hr)	2.6215
Undeveloped Runoff Coefficient (Cu)	0.8201
Developed Runoff Coefficient (Cd)	0.896
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	5.285
Burned Peak Flow Rate (cfs)	5.285
24-Hr Clear Runoff Volume (ac-ft)	0.8809
24-Hr Clear Runoff Volume (cu-ft)	38371.0018



APPENDIX E

85th Percentile Hydrology Calculations

Peak Flow Hydrologic Analysis

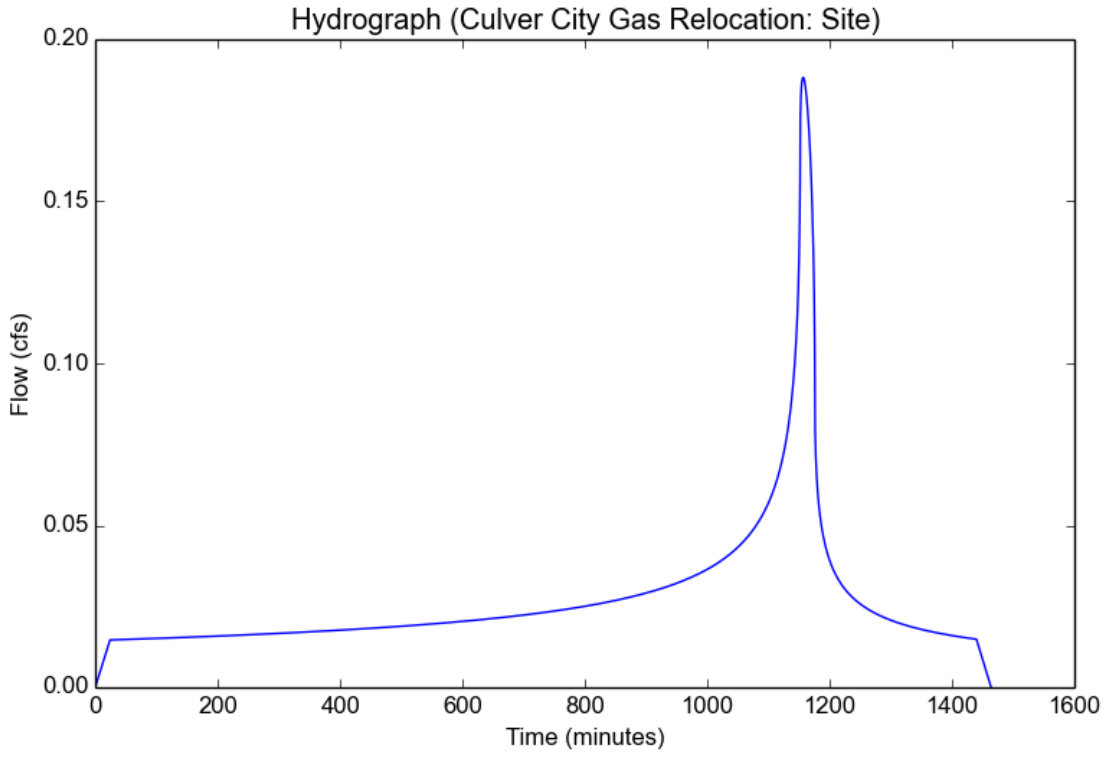
File location: F:/Projects/156/030/_12/_Support Files/Reports/Hydrology-LID/Appendix E - 85th Percentile Hydro Calcs/156-030-LID-85th-Site.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	Culver City Gas Relocation
Subarea ID	Site
Area (ac)	0.71
Flow Path Length (ft)	585.0
Flow Path Slope (vft/hft)	0.015
85th Percentile Rainfall Depth (in)	1.08
Percent Impervious	0.95
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.08
Peak Intensity (in/hr)	0.3083
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.86
Time of Concentration (min)	24.0
Clear Peak Flow Rate (cfs)	0.1882
Burned Peak Flow Rate (cfs)	0.1882
24-Hr Clear Runoff Volume (ac-ft)	0.0545
24-Hr Clear Runoff Volume (cu-ft)	2374.0302



APPENDIX F

BMP Information and Volume Calculations

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	TRAVIS ANTONISSEN 949-237-8866 TRAVIS.ANTONISSEN@ADSPIPE.COM
ADS SALES REP:	ROHIT CHANDER 909-203-2201 ROHIT.CHANDER@ADSPIPE.COM
PROJECT NO:	S191661

Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

COSTO WHOLESALE

CULVER CITY, CA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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CONCEPTUAL LAYOUT

16	STORMTECH MC-3500 CHAMBERS
4	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
3,562	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
1123	SYSTEM AREA (ft²)
170	SYSTEM PERIMETER (ft)

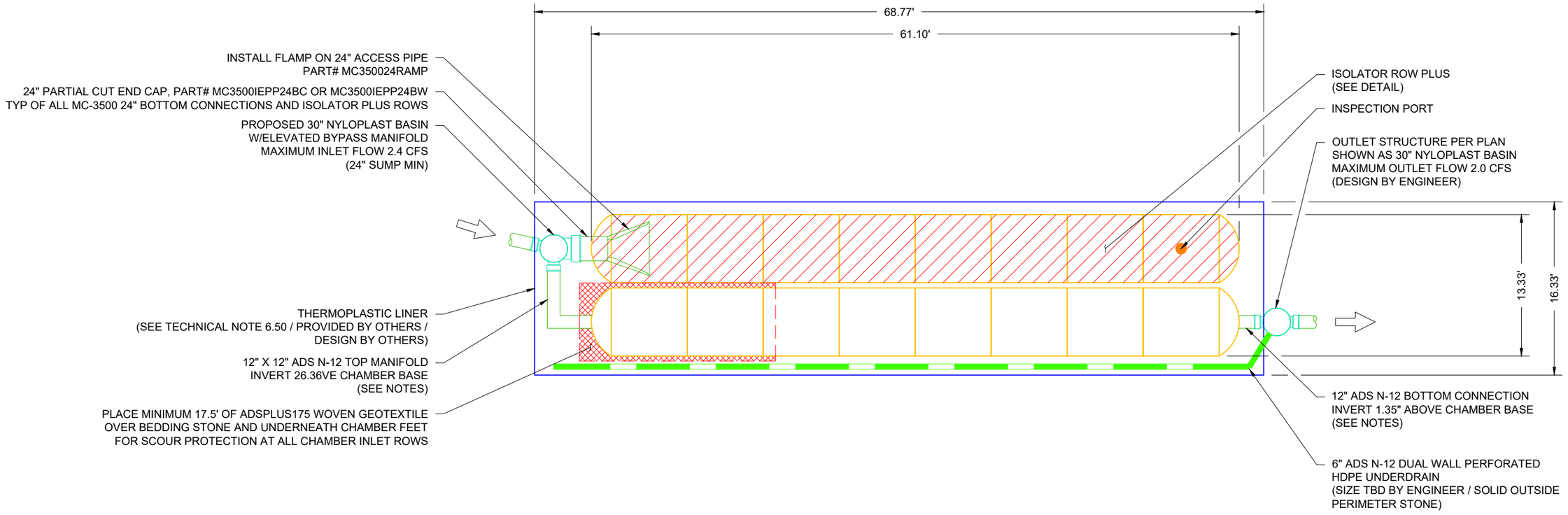
CONCEPTUAL ELEVATIONS

12.50	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
6.50	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
6.00	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
6.00	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
6.00	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
5.50	TOP OF STONE
4.50	TOP OF MC-3500 CHAMBER
2.95	12" TOP MANIFOLD INVERT
0.92	24" ISOLATOR ROW PLUS CONNECTION INVERT
0.86	12" BOTTOM CONNECTION INVERT
0.75	BOTTOM OF MC-3500 CHAMBER
0.00	UNDERDRAIN INVERT
0.00	BOTTOM OF STONE

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS FOR CISTERNS (RAINWATER HARVESTING). TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



COSTO WHOLESALE
CULVER CITY, CA

DATE: 6/30/22 | DRAWN: BMW | CHECKED: XXX
PROJECT #: S191661

DATE	DRWN	CHKD	DESCRIPTION

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

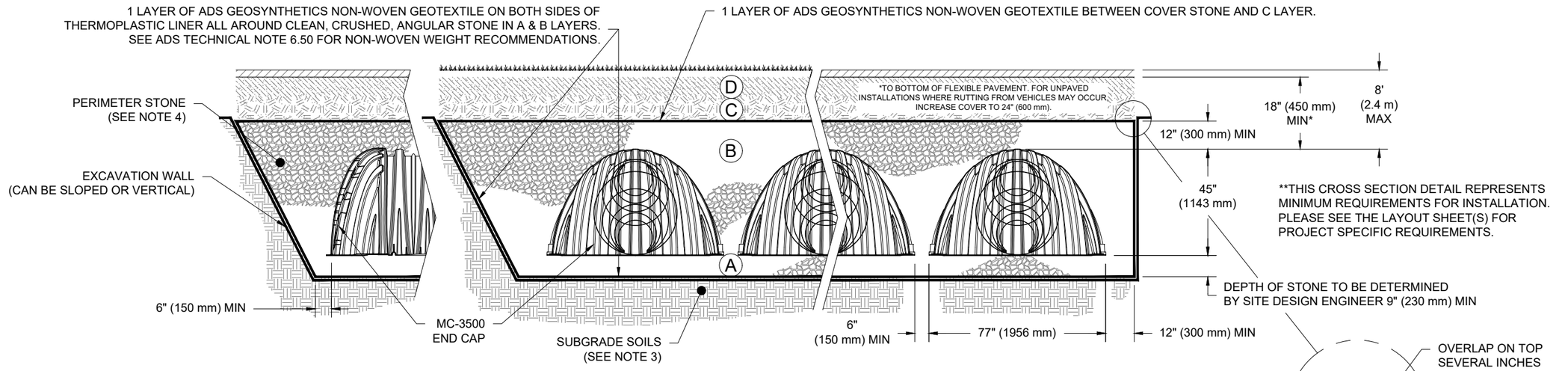
0 10' 20'

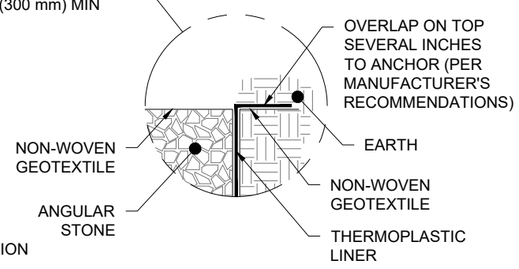
THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.





THERMOPLASTIC LINER DETAIL

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

COSTO WHOLESALE
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888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

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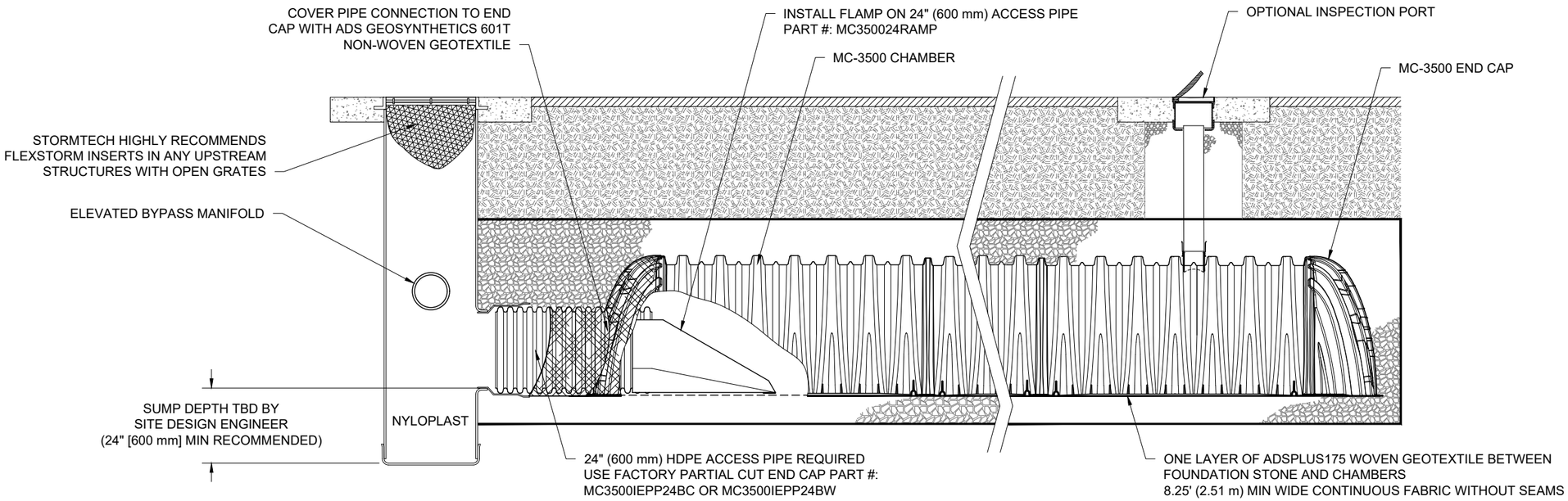


MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

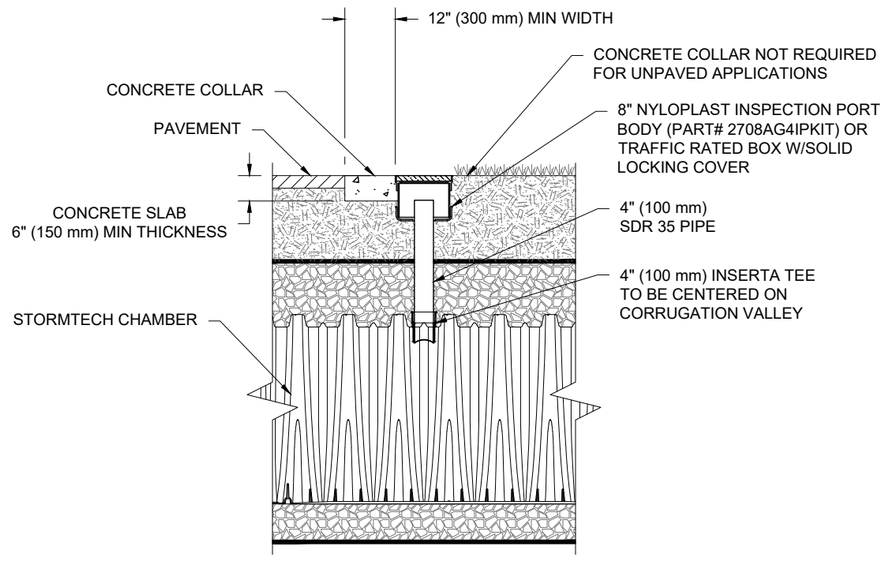
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)
NTS

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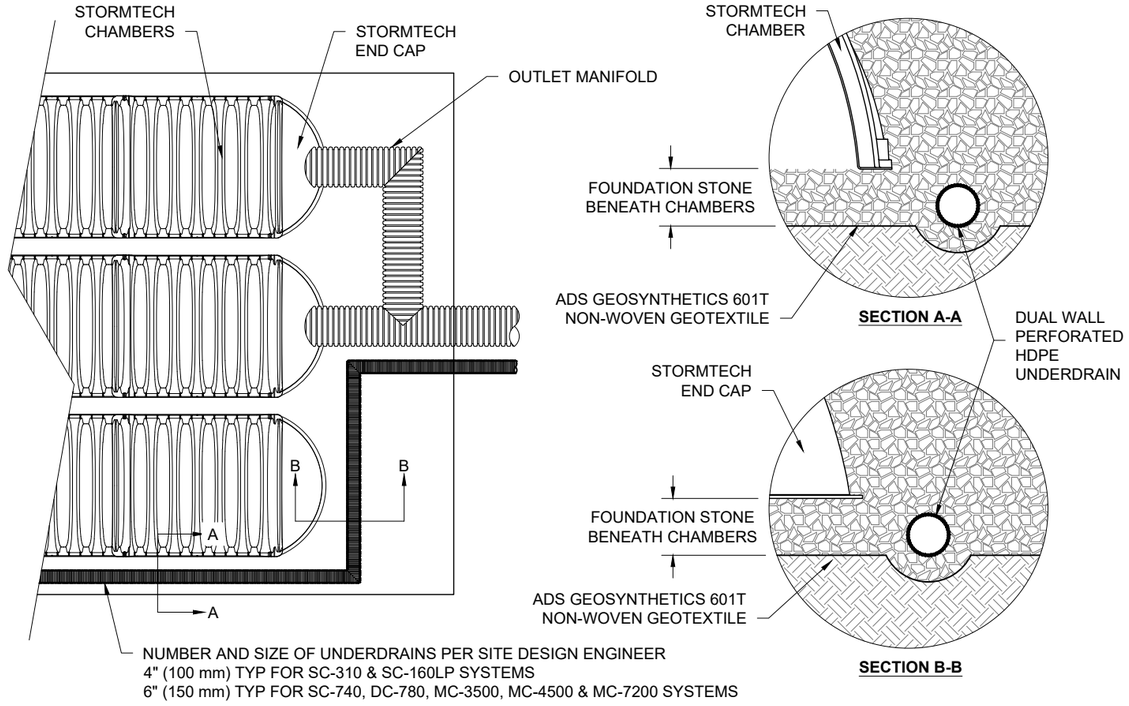
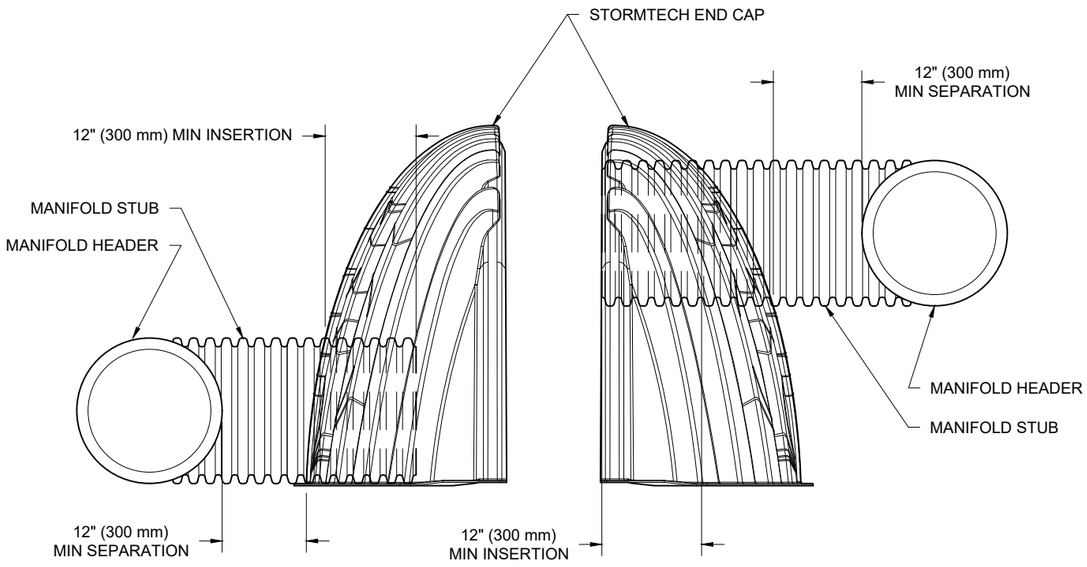
UNDERDRAIN DETAIL

NTS



MC-SERIES END CAP INSERTION DETAIL

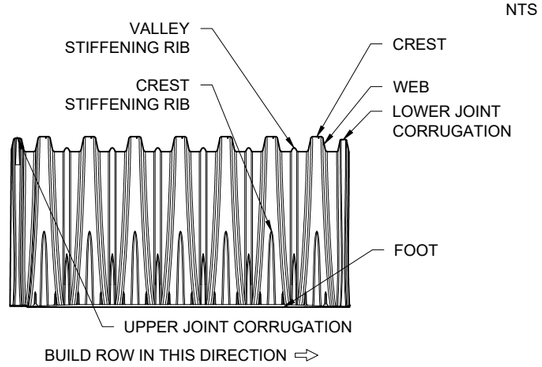
NTS

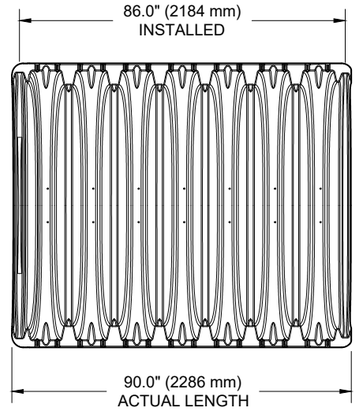


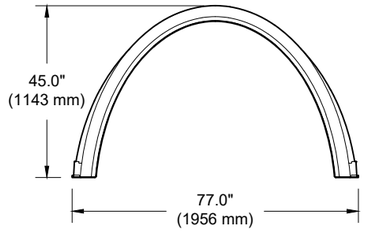
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

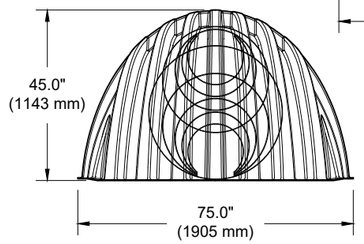
MC-3500 TECHNICAL SPECIFICATION

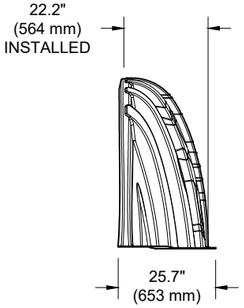
NTS











NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

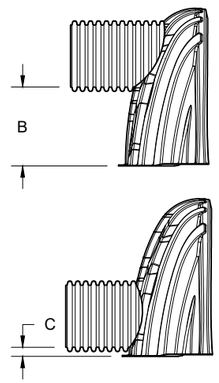
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

COSTO WHOLESALE
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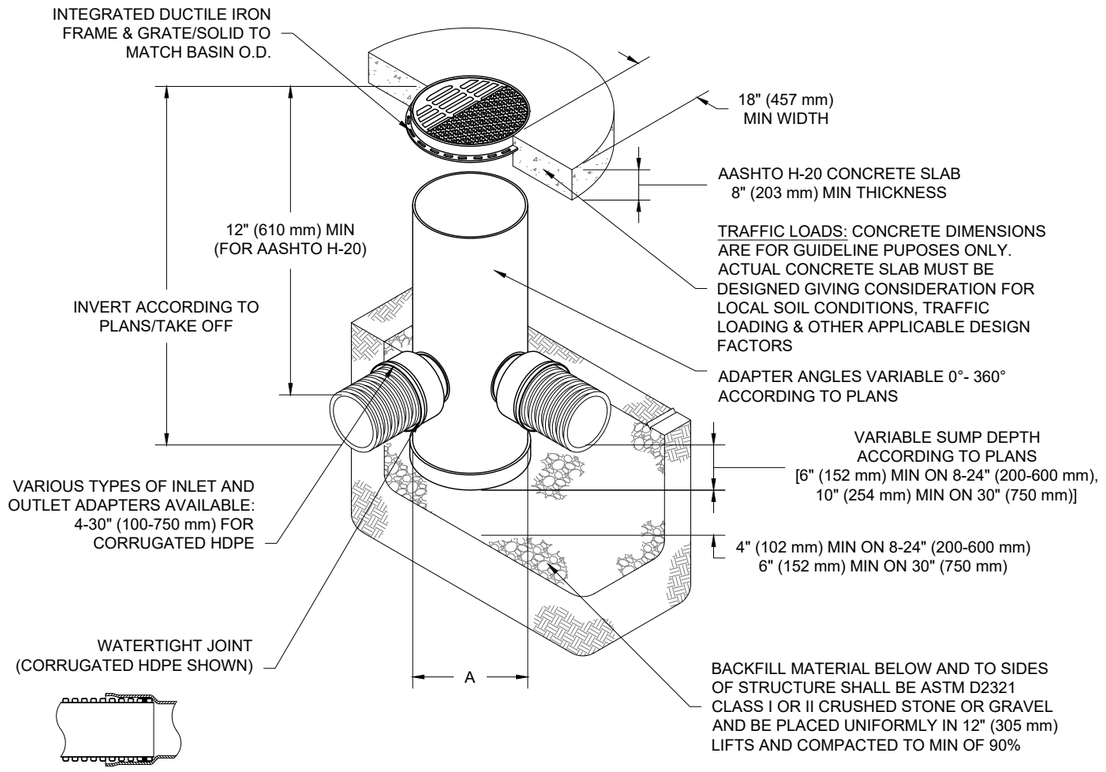
NYLOPLAST DRAIN BASIN

NTS



NOTES

1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: **WWW.NYLOPLAST-US.COM**
6. TO ORDER CALL: **800-821-6710**

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

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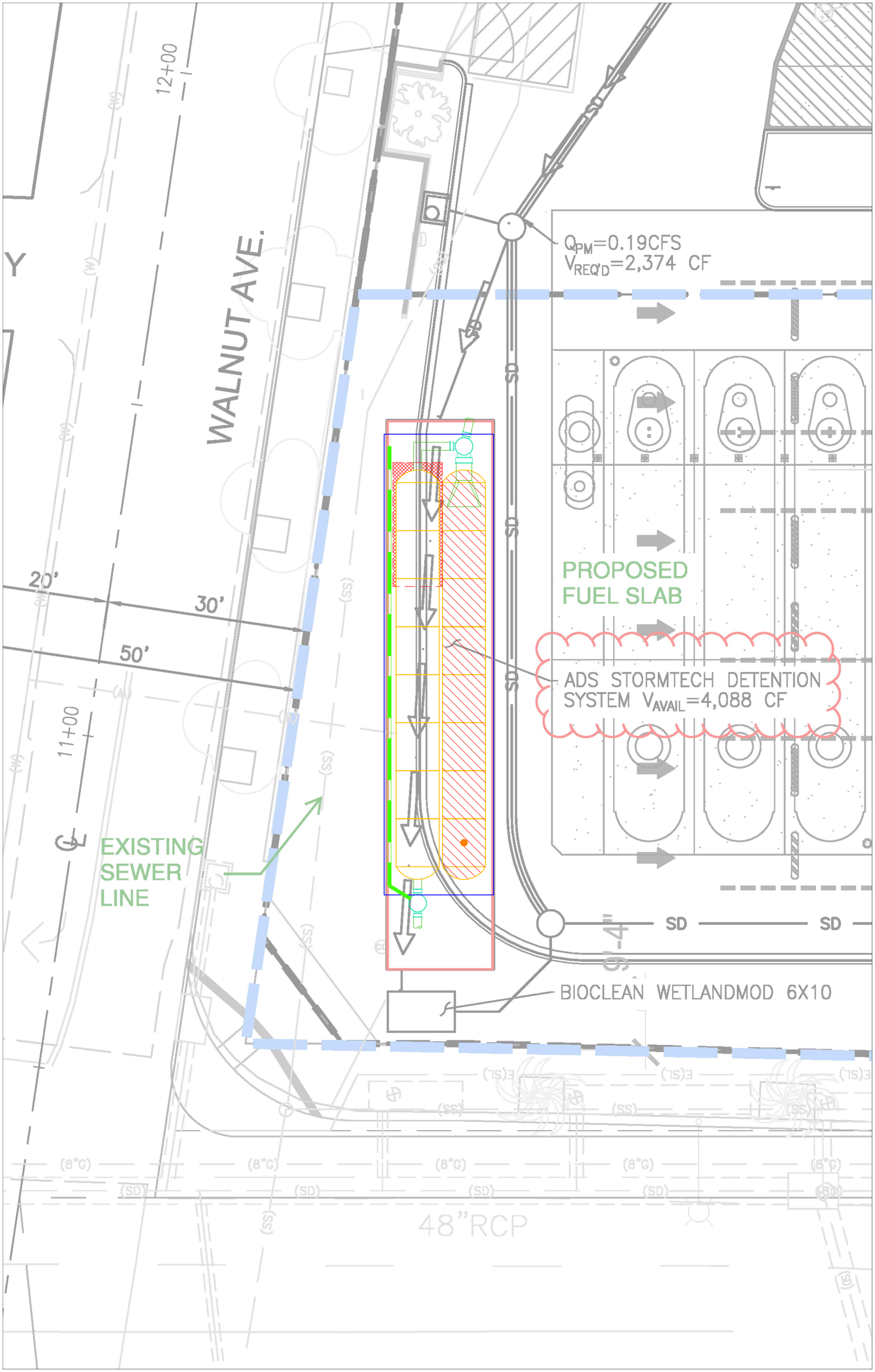

WALNUT AVE.
12+00
11+00
20'
30'
50'
Q_{PM}=0.19CFS
$V_{REQ'D}$=2,374 CF
PROPOSED
FUEL SLAB
ADS STORMTECH DETENTION
SYSTEM V_{AVAIL}=4,088 CF
EXISTING
SEWER
LINE
SD
SD
BIOCLEAN WETLANDMOD 6X10
48"RCP

SITE SPECIFIC DATA			
PROJECT NUMBER		15556	
PROJECT NAME		COSTCO – CULVER CITY	
PROJECT LOCATION		CULVER CITY, CA	
STRUCTURE ID		MWS UNIT	
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
3,561		N/A	
TREATMENT HGL AVAILABLE (FT)			N/K
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			N/A
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	12.59	PVC	8"
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE	11.84	PVC	8"
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION	16.92	16.92	16.92
SURFACE LOAD	PEDESTRIAN	N/A	PEDESTRIAN
FRAME & COVER	24" X 42"	OPEN PLANTER	N/A
WETLANDMEDIA VOLUME (CY)			1.03
ORIFICE SIZE (DIA. INCHES)			ø0.52"

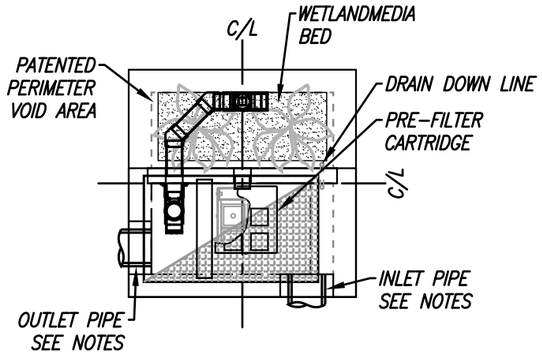
NOTES: PRELIMINARY NOT FOR CONSTRUCTION. OUTLET PIPE LOWERED BY AN INCH TO KEEP THIS 5FT DEPTH UNIT, EOR TO VERIFY.

INSTALLATION NOTES

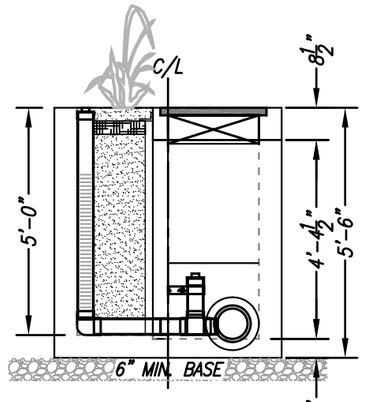
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS' SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL PIPES, RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO USE GROUT AND/OR BRICKS TO MATCH COVERS WITH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

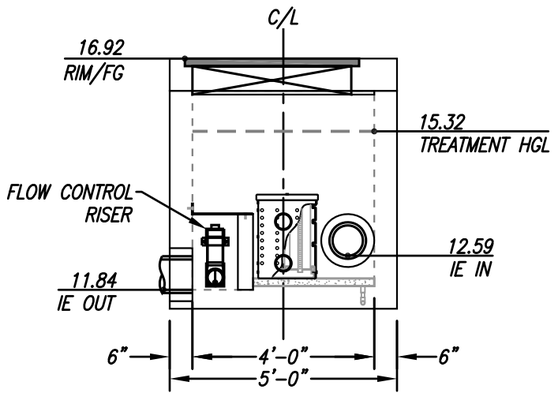
1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.



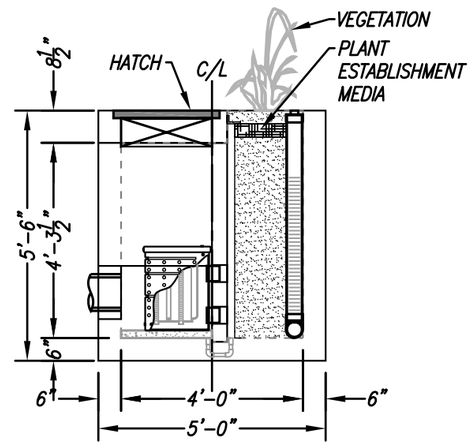
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

LOW INFLOW PIPE DISCLOSURE:

IT IS RECOMMENDED THAT A SUFFICIENT VARIATION IN ELEVATION BETWEEN THE INLET AND OUTLET BE PROVIDED TO ALLOW FOR ACCUMULATION OF SEDIMENT IN THE PRE-TREATMENT CHAMBER. FAILURE TO DO SO MAY RESULT IN BLOCKAGE AT INFLOW POINT(S) WHICH MAY CAUSE UPSTREAM FLOODING.

REQUIRED TREATMENT VOLUME (CF)	3,561
DRAINDOWN DURATION (HOURS)	75
AVERAGE DISCHARGE RATE PER MWS UNIT(GPM)	5.92
OPERATING HEAD (FT)	3.4
WETLANDMEDIA INFILTRATION RATE (IN/HR)	26
OR	
WETLANDMEDIA LOADING RATE (GPM/SF)	0.26

MODULAR WETLANDS
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:
THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF FORTERRA AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF FORTERRA.

Bio Clean
A Forterra Company

MWS-L-4-4-5'-0"-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

7/14/22CSINGH

Project: **Costco Wholesale**

Chamber Model -	MC-3500	
Units -	Imperial	Click Here for Metric
Number of Chambers -	16	
Number of End Caps -	4	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	0.00	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in
Amount of Stone Between Chambers -	6	in
Area of system -	1123	sf Min. Area - 858 sf min. area

☑ Include Perimeter Stone in Calculations

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	0.00	0.00	37.43	37.43	3561.99	5.50
65	0.00	0.00	0.00	0.00	37.43	37.43	3524.55	5.42
64	0.00	0.00	0.00	0.00	37.43	37.43	3487.12	5.33
63	0.00	0.00	0.00	0.00	37.43	37.43	3449.69	5.25
62	0.00	0.00	0.00	0.00	37.43	37.43	3412.25	5.17
61	0.00	0.00	0.00	0.00	37.43	37.43	3374.82	5.08
60	0.00	0.00	0.00	0.00	37.43	37.43	3337.39	5.00
59	0.00	0.00	0.00	0.00	37.43	37.43	3299.95	4.92
58	0.00	0.00	0.00	0.00	37.43	37.43	3262.52	4.83
57	0.00	0.00	0.00	0.00	37.43	37.43	3225.09	4.75
56	0.00	0.00	0.00	0.00	37.43	37.43	3187.65	4.67
55	0.00	0.00	0.00	0.00	37.43	37.43	3150.22	4.58
54	0.06	0.00	0.93	0.00	37.06	37.99	3112.79	4.50
53	0.19	0.02	3.11	0.10	36.15	39.35	3074.80	4.42
52	0.29	0.04	4.70	0.15	35.49	40.35	3035.44	4.33
51	0.40	0.05	6.46	0.21	34.77	41.43	2995.10	4.25
50	0.69	0.07	10.99	0.27	32.93	44.19	2953.66	4.17
49	1.03	0.09	16.45	0.35	30.71	47.52	2909.47	4.08
48	1.25	0.11	19.99	0.43	29.26	49.69	2861.96	4.00
47	1.42	0.13	22.76	0.51	28.13	51.39	2812.27	3.92
46	1.57	0.14	25.17	0.58	27.13	52.88	2760.88	3.83
45	1.71	0.16	27.31	0.65	26.25	54.21	2708.00	3.75
44	1.83	0.18	29.26	0.73	25.44	55.42	2653.78	3.67
43	1.94	0.20	31.00	0.80	24.71	56.52	2598.36	3.58
42	2.04	0.22	32.65	0.87	24.02	57.55	2541.84	3.50
41	2.13	0.23	34.16	0.94	23.40	58.49	2484.30	3.42
40	2.22	0.25	35.59	1.00	22.80	59.39	2425.81	3.33
39	2.31	0.27	36.91	1.06	22.24	60.22	2366.42	3.25
38	2.38	0.28	38.16	1.12	21.72	61.00	2306.20	3.17
37	2.46	0.29	39.35	1.18	21.22	61.75	2245.20	3.08
36	2.53	0.31	40.45	1.23	20.76	62.44	2183.46	3.00
35	2.59	0.32	41.50	1.28	20.32	63.10	2121.01	2.92
34	2.66	0.33	42.50	1.34	19.90	63.73	2057.91	2.83
33	2.72	0.35	43.44	1.39	19.50	64.33	1994.18	2.75
32	2.77	0.36	44.34	1.44	19.12	64.90	1929.85	2.67
31	2.82	0.37	45.19	1.49	18.76	65.44	1864.94	2.58
30	2.88	0.38	46.01	1.54	18.42	65.96	1799.50	2.50
29	2.92	0.40	46.79	1.58	18.09	66.46	1733.54	2.42
28	2.97	0.41	47.52	1.63	17.77	66.92	1667.08	2.33
27	3.01	0.42	48.20	1.67	17.48	67.36	1600.16	2.25
26	3.05	0.43	48.85	1.72	17.21	67.78	1532.80	2.17
25	3.09	0.44	49.51	1.76	16.93	68.20	1465.03	2.08
24	3.13	0.45	50.09	1.80	16.68	68.57	1396.83	2.00
23	3.17	0.46	50.65	1.84	16.44	68.93	1328.26	1.92
22	3.20	0.47	51.19	1.88	16.20	69.28	1259.33	1.83
21	3.23	0.48	51.70	1.92	15.99	69.60	1190.06	1.75
20	3.26	0.49	52.18	1.96	15.78	69.92	1120.45	1.67
19	3.29	0.50	52.64	1.99	15.58	70.21	1050.54	1.58
18	3.32	0.51	53.09	2.03	15.39	70.50	980.32	1.50
17	3.34	0.51	53.51	2.06	15.21	70.77	909.82	1.42
16	3.37	0.52	53.90	2.09	15.04	71.03	839.05	1.33
15	3.39	0.53	54.28	2.12	14.87	71.27	768.02	1.25
14	3.41	0.54	54.63	2.15	14.72	71.50	696.75	1.17
13	3.44	0.54	54.99	2.17	14.57	71.73	625.25	1.08
12	3.46	0.55	55.32	2.20	14.42	71.95	553.52	1.00
11	3.48	0.56	55.66	2.22	14.28	72.16	481.57	0.92
10	3.51	0.59	56.08	2.38	14.05	72.51	409.41	0.83
9	0.00	0.00	0.00	0.00	37.43	37.43	336.90	0.75
8	0.00	0.00	0.00	0.00	37.43	37.43	299.47	0.67
7	0.00	0.00	0.00	0.00	37.43	37.43	262.03	0.58
6	0.00	0.00	0.00	0.00	37.43	37.43	224.60	0.50
5	0.00	0.00	0.00	0.00	37.43	37.43	187.17	0.42
4	0.00	0.00	0.00	0.00	37.43	37.43	149.73	0.33
3	0.00	0.00	0.00	0.00	37.43	37.43	112.30	0.25
2	0.00	0.00	0.00	0.00	37.43	37.43	74.87	0.17
1	0.00	0.00	0.00	0.00	37.43	37.43	37.43	0.08

APPENDIX G

Stormwater and Urban Run-Off Diversion System Agreement

COST SHARING AGREEMENT AND MEMORANDUM OF UNDERSTANDING FOR THE WASHINGTON BOULEVARDSTORMWATER AND URBAN RUN-OFF DIVERSION SYSTEM PROJECT

This Cost Sharing Agreement and Memorandum of Understanding (the "Agreement") is entered into by and between the City of Culver City, a California municipal corporation (the "City") and Costco Wholesale Corporation, a Washington Corporation ("Costco").

RECITALS

1. Costco is expanding the footprint of its Culver City warehouse, located at 13463 Washington Boulevard, Culver City, and demolishing the adjacent Albertsons grocery store building, to expand Costco's parking lot (the "Costco Expansion Project"). The Culver City Planning Commission approved the Costco Expansion Project pursuant to its Resolution No. 2015-P006.

2. The Costco Expansion Project Condition of Approval No. 77, as set forth in Resolution No. 2015-P006, requires Costco to comply with all applicable local, special district or authority, county, state and federal statutes, codes, standards and regulations.

3. As set forth in "The Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4" (Order No. R4-2012-0175) (the "Municipal NPDES Permit"), the California Regional Water Quality Control Board for the Los Angeles Region adopted stormwater and urban runoff regulations which are applicable to the City and to certain new development and redevelopment projects.

4. Culver City Municipal Code (CCMC) Section 5.05.040 (Standard Urban Stormwater Mitigation Plan (SUSMP) Requirements for New Development and Redevelopment Projects) provides that redevelopment resulting in alteration of more than 50% of the impervious surface of a parcel not already subject to post-development stormwater quality control requirements triggers compliance with the most recent Municipal NPDES Permit. The Costco Expansion Project falls within this criteria and, therefore, is subject to the provisions of CCMC Section 5.05.040 and the Municipal NPDES Permit.

5. The Municipal NPDES Permit also imposes the Marina del Rey Harbor Enhanced Watershed Management Program plan on the City of Culver City.

6. In lieu of Costco constructing its own infiltration, bioretention and/or rainfall harvest and using structural controls, as required by CCMC Section 5.05.040 and the Municipal

NPDES Permit, the City and Costco have agreed to jointly fund the design and construction of a Stormwater and Urban Run-Off Diversion System (the "Diversion System"), which will allow Costco to comply with its obligations under CCMC Section 5.05.040 and both the City and Costco to comply with their respective obligations under the Municipal NPDES Permit.

7. With respect to Culver City, the Municipal NPDES Permit applies only to those properties located in that portion of Culver City that is part of the Marina del Rey Harbor Watershed, which measures a total of 39.88 acres (the "Drainage Area"). The Drainage Area is outlined in red in the attached Exhibit A, which is hereby incorporated and made a part of this Agreement.

8. Costco owns and controls 15.77 acres of the property located within the Drainage Area (the "Costco Parcel"), as depicted in gold in the attached Exhibit A. The Costco Parcel equates to approximately 40% (15.77/39.88 x 100) of the Drainage Area.

9. Other third parties own and control three parcels (totaling 2.74 acres), located within the Drainage Area, as depicted in green in the attached Exhibit A (the "Outparcels").

NOW, THEREFORE, in reliance on the foregoing recitals and in consideration of the mutual covenants set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City and Costco hereby agree as follows:

AGREEMENT

SECTION A – DIVERSION SYSTEM

1. The City agrees to design and construct the Diversion System on its public right-of-way, fronting the Costco Parcel, along Washington Boulevard between Walnut Avenue and Tivoli Avenue, as depicted in blue in the attached Exhibit A.

2. City shall require the contractor for the construction of the Diversion System to: (1) include Costco as an indemnitee in relation to injuries and damages arising out of or resulting from the construction of the Diversion System, excepting any injuries and damages caused by Costco's sole negligence or willful misconduct; and (2) maintain the following minimum insurance coverages in full force and effect: (i) commercial general liability insurance with coverage limits of not less than __ million dollars ($_,000,000 million) for bodily injury and property damage per occurrence, and not less than __ million dollars ($_,000,000 million) in the aggregate, annually; (ii) commercial automobile liability coverage in the amount of not less than one million dollars ($1,000,000) combined single limit annually for bodily injury and property damage per occurrence; and (iii) workers compensation as statutorily required and employer's liability insurance. The minimum required proof of insurance shall

include insurance certificates reflecting the required coverages, which shall include Costco as an additional insured.

3. Costco agrees to connect its onsite storm drain system to the Diversion System at a point of connection on the Costco Parcel's property line along Washington Boulevard (the "System Connection"). The location of the System Connection will be as depicted in Costco's storm drain implementation plans.

4. The Diversion System shall be designed and constructed to accept drainage of the 85th percentile storm from the Drainage Area.

5. Once City has completed construction of the Diversion System, and Costco has connected its storm drain system to the System Connection, Costco shall convey all stormwater and urban runoff captured at the Costco Parcel utilizing its existing catch basins and conveyance system to the System Connection.

6. City shall be the sole owner of the Diversion System and any and all computations, plans, correspondence and/or other pertinent data, information, documents and computer media, including disks and other materials gathered or prepared in relation to the design and construction of the Diversion System.

7. The City's Public Works Director/City Engineer or designee agrees to attest that the Costco Expansion Project will be in compliance with the SUSMP requirements set forth in CCMC Section 5.05.040 upon the following: (1) completion of the Costco Expansion Project; (2) issuance of a Certificate of Occupancy for the Costco Expansion Project; and (3) Costco's full compliance with its cost-sharing obligations under Sections B.8 and B.9 of this Agreement. Notwithstanding the foregoing, Costco shall remain legally liable for any pollutant discharge in stormwater and urban runoff, if any, from the Costco Parcel which bypasses or does not enter the Diversion System, and shall remain subject to enforcement action and related penalties under the CCMC and the NPDES Municipal Permit for any such pollutant discharge which bypasses or does not enter the Diversion System.

SECTION B – COST SHARING

8. In consideration of the cooperative effort between the City and Costco in constructing the Diversion System for the purpose of draining that portion of Culver City, including the Costco Parcel, which is part of the Marina del Rey Harbor watershed, thereby assuring both parties' compliance with their respective obligations under the Municipal NPDES Permit and Costco's compliance with CCMC Section 5.05.040, Costco hereby agrees to reimburse City for Costco's share of the costs of the design, construction and construction

management of the Diversion System Project in the amounts and on the due dates contained in the following table:

PHASE	COSTCO'S SHARE	DUE DATE
Design of Diversion System	$40,000	Upon City Council Approval of Professional Services Agreement for Design Services
Construction of Diversion System	$1,345,000	Upon City Council Award of Construction Contract Agreement for Construction
Construction Management for the Diversion System & Off-Site Improvement	$30,000*	Upon City Council Award of Construction Contract Agreement for Construction Management
***$20,000 for Diversion System; $10,000 for Off-Site Improvements**		

9. The City agrees to construct the off-site improvements required by Condition Nos. 12 through 20 of the Conditions of Approval contained in the Culver City Planning Commission's Resolution No. 2015-P006 (the "Off-Site Improvements"). Prior to City's commencement of the bidding process for the construction or installation of the Off-Site Improvements, Costco shall: (1) design, at its own expense, the Off-Site Improvements; (2) deliver the construction plans and specifications for the Off-Site Improvements to City; (3) submit payment to City in the amount of $340,000 as and for Costco's share of the construction of the Off-Site Improvements, which shall be deposited into a segregated account established by the City ("Construction Account").

10. Upon the Culver City City Council's award of the construction contract for the Off-Site Improvements, City shall be entitled to withdraw the $340,000 from the Construction Account to be used toward the construction costs for the Off-Site Improvements.

11. City and Costco agree to share all maintenance, inspection and operational costs associated with the Diversion System and pre-treatment devices (collectively, "Maintenance Costs") in perpetuity based on actual Maintenance Costs, with Costco paying 40% of the Maintenance Costs and City paying 60% of the Maintenance Costs in accordance with the procedures set forth in Section B.13.

12. City and Costco will confer regarding the selection of a contractor to perform scheduled maintenance of the Diversion System as recommended by manufacturer(s) of the pre-treatment device(s) and storage tank, pursuant to a five-year maintenance agreement. The contractor shall be selected utilizing the City's procurement process. Prior to the expiration

of the term of each maintenance agreement, City shall confer with Costco regarding the selection of a maintenance contractor for any subsequent maintenance agreement.

13. Upon the Culver City City Council's award of a maintenance agreement, as referenced in Section B.12 of this Agreement, Costco shall deposit its share of the Maintenance Costs , as outlined in Section B.11 of this Agreement, into a segregated account established by the City ("Maintenance Account"). City shall be entitled to withdraw from the Maintenance Account, as needed, in order to pay for the costs of services rendered under the maintenance agreement.

14. City and Costco agree to share all costs which the City of Los Angeles invoices annually to City for the cost of treating the run-off from the Diversion System, with Costco paying 40% and City paying 60% of these costs in perpetuity. The City estimates that this cost will be $25,000 during the first fiscal year of the Diversion System's operation. The cost will be adjusted in subsequent years by the percentage increase in the Consumer Price Index for All Urban Consumers, as calculated by the Bureau of Labor Statistics.

SECTION C – GENERAL

15. This Agreement shall remain in effect in perpetuity until: (1) terminated by mutual written agreement of the parties; or (2) Costco constructs a separate, independent stormwater treatment system and no longer diverts the stormwater and urban runoff from the Costco Parcel into the Diversion System.

16. Any attempt by Costco to assign the benefits or burdens of this Agreement without written approval of City shall be prohibited and shall be null and void.

17. This Agreement may not be modified, nor may any of the terms, provisions or conditions be modified or waived or otherwise affected, except by a written amendment signed by all parties hereto.

18. If at any time one party shall waive any term, provision or condition of this Agreement, either before or after any breach thereof, no party shall thereafter be deemed to have consented to any future failure of full performance hereunder.

19. The terms of this Agreement shall be interpreted according to the laws of the State of California. If litigation arises out of this Agreement, then venue shall be in the Superior Court of Los Angeles County.

20. If litigation arises out of this Agreement for the performance thereof, then the court shall award costs and expenses, including attorney's fees, to the prevailing party. In awarding

attorney's fees, the court shall not be bound by any court fee schedule but shall award the full amount of costs, expenses and attorney's fees paid or incurred in good faith.

21. This Agreement represents the entire Agreement between City and Costco regarding Costco's SUSMP requirements for the Costco Expansion Project, and constitutes a complete and exclusive statement of the terms of the agreement between the parties with respect to Costco's SUSMP requirements for the Costco Expansion Project. This Agreement shall not apply to any future projects that trigger SUSMP requirements. No verbal agreement or implied covenant shall be held to vary the provisions of this Agreement. This Agreement shall bind and inure to the benefit of the parties to this Agreement, and any subsequent successors and assigns.

22. The effective date of this Agreement is the date it is signed on behalf of City. This Agreement shall remain in full force and effect until amended or terminated; provided, that the indemnification and hold harmless provisions shall survive the termination.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the Effective Date.

COSTCO WHOLESALE CORPORATION

Dated: 8.4.16

By _____

Jack S. Frank; VP Real Estate

Name and Title

Dated: _____

By _____

_____

Name and Title

CITY OF CULVER CITY, CALIFORNIA

Dated: _____

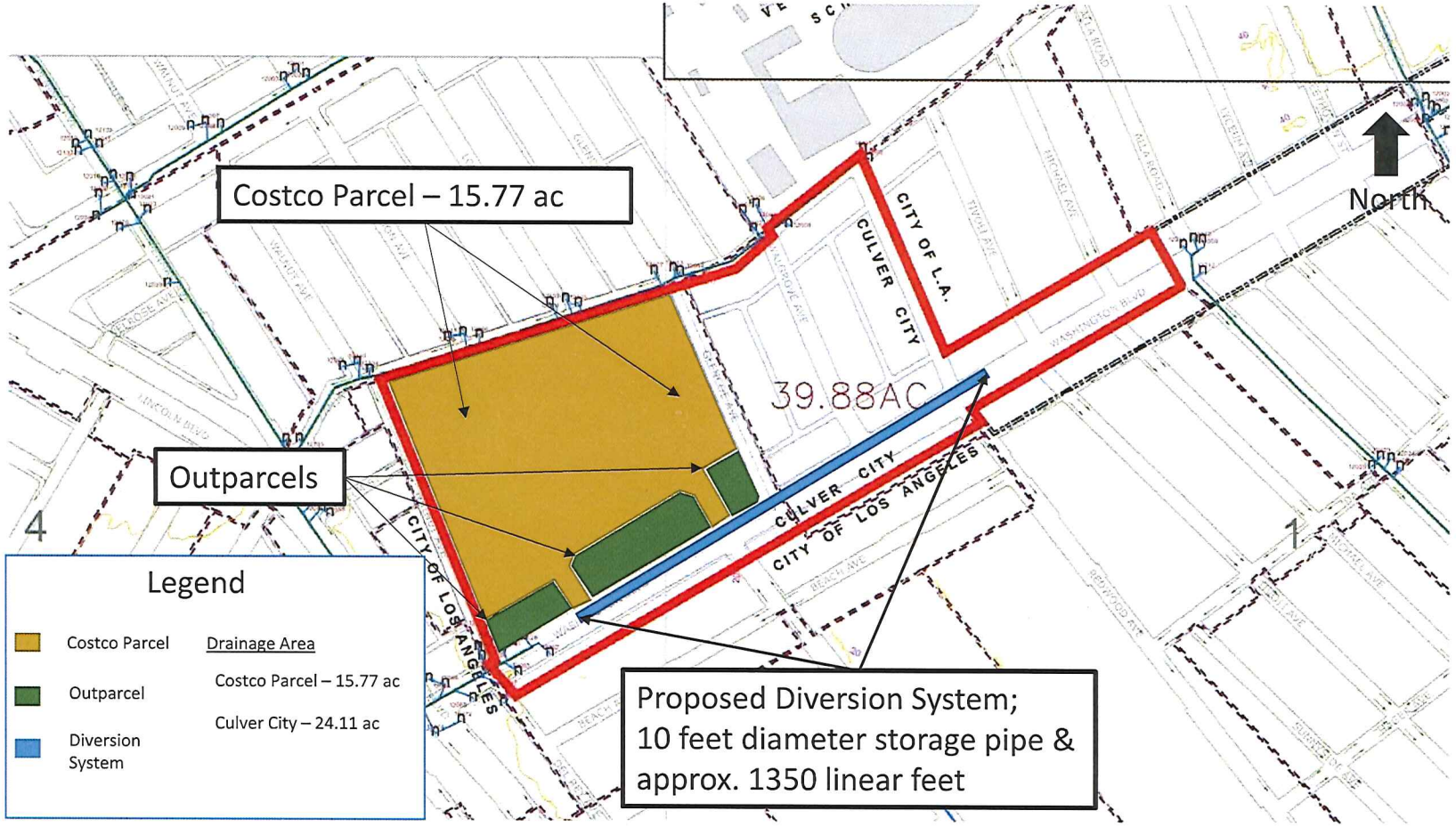
By _____

John Nachbar
City Manager

APPROVED AS TO CONTENT:

APPROVED AS TO FORM:

Charles Herbertson	Carol A. Schwab
Public Works Director/City Engineer	City Attorney



WASHINGTON BOULEVARD STORMWATER & URBAN RUN-OFF DIVERSION SYSTEM PROJECT

Exhibt 1

Attachment 5

Limited Phase II Environmental Site Assessment
13431 and 13455 Washington Boulevard
Culver City Gasoline Station Relocation prepared by Kleinfelder, dated December 1, 2021

(Attached)

December 1, 2021
Kleinfelder Project No.: 20201678.001A

Costco Wholesale Corporation
999 Lake Drive
Issaquah, Washington 98027

Attention: Ms. Therese Garcia
Real Estate Project Manager

Subject: Limited Phase II Environmental Site Assessment Findings Summary (Baseline Assessment)
Proposed Gasoline Station Relocation
Costco Wholesale Warehouse No. 479
13463 Washington Boulevard
Culver City, California 90292
CW# 19-0234

Dear Ms. Garcia:

Kleinfelder is pleased to provide Costco Wholesale Corporation (Costco) this letter summarizing findings of Kleinfelder's Limited Phase II Environmental Site Assessment (ESA) of the subject property (Site) at 13431 and 13455 Washington Boulevard in Culver City, California (Figure 1). As Costco is aware, the Site is currently developed with two commercial buildings and parking lots serving them. It adjoins Costco's Warehouse No. 479 facility, of which the southwestern-most portion is considered part of the Site. Costco plans to demolish the Site's existing buildings and relocate its gasoline station there. As such, Kleinfelder's ESA was intended to serve as a baseline assessment of current subsurface environmental conditions at the Site prior to demolition of the existing improvements and construction of the gasoline station facility there. The scope, methodology, and analytical results of the ESA are reported in detail in Kleinfelder's letter to Costco dated October 14, 2021.[1]

In summary, the field activities of the Limited Phase II ESA were performed during September 2021 and included soil, groundwater, and soil vapor sampling at the Site. Multi-depth soil sampling was performed by Kleinfelder (with the assistance of its drilling subcontractor) at four locations within the proposed footprint of the gasoline station, including proposed locations of dispenser islands and the cavity for the station's underground storage tanks. Soil vapor and groundwater sampling were in addition performed at each of those four locations plus at one central location on the Site. Kleinfelder's soil, soil vapor, and groundwater samples collected on behalf of Costco were submitted for analysis to a subcontracted laboratory accredited by California's Environmental Laboratory Accreditation Program. The laboratory analyzed the soil and groundwater samples using appropriate United States Environmental Protection Agency

[1] Kleinfelder, 2021. Letter with subject "Limited Phase II Environmental Site Assessment (Baseline Assessment), Proposed Gasoline Station Relocation, Costco Wholesale Warehouse No. 479, 13463 Washington Boulevard, Culver City, California 90292, CW# 19-0234." October 14.

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methodology for the following potential constituents of concern: total petroleum hydrocarbons in the gasoline, diesel, and motor oil carbon ranges; volatile organic compounds (VOCs); and California Code of Regulations Title 22 Metals. The soil vapor samples were analyzed for VOCs.

As is further detailed in the afore-mentioned letter report dated October 14, 2021, Kleinfelder's evaluation of the analytical results indicated none of the analytes were present at concentrations exceeding respective hazardous waste thresholds, nor respective regulatory agency-issued action levels. Based on its evaluations, Kleinfelder concluded no further assessment of Site soil, groundwater, or soil vapor is presently warranted.

LIMITATIONS

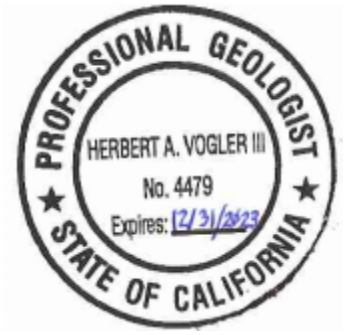
Kleinfelder prepared this letter in accordance with generally accepted standards of care that exist in Los Angeles County, California at this time. This letter may be used only by Costco and only for the purposes stated, within a reasonable time from its issuance but in no event later than 2 years from the letter's date. All information gathered by Kleinfelder is considered confidential and will be released only upon written authorization of Costco or as required by law. Notwithstanding this, non-commercial, educational, and scientific use of this letter by regulatory agencies is regarded as a "fair use" and not a violation of copyright. Non-compliance with any of these requirements by Costco, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this letter by any unauthorized party, but only to the extent of any such non-compliance by the Costco. Further limitations applicable hereto may be set forth in Kleinfelder's written agreement with the Costco addressing the work summarized herein.

CLOSING REMARKS

If you have questions or comments regarding this letter, please do not hesitate to contact Paolo Dizon, Kleinfelder's Project Manager, at (949) 727-4466.

Sincerely,

KLEINFELDER, INC.



Herbert (Bert) A. Vogler III, PG
Principal Hydrogeologist

Paolo Dizon
Project Manager

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October 14, 2021
Kleinfelder Project No.: 20201678.001A

Costco Wholesale Corporation
999 Lake Drive
Issaquah, Washington 98027

Attention: Ms. Therese Garcia
Real Estate Project Manager

Subject: Limited Phase II Environmental Site Assessment (Baseline Assessment)
Proposed Gasoline Station Relocation
Costco Wholesale Warehouse No. 479
13463 Washington Boulevard
Culver City, California 90292
CW# 19-0234

Dear Ms. Garcia:

Kleinfelder is pleased to provide Costco Wholesale Corporation (Costco) this report of a Limited Phase II Environmental Site Assessment (ESA) of the subject property (Site) at 13431 and 13455 Washington Boulevard in Culver City, California (Figure 1). The Site, which is currently developed with two commercial buildings and parking lots, is situated adjacent to Costco's Warehouse No. 479 facility, the southwestern-most portion of which is considered part of the Site. Kleinfelder understands Costco plans to demolish the existing buildings at the Site and relocate its gasoline station there. As such, Kleinfelder's Limited Phase II ESA was intended to serve as a baseline assessment of current subsurface environmental conditions at the Site prior to demolition of the existing Site improvements and construction of the gasoline station facility.

The following sections of this letter describe the scope, methodology, and analytical results of the soil, groundwater, and soil vapor sampling performed at the Site, and Kleinfelder's evaluations and conclusions. In summary, based on results of the ESA, Kleinfelder concludes the following:

- Total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) were present in sampled Site soil at concentrations below regulatory agency-issued human health risk-based screening levels for the respective analytes, although TPH in the gasoline carbon range (TPH-g) was present at trace concentrations between the method detection limit (MDL) and practical quantitation limit (PQL) in some of the sampled soil. Concentrations of metals in sampled Site soil are below regulatory agency-issued human health risk-based screening levels, except for arsenic. Kleinfelder's evaluation of the arsenic concentrations in the soil samples collected at the Site indicated they are below the mean arsenic concentration for southern California.
- TPH-g was present at trace concentrations in sampled Site groundwater, although TPH in the diesel carbon range (TPH-d) and TPH in the motor oil carbon range (TPH-mo) were not present at concentrations at or above their respective MDL. VOC analytical results for

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Site groundwater indicated a presence of the VOCs chloroform, chloromethane, and tetrachloroethylene (PCE) in one or more of the samples, although concentrations of each are below its respective Maximum Contaminant Level (MCL) for drinking water. Dissolved metals results for sampled groundwater indicated reported concentrations for each metal present other than thallium are below the MCL for the respective metal, and Site groundwater is not used for potable water supply, so the drinking water MCL for thallium is not directly applicable.

- Based on the soil and groundwater analytical results, Kleinfelder anticipates that soil excavated at the Site and groundwater dewatered from the Site containing the analyte concentrations of the sampled soil and groundwater may be characterized as non-hazardous for the purpose of disposal. However, Kleinfelder recommends that Costco provide the analytical results discussed herein to the disposal facility (or facilities) selected for disposal to verify that it (or they) will meet facility-specific acceptance criteria.
- Soil vapor analytical results indicated the VOC benzene was present in three of four analyzed samples collected from approximately 5 feet below ground surface (bgs) at concentrations above its commercial/industrial soil vapor screening level that is based on benzene's California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) modified screening level (DTSC-SL) for commercial/industrial air divided by the default attenuation factor (AF) of 0.03 that is recommended by the United States Environmental Protection Agency (US EPA) to address "near-source" exterior soil vapor attenuation to indoor air. Benzene is an aromatic hydrocarbon VOC that is a gasoline constituent. The soil vapor analytical results further indicated PCE, a chlorinated VOC historically used as a solvent, was present at concentrations above its soil vapor screening level based on its commercial/industrial air DTSC-SL in four of the five 15-foot bgs samples. Since the Site is proposed to be redeveloped with a Costco gasoline station that will have no structure intended for human occupancy, the existing soil vapor conditions are not expected to adversely affect Costco's workers and customers.
- Based on the reviewed analytical results, no further assessment of soil, groundwater, or soil vapor is recommended.

BACKGROUND INFORMATION

The Site's majority consists of a parcel of land, designated with Los Angeles County Assessor's Parcel Number (APN) 4236029008, that is occupied by two commercial buildings, with addresses of 13431 and 13455 Washington Boulevard, and associated parking lots. The Site also includes the southwestern-most portion of the adjoining parcel to the north, designated with APN 4236029009, which is currently occupied by the existing Costco Warehouse facility. The Site portion of the Costco facility presently consists of a portion of an asphalt concrete-surfaced parking lot, drive aisles, and associated landscaped planters. Kleinfelder understands Costco has purchased the Site parcel with APN 4236029008 in preparation of the relocation of its gasoline station there.

The Site was historically occupied by a racetrack in 1928 and by the southernmost portion of an industrial building from approximately 1963 to 1994. Various manufacturing companies, including McDonnell Douglas Aircraft Company, Hughes Helicopter, Trans Communications, and Amdahl, were identified to have occupied the Site or its immediate vicinity. The industrial buildings at the Site and in its immediate vicinity were demolished in 1994. The existing Costco Warehouse and Costco gasoline station, which are respectively north and east of the Site, were developed in 2002.

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A previous investigation performed by Kleinfelder in 1996 of the entire city block that includes the Site and adjoining Costco facility indicated soil, soil vapor, and groundwater beneath the Site contained VOCs, including PCE, trichloroethylene (TCE), and toluene. In 2019, Kleinfelder performed a limited Phase II ESA[1] at the Site that included collecting limited soil samples and installing and sampling groundwater from one groundwater monitoring well installed at a location near the middle of the Site. Results of the investigation indicated no VOCs were present at concentrations at or above respective laboratory reporting limits at the time and location of the sampling. However, the 2019 assessment was quite limited in that only one location was sampled, so Kleinfelder recommended additional assessment to collect baseline and waste characterization analytical data pertaining to the Site.

LIMITED PHASE II (BASELINE) ENVIRONMENTAL SITE ASSESSMENT ACTIVITIES

Kleinfelder's ESA-related activities are discussed in detail in the following sections.

Health and Safety Plan Preparation

Prior to initiation of field activities, Kleinfelder updated its Site-Specific Health and Safety Plan (HSP) containing information regarding potential chemical and physical hazards, monitoring equipment, and contingency plans for potential emergencies that may arise during field activities. The HSP was based on the general knowledge of chemical characteristics of materials expected to be present on the Site. Based on the field services proposed and expected environmental conditions, it was assumed that Level D Protection (with personal protective equipment [PPE] including gloves, steel-toe rubber boots, hard hat, and eye protection) would be adequate for performing the field activities described herein. As expected, a PPE upgrade was not required during the field work.

Bore Location Marking and Geophysical Utility Clearance

On September 2, 2021, Kleinfelder and its utility locating subcontractor, GeoVision Geophysical Services, marked the bore locations and buried utility lines and other detectable subsurface features proximal to them. Additionally, Underground Service Alert of Southern California (USASC) was contacted to assist in locating subsurface public utilities. Notification was provided to USASC a minimum of 48 hours (2 business days not including the day of notification) prior to initiating the intrusive environmental sampling activities.

Soil and Groundwater Sampling

On September 9 and 10, 2021, four soil bores, designated KB-1 through KB-4, were advanced at the Site. As Figure 2 shows, Bores KB-1 and KB-2 were advanced adjacent to the northern and eastern sides of the Site's western existing building, as its footprint presently occupies the location where the proposed gasoline station's UST cavity is presently planned to be situated. The location of Bore KB-2 is in addition at the approximate western end of the proposed gasoline station's planned southernmost dispenser island. Bore KB-3 was advanced in the southeastern portion of the Site at a location that is toward the eastern end of the proposed gasoline station's

[1] Kleinfelder, 2019. Letter with subject "Report of Environmental Research and Limited Phase II Environmental Site Assessment, 13431 and 13455 Washington Boulevard, Culver City Gasoline Station Relocation, Costco Wholesale Warehouse No. 479, 13463 Washington Boulevard, Culver City, California 90292, CW# 19-0234." October 7.

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southernmost dispenser island. Bore KB-4 was advanced in the northeastern portion of the Site north of where the proposed gasoline station's northernmost dispenser island is planned.

Each bore was initially advanced to an approximate depth of 5 feet below ground surface (bgs) using a hand auger as an additional utility clearance procedure, after which Kleinfelder's drilling subcontractor, Cascade Drilling (Cascade) used a direct push drill rig to advance the bore to its total depth of 25 feet bgs. Soil samples were collected at approximately 2.5 feet and 5 feet bgs during hand augering, and at approximate 5-foot depth intervals, beginning at approximately 10 feet bgs, during direct-push drilling.

Soil samples from the hand-augered portion of each bore were obtained from the hand auger bucket and transferred into laboratory provided glass jars. Soil samples collected deeper than 5 feet bgs were collected in a direct-push stainless steel sampler lined with poly-vinyl chloride (PVC) sample sleeves of up to 5 feet in length. During sampling, some of the soil from each sample was screened in the field for the presence of total volatile organic vapors using a photo-ionization detector (PID) calibrated with a 100-part per million by volume (ppmv) hexane standard. Each soil sample was promptly labeled with pertinent information and placed into a (water) ice-chilled cooler for temporary storage. A portion of each soil sample being submitted for laboratory VOC analysis was preserved in the field pursuant to United States Environmental Protection Agency (US EPA) Method 5035 before being placed into the cooler.

Kleinfelder staff, under the supervision of a State of California-registered Professional Geologist, observed the sampled soil in the field, logged it in accordance with Unified Soil Classification System visual-manual methods specified in ASTM International's Designation D 2488, and prepared a field lithologic log of the soil encountered. The PID readings obtained in the field were also recorded on the field log along with the visual description of the soil. The bore logs are included in the Attachments.

After completion of soil sampling in each bore, an appropriate length of 0.75-inch outer diameter (OD) PVC casing with 5 feet of PVC factory-slotted screen attached to the bottom was placed into the bore to accommodate groundwater sampling.

On September 10, 2021, the depth to groundwater in each of the four bores was monitored, after which an effort was made to purge three saturated bore volumes from each bore using the temporary well installed in the bore and 0.25-inch OD polyethylene tubing and a peristatic pump. On September 13, 2021, Monitoring Well B-1 at the Site was purged using a disposable bailer and sampled. Groundwater parameters were measured after each purge volume from each of the soil bores and the well, with the measured groundwater parameters including turbidity, temperature, specific conductance, pH, oxidation reduction potential (ORP), and dissolved oxygen (DO). Each groundwater sample was placed into laboratory-prepared sample containers containing preservatives appropriate for the intended analysis.

Investigation-derived waste (IDW), including soil and wash water, was placed in two 55-gallon Department of Transportation (DOT)-approved steel drums. The drums were temporarily stored on Site pending receipt of the analytical results and disposal profiling.

Soil Vapor Probe Installation, Purging, and Sampling

Five soil vapor probes were installed at the Site on September 9 and 10, 2021, with Probes KVP-1 through KVP-4 installed in bores advanced adjacent to Bores KB-1 through KB-4, respectively,

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and Probe KVP-5 installed in a bore advanced adjacent to Well B-1. Probes KVP-1, KVP-2, KVP-4, and KVP-5 are dual-nested probes, with their implants set at approximately 5 feet and 15 feet except Probe KVP-2's shallow implant is set at approximately 4.5 bgs instead. Probe KVP-3 instead consists of two single-completion vapor probes installed in two separate bores, with a vapor implant installed at approximately 15 feet bgs in one bore and at approximately 5 feet bgs in the other bore.

Soil vapor probe installation and subsequent purging and sampling of the probes were performed pursuant to guidance for performing active soil vapor investigations issued jointly by the Cal/EPA's DTSC, Los Angeles Regional Water Quality Control Board (LARWQCB), and San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).[2]

To construct Probe KVP-1, a vapor implant attached to the bottom of an appropriate length of 0.25-inch OD Nylaflow™ tubing was inserted through the drill rod into the bore and lowered to approximately 15.0 feet bgs. An appropriate amount of sand to surround the implant and extend from a few inches below it to a few inches above it was then poured into the annulus between the tubing and bore wall, creating a sand pack from approximately 15.5 feet to 14.0 feet bgs. The sand pack was topped with a vertical thickness of approximately 0.5 foot of dry bentonite granules (extending from approximately 14.0 feet to 13.5 feet bgs), followed by hydrated bentonite granules (extending from approximately 13.5 feet to 6.5 feet bgs). Then, approximately 0.5 foot of dry bentonite (extending from approximately 6.5 feet to 6.0 feet bgs), followed by 0.5 foot of sand (extending from approximately 6.0 feet to 5.5 feet bgs) was placed in the annulus. Next, a second vapor implant was attached to an appropriate length of 0.25-inch OD Nylaflow™ tubing, placed into the bore, and lowered to an approximate depth of 5.0 feet bgs. Sand was then poured into the bore around the implant to create a sand pack extending from approximately 6.0 feet to 4.5 feet bgs, followed by dry bentonite chips (extending from approximately 4.5 feet to 4.0 feet bgs), and then hydrated bentonite chips (extending from approximately 4.0 feet bgs to the surface). The top approximate 0.5 foot of the bore was filled with sand. The tubing ends were capped and left extending slightly above the ground surface.

Probes KVP-2, KVP-4, and KVP-5 were constructed similarly, each with a vapor implant attached to the bottom of an adequate length of 0.25-inch OD Nylaflow™ tubing that was inserted through the drill rod into the bore and lowered to approximately 15.0 feet bgs. An appropriate amount of sand to surround the implant and extend from a few inches below it to above it (from approximately 15.5 feet to 14.0 feet bgs for Probe KVP-2, and from approximately 16.0 feet to 14.5 feet bgs for Probes KVP-4 and KVP-5) was then poured into the annulus between the tubing and bore wall. The sand pack was topped with a vertical thickness of approximately 0.5 foot of dry bentonite granules, followed by an approximate 0.5-foot thickness of hydrated bentonite granules, followed by Portland cement grout containing approximately 5-percent bentonite by dry weight extending up to approximately 6.0 feet bgs. Next, the vapor implant for the shallow completion was attached to the bottom of an appropriate length of 0.25-inch OD Nylaflow™ tubing, inserted in the bore, and lowered into it. The implants for Probes KVP-4 and KVP-5 were set at approximately 5.0 feet bgs, whereas the implant for Probe KVP-2 was set at approximately 4.5 feet bgs. Sand was then placed around the shallow vapor implant to create a sand pack that extends from approximately 5.0 feet to 4.0 feet bgs for Probe KVP-2 and from approximately 5.5 feet to 4.5 feet bgs for Probes KVP-4 and KVP-5. The sand pack was topped with a vertical thickness of approximately 0.5 foot of dry bentonite granules, followed by a vertical thickness of approximately 0.5 foot of hydrated bentonite granules, and then by Portland cement grout containing approximately 5-percent

[2] Cal/EPA, et al, 2015. *Advisory, Active Soil Gas Investigations*. July.

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bentonite by dry weight extending to approximately 0.5 foot bgs. The top approximate 0.5 foot of the bore was filled with sand. The tubing ends were capped and left extending slightly above the ground surface.

The 5-foot bgs and 15-foot bgs vapor implants for Probe KVP-3 were installed in separate bores. The shallow vapor probe was installed in a bore hand augered to a depth of approximately 5.5 feet bgs. To construct probe KVP-3-5, a vapor implant connected to an adequate length of 0.25-inch OD Nylaflow™ tubing was lowered to approximately 5.0 feet bgs. An appropriate amount of sand to surround the vapor implant and extend from a few inches below it to a few inches above it was then poured into the annulus between the tubing and bore wall, creating a sand pack extending from approximately 4.5 feet to 5.5 feet bgs. The sand pack was topped with a vertical thickness of approximately 0.5 foot of dry bentonite (extending from approximately 4.0 feet to 4.5 feet bgs), followed by a vertical thickness of approximately 0.5 foot of hydrated bentonite (extending from approximately 3.5 feet to 4.0 feet bgs). Next, the annulus between the tubing and bore wall was filled with Portland cement grout containing approximately 5-percent bentonite by dry weight to 0.5-foot bgs. The top approximate 0.5 foot of the bore was filled with sand. To construct Probe KVP-3-15, a vapor implant connected to the bottom of an appropriate length of 0.25-inch OD Nylaflow™ tubing was lowered to approximately 15.0 feet bgs in a bore drilled to approximately 15.5 feet bgs. An appropriate amount of sand to surround the vapor implant and extend from a few inches below it to a few inches above it was then poured into the annulus between the tubing and bore wall, creating a sand pack extending from approximately 14.0 feet to 15.5 feet bgs. The sand pack was topped with a vertical thickness of approximately 0.5 foot of dry bentonite (extending from approximately 14.0 feet to 13.5 feet bgs), followed by a vertical thickness of approximately 0.5 foot of hydrated bentonite (extending from approximately 13.5 feet to 13.0 feet bgs). Next, the annulus between the tubing and bore wall was filled with Portland cement grout containing approximately 5-percent bentonite by dry weight to 0.5-foot bgs. The top approximate 0.5 foot of the bore was filled with sand. The tubing ends for both probes were capped and left extending slightly above the ground surface.

The bore logs provided in Attachment A include a probe construction schematic for each soil vapor probe on the log for the bore in which it was installed.

After installation, the soil vapor probes were left to equilibrate for a minimum period of 48 hours before they were purged and sampled. On September 13, 2021, Kleinfelder's subcontractor Confluence Environmental, Inc. (Confluence), purged and sampled the soil vapor probes under Kleinfelder's supervision. Pursuant to the afore-mentioned Cal/EPA joint guidance, before purging each probe, a shut-in test of the sampling train was performed as a leak check. Then, approximately three probe volumes were purged from each soil vapor probe completion prior to sample collection. A given "probe volume" was calculated based on the volume of the vapor probe's implant and tubing and assumptions of 40-percent sand porosity and 50-percent dry bentonite porosity. During purging and sampling, Confluence exposed the sampling train to helium as a leak check gas. The purged soil vapor was monitored in the field for total volatile organic vapors and helium using handheld devices including a PID, Landtec GEM 2000 portable handheld monitor, and helium analyzer.

Laboratory Analyses

The soil, groundwater, and soil vapor samples collected at the Site were submitted to Kleinfelder's subcontracted soil laboratory, ASSET Laboratories (ASSET), a California Environmental

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Laboratory Accreditation Program (ELAP) accredited laboratory. Their requested analyses are discussed below by sample type.

Soil samples. Three soil samples from each bore were selected by Kleinfelder for laboratory analysis based on field observations and obtained PID readings. The soil samples were analyzed for TPH, speciated by carbon range, using US EPA Method 8015B and 8015B(M), with results reported for TPH-g, TPH-d, and TPH-mo; VOCs using US EPA Method 8260B; and California Code of Regulations (CCR) Title 22 Metals using US EPA Method 7471A for mercury and US EPA Method 6010B for the remaining metals. In addition, based on its total chromium result, Sample KB-3-5, which was collected at approximately 5 feet bgs from Bore KB-3, was analyzed for soluble chromium using the CCR Title 22 Waste Extraction Test (WET) and US EPA Method 6010B and using the federal Toxicity Characteristic Leaching Procedure (TCLP) and US EPA Method 6010B. Also, based on its total lead result, Sample KB-2-2.5, which was collected at approximately 2.5 feet bgs from Bore KB-2, was analyzed for soluble lead using the CCR Title 22 WET and US EPA Method 6010B.

Groundwater samples. ASSET analyzed the groundwater samples for TPH, speciated by carbon range, using US EPA Method 8015B and 8015B(M), with results reported for TPH-g, TPH-d, and TPH-mo; VOCs using US EPA Method 8260B; and dissolved CCR Title 22 Metals using US EPA Method 7470A for mercury and US EPA Method 6010B for the remaining metals.

Soil vapor samples. ASSET analyzed the soil vapor samples for VOCs using US EPA Method TO-15 for its full target analyte list.

FIELD OBSERVATIONS AND ANALYTICAL RESULTS

Field Observations

Subsurface soil lithologies observed by Kleinfelder during the ESA included sandy clay, clayey sand, and sandy silt in the upper 10 feet; underlain by silty sand, poorly-graded sand, and well-graded sand. As previously mentioned, total volatile organic vapor screening of soil was performed in the field by Kleinfelder staff using a PID that was calibrated with a 100-ppmv hexane standard. The PID readings are presented on the bore logs (Attachment A) in the column labeled “PID (ppmv).” As shown on the logs, measured PID readings ranged from less than 1.0 ppmv to a maximum of 4.4 ppmv, with this maximum PID reading produced by the soil samples collected from Bore KB-3 at approximately 25 feet bgs and Bore KB-4 at approximately 10 feet bgs. No staining or visual indication of hydrocarbon impact or other chemical impact was observed in the soil samples.

Soil Sampling Analytical Results

TPH, VOCs, and total metals analytical results of the 12 analyzed soil samples are tabulated in Tables 1 through 3, with Table 1 summarizing the TPH results, Table 2 summarizing the VOC results, and Table 3 summarizing the metals results (including soluble chromium and soluble lead). In summary:

- As Table 1 indicates, TPH-g was present in trace amounts in seven of the 12 analyzed soil samples, at concentrations ranging from 0.20 J milligram per kilogram (mg/kg) to 0.26 J mg/kg. The “J” laboratory qualifier indicates each of the reported concentrations is between the MDL and PQL and is therefore an estimated value. TPH-d was present in

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Sample KB-1-5, which was collected from Bore KB-1 at approximately 5 feet bgs, at a concentration of 170 mg/kg but was not present at a concentration at or above its MDL in the remaining analyzed samples. TPH-mo was present in nine of the samples, at concentrations that ranged from 10 mg/kg to 1,800 mg/kg, with the highest TPH-mo concentration in Sample KB-1-5. Sample KB-2-5 contained the second highest TPH-mo concentration of 110 mg/kg and was collected from Bore KB-2 at approximately 5 feet bgs.

- As Table 2 indicates, the VOCs 2-butanone and chloromethane were reported to be present in one or more of the soil samples, with 2-butanone present in two samples, KB-1-5 and KB-2-2.5 (which was collected from approximately 2.5 feet bgs in Bore KB-2), at respective concentrations of 8.5 J micrograms per kilograms (µg/kg) and 10 J µg/kg. Chloromethane was present in one sample, KB-3-20 (which was collected from Bore KB-3 at approximately 20 feet bgs), at a concentration of 0.81 J µg/kg. The remaining analyzed VOCs, including the gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX), were not present in the analyzed at concentrations at or above their MDLs.
- As Table 3 indicates, the metals arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, thallium, vanadium, and zinc were present in one or more soil samples at concentrations at or above their MDLs, with barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc reported to be present in each analyzed sample. The maximum reported concentration of each metal present in the samples follows:

Metal	Maximum Concentration in Soil Samples (mg/kg)
Arsenic	3.2
Barium	110
Cadmium	0.63 J
Chromium	160
Cobalt	8.9
Copper	25
Lead	54
Mercury	0.11
Molybdenum	1.2
Nickel	15
Thallium	0.88 J
Vanadium	37
Zinc	56

- As Table 3 indicates, the chromium analytical result for Sample KB-3-5 exceeds 10 times CCR Title 22's Soluble Threshold Limit Concentration (STLC) for chromium and 20 times the federal chromium TCLP level, so it was analyzed for soluble chromium using the California WET and US EPA Method 6010B and the TCLP and US EPA Method 6010B. The results indicated an STLC soluble chromium concentration of 0.21 J milligrams per liter (mg/L) and a TCLP soluble chromium concentration of 0.011 mg/L, which are below chromium's STLC and TCLP value. Similarly, the lead analytical result for Sample KB-2-2.5 exceeds 10 times lead's STLC so it was analyzed for soluble lead using

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the WET and US EPA Method 6010B. The result indicated a soluble lead concentration of 2.1 mg/L that is below lead's STLC.

A copy of ASSET's reports containing its analytical results for the soil samples is provided in Attachment B. Kleinfelder's evaluation of the analytical results is provided in the subsequent "Evaluation of Analytical Results" section of this report.

Groundwater Sampling Analytical Results

Analytical results of the five groundwater samples collected by Kleinfelder are tabulated in Tables 4 and 5, with Table 4 summarizing the TPH and VOC results and Table 5 summarizing the dissolved metals results. In summary:

- As Table 4 indicates, TPH-g was present in the five groundwater samples, at concentrations ranging from 0.21 J mg/L to 0.29 J mg/L. TPH-d and TPH-mo were not present in the five samples at concentrations at or above their respective MDL.
- As Table 4 also indicates, the VOCs chloroform, chloromethane, and PCE were reported to be present in one or more of the groundwater samples. Chloroform was present in one groundwater sample, KB-4 (collected from Bore KB-4) at a concentration of 0.75 micrograms per liter (µg/L); chloromethane was present in two samples, KB-1 and KB-2 (collected from Bores KB-1 and KB-2, respectively) at respective concentrations of 0.30 J µg/L and 0.32 J µg/L; and PCE was present in four groundwater samples, at concentrations ranging from 0.52 µg/L to 2.4 µg/L, with the highest concentration in Sample KB-1 (collected from Bore KB-1). The remaining VOCs, including BTEX, were not present in the five samples at concentrations at or above their respective MDL.
- As Table 5 indicates, the dissolved metals barium, chromium, copper, molybdenum, thallium, and vanadium were present in each of the five groundwater samples. The maximum reported concentration of each metal present in the samples follows:

Metal	Maximum Concentration in Groundwater Samples (mg/L)
Barium	0.053
Chromium	0.0039
Copper	0.0086
Molybdenum	0.023
Thallium	0.029
Vanadium	0.0040

A copy of ASSET's report containing its analytical results for the groundwater samples is provided in Attachment B. Kleinfelder's evaluation of the analytical results is provided in the subsequent "Evaluation of Analytical Results" section of this report.

Soil Vapor Sampling Analytical Results

The analytical results for the nine soil vapor samples collected by Kleinfelder from the soil vapor probes are tabulated in Table 6. In summary:

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- Helium (the leak-check tracer) was not present in the vapor samples at a concentration at or above its PQL.
- In total, 21 VOCs were present in one or more of the vapor samples at concentrations at or above their respective MDL. The VOCs reported to be present, concentration range for each VOC, and number of samples containing them are listed below:

VOC	Concentration Range in Soil Vapor Samples (µg/m^3)	Number of Samples in Which Present
Acetone	26.4 to 135	Each sample
Benzene	Not present to 29.5	Seven
2-Butanone	10.3 to 87.3	Each sample
Carbon Disulfide	5.96 to 54.8	Each sample
Chloroform	Not present to 9.61	Five
Chloromethane	Not present to 1.77 J	Two
cis-1,2-Dichloroethene	Not present and 14.6	One
Dichlorodifluoromethane	Not present to 3.87 J	Two
Ethylbenzene	Not present to 6.22	Three
4-Ethyltoluene	Not present to 56.1	Four
4-Methyl-2-pentanone	Not present to 11.7 J	Two
Methylene chloride	Not present to 352	Each sample
PCE	Not present to 463	Eight
Toluene	Not present to 49.5	Eight
Trichlorofluoromethane	Not present to 54.3	Six
1,2,4-Trimethylbenzene	Not present to 113	Six
1,3,5-Trimethylbenzene	Not present to 29.8	Two
Vinyl Acetate	3.82 J to 32.0	Each sample
Vinyl Chloride	Not present and 2.44 J	One
m-p-Xylene	Not present to 79.4	Eight
o-Xylene	Not present to 30.9	Six

A copy of ASSET's report containing its analytical results for the soil vapor samples is provided in Attachment B. Kleinfelder's evaluation of the analytical results is provided in the following section of this report.

EVALUATION OF ANALYTICAL RESULTS

To evaluate the measured concentrations of analytes reported to be present in the soil, soil vapor, and groundwater samples, Kleinfelder compared the concentrations to screening values consisting of (or based on) current DTSC-SLs[3] for analytes that have such values. To evaluate the measured concentrations of those analytes without DTSC-SLs, Kleinfelder compared them to

[3] Cal/EPA DTSC HERO, 2020a. *Human Health Risk Assessment (HHRA) Note Number 3, DTSC-modified Screening Levels (DTSC-SLs), release date: June 2020*. June.

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screening values consisting of (or based on) current Regional Screening Levels (RSLs) issued by the US EPA.[4] The screening values used in Kleinfelder's evaluation are included in Tables 1 through 6, as applicable. Although the Site's use is presently commercial, and its future use is anticipated to remain commercial, residential screening values are included in the tables for completeness, as recommended by the DTSC, but Kleinfelder's evaluation focused on the commercial/industrial screening values (as an analyte's concentrations that exceed its commercial/industrial screening value also exceed its residential screening value).

Also, for soil profiling purposes, the measured concentrations of a given metal in soil samples were compared to their respective CCR Title 22 Total Threshold Limit Concentration (TTLC), if the metal has a published TTLC, and compared to 10 times their CCR Title 22 STLC and 20 times their Federal TCLP value (if the metals have such published values).

Soil Analytical Results Evaluation

Kleinfelder's evaluation of the soil analytical results indicated the following:

- Reported concentrations of TPH-g, TPH-d, and TPH-mo in the 12 analyzed soil samples are below their respective commercial/industrial DTSC-SLs and industrial RSLs for soil (if applicable for the analyte).
- In total, the 12 soil samples were reported to contain two VOCs, 2-butanone and chloromethane, the concentrations of which are below their respective industrial RSL for soil. There is presently no commercial/industrial DTSC-SL for soil for either 2-butanone or chloromethane.
- Except for arsenic, reported concentrations of metals present in the 12 soil samples are below the metals' respective commercial/industrial DTSC-SL and industrial RSL for soil (as applicable to the metal). Reported concentrations of each metal present are also below the metal's TTLC. Arsenic was reported to be present in five of the soil samples at concentrations that exceed its DTSC-SL and industrial RSL. However, the DTSC has acknowledged that background and ambient concentrations of some inorganic elements present in Los Angeles County soils, including arsenic, exceed risk-based concentrations, and to evaluate arsenic concentrations at a property, DTSC guidance presently calls for comparing the site-specific 95-percent upper confidence limit (UCL) of the mean arsenic concentration to the southern California 95-percent UCL of the mean arsenic soil concentration of 3.1 mg/kg.[5] Kleinfelder used the ESA's arsenic data set and the US EPA's ProUCL™ software (Version 5.1.002) to calculate a Site-specific 95-percent UCL of the mean arsenic concentration. The calculation resulted in a Site-specific 95-percent UCL of the mean arsenic concentration of 1.964 mg/kg that is considerably below the southern California 95-percent UCL of the mean arsenic soil concentration of 3.1 mg/kg. Thus, the presence of arsenic in the Site's soil is not considered to be of concern.
- Due to Sample KB-3-5's total chromium concentration, soluble chromium analyses of it were performed using the WET and TCLP, and the results are below chromium's STLC and its TCLP value. Soluble lead analysis was similarly performed on Sample KB-2-2.5 using the WET due to that sample's total lead concentration, and the result is below lead's

[4] US EPA, 2021. *Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2021*. May.

[5] Cal/EPA DTSC HERO, 2020b. *Human Health Risk Assessment (HHRA) Note Number 11, DTSC-modified Screening Levels (DTSC-SLs), release date: December 28, 2020*. December 28.

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STLC. Based on these results and the other results previously discussed, the sampled soil at the Site would be characterized as non-hazardous.

Groundwater Analytical Results Evaluation

Kleinfelder's evaluation of the groundwater analytical results indicated the following:

- TPH-d, and TPH-mo were not reported to be present in the five groundwater samples at concentrations at or above their respective MDLs, so no evaluation of their results was required. TPH-g was present in each of the samples at a trace concentration between TPH-g's MDL and PQL. There is no MCL for TPH-g, and in Kleinfelder's opinion the trace TPH-g concentrations are of minimal concern.
- The VOC results indicated the groundwater samples contained three VOCs in total: chloroform, chloromethane, and PCE. The reported PCE concentrations are below its respective MCL, and the concentrations of chloroform, which is a trihalomethane, are below the MCL for total trihalomethanes. There currently is no MCL for chloromethane, and given its trace concentrations, in Kleinfelder's opinion its presence in Site groundwater is not a concern. Although the PCE concentrations are below PCE's MCL, its presence in the groundwater may affect disposal options for groundwater extracted at the Site during future construction activities.
- For analyzed metals that have a drinking water MCL, except for thallium, each metal's dissolved concentrations in the five groundwater samples are below its MCL.

Soil Vapor Analytical Results Evaluation

As is presently recommended by the DTSC, Kleinfelder applied AFs to the ambient air DTSC-SLs and air RSLs to address attenuation from the subsurface to ambient air. The DTSC HERO's previously-cited June 2020 guidance concerning use of its DTSC-SLs recommends using the AFs described in the DTSC's 2011 subsurface vapor intrusion guidance[6] along with the US EPA's default AF of 0.03 for "near-source" exterior soil vapor.[7] As such, Kleinfelder used soil vapor screening values based both on the US EPA's recommended default AF of 0.03 for near-source soil vapor and the DTSC-recommended AF of 0.001 for evaluation of soil vapor beneath an existing commercial/industrial building. Kleinfelder's evaluation of the soil vapor analytical results indicated the following:

- The benzene concentrations in Samples KVP-1-5, KVP-2-5, and KVP-3-5 (which were collected from the 5-foot bgs implants of Probes KVP-1, KVP-2, and KVP-3, respectively) exceed benzene's commercial/industrial screening level for soil vapor that is based on benzene's DTSC-SL for commercial/industrial air and the AF of 0.03.
- The PCE concentrations in Samples KVP-1-15, KVP-2-15, KVP-3-15, and KVP-4-15 (which were collected from the 15-foot bgs implants of Probes KVP-1, KVP-2, KVP-3, and KVP-4, respectively) exceed PCE's commercial/industrial screening level for soil vapor that is based on PCE's DTSC-SL for commercial/industrial air and the AF of 0.03.

[6] DTSC, 2011. *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*. October.

[7] US EPA, 2015. https://www.epa.gov/sites/production/files/2015-09/documents/oswer-vapor-intrusion-technical-guide-final.pdf.

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- Concentrations of other VOCs present in each soil vapor sample are below a given VOC's commercial/industrial screening level(s) for soil vapor.

CONCLUSIONS AND RECOMMENDATIONS

Kleinfelder's field observations and evaluations of the analytical results of samples collected during this Limited Phase II ESA have revealed the following:

Soil and Groundwater

- TPH and VOCs were present in sampled Site soil at concentrations below regulatory agency-issued human health risk-based screening levels for the respective analytes, and analyzed metals other than arsenic in the sampled soil were also present at concentrations below regulatory agency issued human health risk-based screening levels for each respective metal. Kleinfelder's evaluation of the arsenic concentrations in the Site's soil samples indicated they are below the mean arsenic concentration for southern California soil.
- TPH-g was present at trace concentrations in sampled Site groundwater, although TPH-d and TPH-o were not present at concentrations at or above their respective MDLs. Site groundwater VOC results indicated a presence of the VOCs chloroform, chloromethane, and PCE in one or more of the samples, although concentrations of each are below its respective MCL for drinking water. Dissolved metals results for sampled groundwater indicated reported concentrations for each metal present other than thallium are below the MCL for the respective metal, and Site groundwater is not used for potable water supply, so the drinking water MCL for thallium is not directly applicable. Based on the soil and groundwater analytical results, Kleinfelder anticipates that soil excavated at the Site and groundwater dewatered from the Site containing the analyte concentrations of the sampled soil and groundwater may be characterized as non-hazardous for the purpose of disposal. However, Kleinfelder recommends that Costco provide the analytical results discussed herein to the disposal facility (or facilities) selected for disposal to verify that it (or they) will meet facility-specific acceptance criteria.
- Based on the reviewed soil and groundwater analytical results, no further soil or groundwater assessment is presently recommended.

Soil Vapor

- Benzene, an aromatic hydrocarbon VOC that is a gasoline constituent, was present at concentrations above its soil vapor screening level based on its commercial/industrial DTSC-SL in three of the four analyzed samples collected from the 5-foot bgs vapor probe implants. The highest benzene concentration was in the 5-foot bgs sample from Probe KVP-2, located in the southwestern portion of the Site, and the next highest benzene concentration was in the 5-foot bgs sample from Probe KVP-1, in the northwestern portion of the Site. For the four locations from which both a 5-foot bgs and 15-foot bgs soil vapor sample was collected and analyzed, the benzene concentration in the 15-foot bgs soil vapor sample from a given location was lower than in the 5-foot bgs soil vapor sample from the same location (and over an order of magnitude lower for the samples from Probes KVP-1 and KVP-2). Benzene was not present at a concentration at or above its MDL in the analyzed soil samples and groundwater samples. This suggests a near-surface or surface source of benzene such as fuel leakage from parked automobiles.

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- PCE, a chlorinated VOC historically used as a solvent, was present at concentrations above its soil vapor screening level based on its commercial/industrial DTSC-SL in four of the five samples collected from the 15-foot bgs vapor probe implants. The highest PCE concentration was in the 15-foot bgs sample from Probe KVP-1, located in the northwestern portion of the Site. PCE concentrations in soil vapor at 15 feet bgs seem lowest beneath the middle portion of the Site. PCE was not present at a concentration at or above its MDL in the analyzed soil samples but was present in the groundwater samples. Although PCE concentrations in sampled groundwater are below PCE's drinking water MCL, the PCE source may be groundwater.
- Other reported VOC concentrations in soil vapor are below their respective commercial/industrial soil vapor screening levels.
- Since the Site is proposed to be redeveloped with a Costco gasoline station that will have no structure intended for human occupancy, the existing soil vapor conditions are not expected to adversely affect Costco's workers and customers.
- Based on the reviewed soil vapor analytical results, no further assessment of soil vapor is recommended.

LIMITATIONS

Kleinfelder prepared this Phase II Report in accordance with generally accepted standards of care that exist in San Bernardino County, California at this time. This workplan may be used only by Costco and only for the purposes stated, within a reasonable time from its issuance but in no event later than 2 years from the workplan's date. All information gathered by Kleinfelder is considered confidential and will be released only upon written authorization of Costco or as required by law. Non-compliance with any of these requirements by Costco, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this workplan by any unauthorized party, but only to the extent of any such non-compliance by the Costco. Further limitations applicable hereto may be set forth in Kleinfelder's written agreement with the Costco covering the work discussed herein.

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CLOSING REMARKS

If you have questions or comments regarding this workplan please do not hesitate to contact Paolo Dizon, Kleinfelder's Project Manager, at (949) 727-4466.

Sincerely,

KLEINFELDER, INC.

Lindsey Dandridge-Perry
Project Professional

Herbert (Bert) A. Vogler III, PG
Principal Hydrogeologist

cc: Paolo Dizon, Kleinfelder

Attachments:

- Figures
  - Figure 1 – Site Location Map
  - Figure 2 – Bore and Soil Vapor Probe Location Map
- Tables
  - Table 1 – Soil Analytical Results – TPH
  - Table 2 – Soil Analytical Results – VOCs
  - Table 3 – Soil Analytical Results – Metals
  - Table 4 – Groundwater Analytical Results – TPH and VOCs
  - Table 5 – Groundwater Analytical Results – Dissolved Metals
  - Table 6 – Soil Vapor Analytical Results
- Attachment A – Bore Logs
- Attachment B – Analytical Laboratory Reports

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FIGURES

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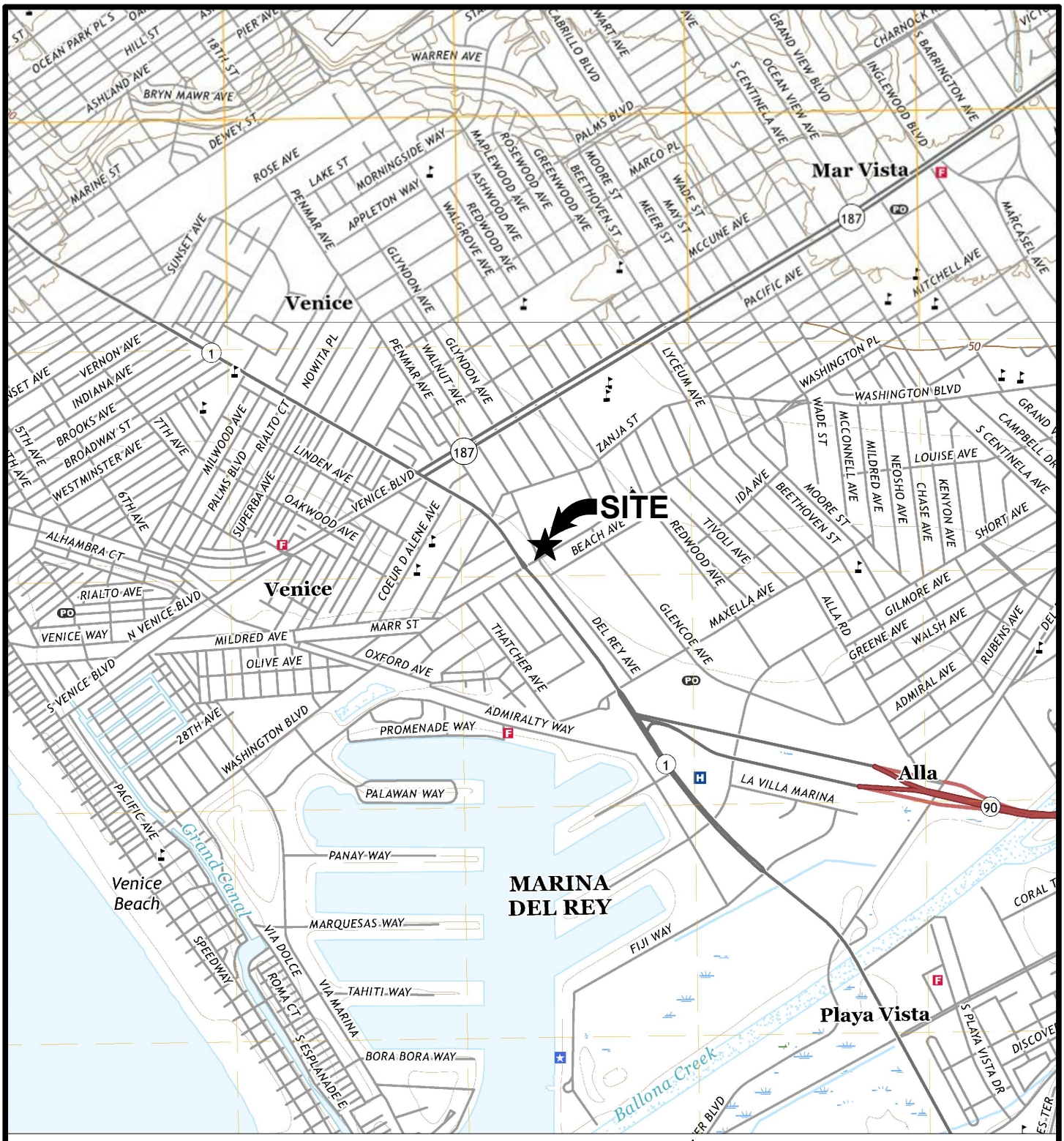

SOURCE: U.S.G.S. 7.5' topographic series, Venice and Beverly Hills, California quadrangles dated 2018.

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APPROXIMATE SCALE (feet)

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PROJECT:	20201678
DRAWN BY:	DMF
CHECKED BY:	LDP
DATE:	10/2021
REVISED:	-

SITE LOCATION MAP

PROPOSED COSTCO WHOLESALE GAS STATION RELOCATION
COSTCO WHOLESALE WAREHOUSE #479
13463 WASHINGTON BOULEVARD
CULVER CITY, CALIFORNIA - CW#19-0234

FIGURE
1

PLOTTED: 10/4/2021 5:36 PM BY: dean fahmey
CAD FILE: U:\Projects\CADD\CADD 20201202016782020167 8_Costco_Culver-City.dwg

PLOTTED: 10/6/2021 5:03 PM BY: dean fahmey

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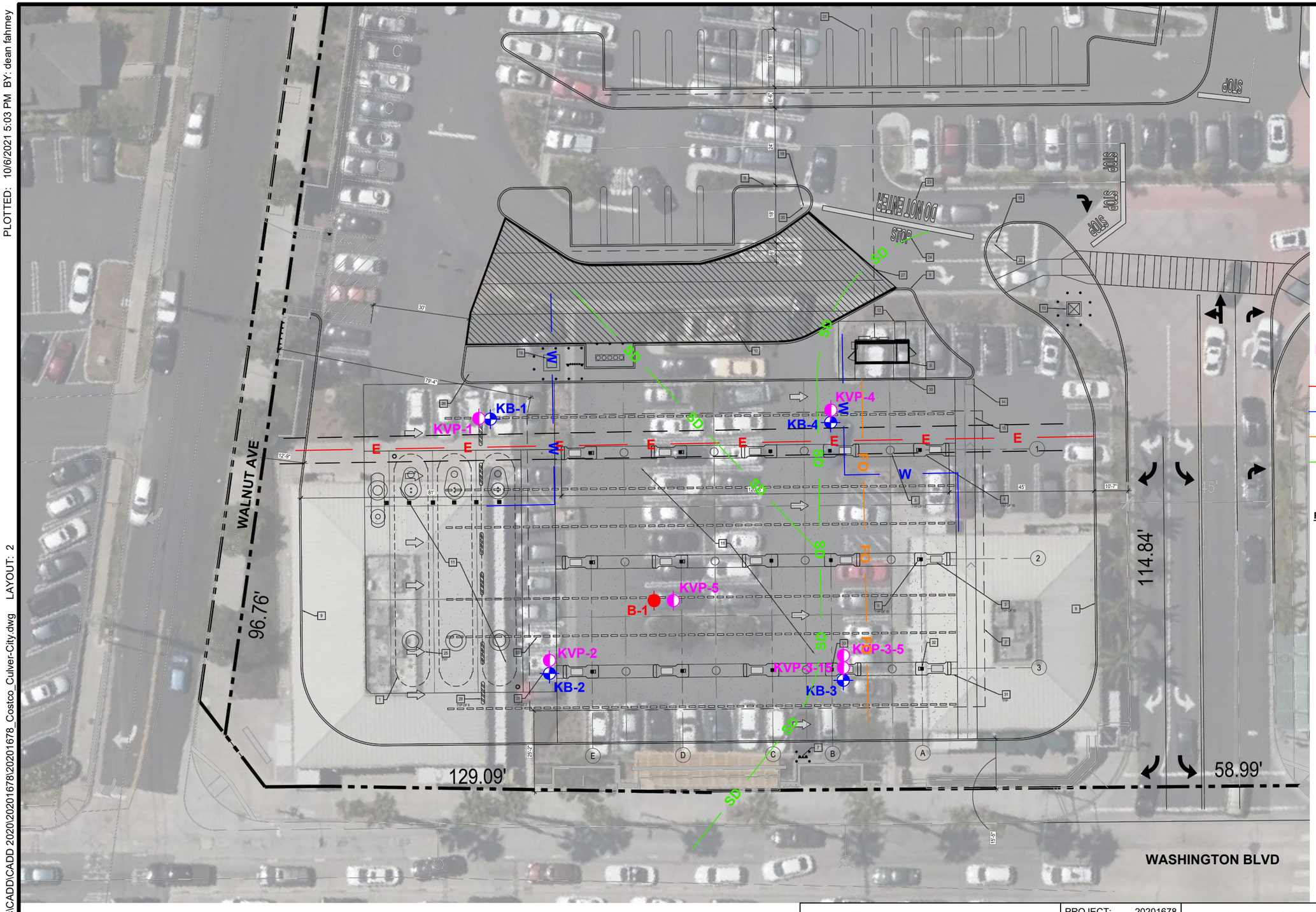

30 15 0 30

APPROXIMATE SCALE (feet)

EXPLANATION

- KB-5 — APPROXIMATE BORE LOCATION
- B-1 — APPROXIMATE GROUNDWATER MONITORING WELL LOCATION
- KVP-5 — APPROXIMATE SOIL VAPOR PROBE LOCATION
- E — ELECTRICAL LINE
- W — WATER LINE
- FO — FIBER OPTIC LINE
- SD — STORM DRAIN

REFERENCE: ENLARGED CONCEPT PLAN (DD15-17) PROVIDED BY MG2, DATED 09/24/20

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BORE AND SOIL VAPOR PROBE LOCATION MAP

PROPOSED COSTCO WHOLESALE GASOLINE STATION RELOCATION
COSTCO WHOLESALE WAREHOUSE #479
13463 WASHINGTON BOULEVARD
CULVER CITY, CALIFORNIA - CW#19-0234

FIGURE

2

TABLES

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TABLE 1
SOIL ANALYTICAL RESULTS – TPH
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

Bore	Sample	Depth (feet bgs)	Date Sampled	TPH		
				TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-mo (mg/kg)
				8015B	8015B(M)	8015B(M)
KB-1	KB-1-5	5.0	9/8/2021	ND<0.19	170	1,800
	KB-1-15	15.0	9/8/2021	ND<0.22	ND<10	ND<10
	KB-1-20	20.0	9/8/2021	ND<0.23	ND<9.9	10
KB-2	KB-2-2.5	2.5	9/8/2021	ND<0.21	ND<10	76
	KB-2-5	5.0	9/8/2021	ND<0.22	ND<10	110
	KB-2-25	25.0	9/8/2021	0.21 J	ND<10	29
KB-3	KB-3-5	5.0	9/9/2021	0.20 J	ND<10	25
	KB-3-10	10.0	9/9/2021	0.20 J	ND<10	ND<10
	KB-3-20	20.0	9/9/2021	0.21 J	ND<10	11
KB-4	KB-4-2.5	2.5	9/9/2021	0.22 J	ND<9.9	49
	KB-4-5	5.0	9/9/2021	0.20 J	ND<10	40
	KB-4-10	10.0	9/9/2021	0.26 J	ND<10	ND<10
DTSC-SL – Residential				NV / NV	NV / NV	NV / NV
DTSC-SL – Commercial/Industrial				NV / NV	NV / 500	NV / 18,000
US EPA RSL – Residential				251	96	11,519
US EPA RSL – Industrial				1,191	460	145,028

Notes:

TPH	Total petroleum hydrocarbons.
TPH-g	Gasoline-range TPH (carbon range C_6 through C_{12})
TPH-d	Diesel-range TPH (carbon range C_{13} through C_{22}).
TPH-mo	Motor oil-range TPH (carbon range C_{23} through C_{40}).
mg/kg	Milligrams per kilogram.
bgs	Below ground surface.
8015B / 8015B(M)	United States Environmental Protection Agency (US EPA) analytical method number.
ND<0.19	Not present at a concentration at or above the indicated laboratory method detection limit that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
DTSC-SL	Modified soil screening level from California Environmental Protection Agency Department of Toxic Substances Control (DTSC) Office of Human and Ecological Risk (HERO) *Human Health Risk Assessment (HHRA) Note Number 3, DTSC-modified Screening Levels (DTSC-SLs)*. Release date: June 2020. DTSC-SL values shown for TPH-g, TPH-d, and TPH-mo are Aliphatic / Aromatic Low, Aliphatic / Aromatic Medium, and Aliphatic / Aromatic High, respectively.
NV	Analyte has no published value.
RSL	US EPA Regional Screening Level for soil, May 2021. TPH-g RSLs are based on TPH Aliphatic and Aromatic Low RSLs; TPH-d RSLs are based on TPH Aliphatic and Aromatic Medium RSLs; and TPH-mo RSLs are based on TPH Aliphatic and Aromatic High RSLs. The two RSL values for each of the three TPH fractions were used in the following equation: $RSL_{TPH\ (Total)} = 1/[(0.80/RSL_{TPH\ (Aliphatic)}) + (0.20/RSL_{TPH\ (Aromatic)})]$.

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TABLE 2
SOIL ANALYTICAL RESULTS – VOCs
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

Bore	Sample	Depth (feet bgs)	Date Sampled	VOCs							
				Benzene (µg/kg)	2-Butanone (µg/kg)	Chloromethane (µg/kg)	Ethylbenzene (µg/kg)	Toluene (µg/kg)	m,p-Xylenes (µg/kg)	o-Xylene (µg/kg)	Other VOCs (µg/kg)
				8260B							
KB-1	KB-1-5	5.0	9/8/2021	ND<0.16	8.5 J	ND<0.35	ND<0.17	ND<0.22	ND<0.34	ND<0.13	ND<0.091 - ND<4.9
	KB-1-15	15.0	9/8/2021	ND<0.22	ND<9.6	ND<0.47	ND<0.23	ND<0.30	ND<0.46	ND<0.18	ND<0.12 - ND<6.7
	KB-1-20	20.0	9/8/2021	ND<0.20	ND<8.7	ND<0.43	ND<0.21	ND<0.27	ND<0.42	ND<0.16	ND<0.11 - ND<6.0
KB-2	KB-2-2.5	2.5	9/8/2021	ND<0.18	10 J	ND<0.38	ND<0.18	ND<0.24	ND<0.37	ND<0.14	ND<0.099 - ND<5.4
	KB-2-5	5.0	9/8/2021	ND<0.19	ND<8.4	ND<0.41	ND<0.20	ND<0.26	ND<0.40	ND<0.16	ND<0.11 - ND<5.8
	KB-2-25	25.0	9/8/2021	ND<0.18	ND<8.1	ND<0.40	ND<0.19	ND<0.25	ND<0.39	ND<0.15	ND<0.10 - ND<5.6
KB-3	KB-3-5	5.0	9/9/2021	ND<0.17	ND<7.5	ND<0.37	ND<0.18	ND<0.23	ND<0.36	ND<0.14	ND<0.0.096 - ND<5.2
	KB-3-10	10.0	9/9/2021	ND<0.19	ND<8.5	ND<0.42	ND<0.20	ND<0.26	ND<0.41	ND<0.16	ND<0.11 - ND<5.9
	KB-3-20	20.0	9/9/2021	ND<0.20	ND<8.6	0.81 J	ND<0.21	ND<0.27	ND<0.42	ND<0.16	ND<0.11 - ND<6.0
KB-4	KB-4-2.5	2.5	9/9/2021	ND<0.17	ND<7.6	ND<0.38	ND<0.18	ND<0.24	ND<0.37	ND<0.14	ND<0.098 - ND<5.3
	KB-4-5	5.0	9/9/2021	ND<0.18	ND<8.0	ND<0.39	ND<0.19	ND<0.25	ND<0.38	ND<0.15	ND<0.10 - ND<5.5
	KB-4-10	10.0	9/9/2021	ND<0.22	ND<9.5	ND<0.47	ND<0.23	ND<0.29	ND<0.46	ND<0.18	ND<0.12 - ND<6.6
DTSC-SL – Residential				330	NV	NV	NV	1,100,000	NV	NV	Vary or NV
DTSC-SL – Commercial/Industrial				1,400	NV	NV	NV	5,300,000	NV	NV	Vary or NV
US EPA RSL – Residential				1,200	27,000,000	110,000	5,800	4,900,000	550,000	650,000	Vary or NV
US EPA RSL – Industrial				5,100	190,000,000	460,000	25,000	47,000,000	2,400,000	2,800,000	Vary or NV

Notes:

VOCs	Volatile organic compounds.
µg/kg	Micrograms per kilogram.
bgs	Below ground surface.
5035/8260B	United States Environmental Protection Agency (US EPA) analytical method number.
ND<0.16	Not present at a concentration at or above the indicated laboratory method detection limit (MDL) that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
DTSC-SL	Modified soil screening level from California Environmental Protection Agency Department of Toxic Substances Control (DTSC) Office of Human and Ecological Risk (HERO) *Human Health Risk Assessment (HHRA) Note Number 3, DTSC-modified Screening Levels (DTSC-SLs)* . Release date: June 2020.
NV	Analyte has no published value.
RSL	US EPA Regional Screening Level for soil, May 2021.

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TABLE 3
SOIL ANALYTICAL RESULTS – METALS
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

Bore	Sample	Depth (feet bgs)	Date Sampled	Antimony (mg/kg) 6010B	Arsenic (mg/kg) 6010B	Barium (mg/kg) 6010B	Beryllium (mg/kg) 6010B	Cadmium (mg/kg) 6010B	Chromium (mg/kg) 6010B	Chromium (STLC) (mg/L) WET / 6010B	Chromium (TCLP) (mg/L) TCLP	Cobalt (mg/kg) 6010B	Copper (mg/kg) 6010B	Lead (mg/kg) 6010B	Lead (STLC) (mg/L) WET / 6010B	Mercury (mg/kg) 7471A	Molybdenum (mg/kg) 6010B	Nickel (mg/kg) 6010B	Selenium (mg/kg) 6010B	Silver (mg/kg) 6010B	Thallium (mg/kg) 6010B	Vanadium (mg/kg) 6010B	Zinc (mg/kg) 6010B
KB-1	KB-1-5	5.0	9/8/2021	ND<0.33	**2.8**	70	ND<0.22	0.54 J	20	NA	NA	6.6	17	8.3	NA	0.030 J	ND<0.30	13	ND<0.60	ND<0.62	ND<0.35	35	37
	KB-1-15	15.0	9/8/2021	ND<0.33	ND<0.54	21	ND<0.22	0.29 J	6.5	NA	NA	3.3	3.4	0.77 J	NA	0.048 J	ND<0.30	3.2	ND<0.60	ND<0.62	0.71 J	25	12
	KB-1-20	20.0	9/8/2021	ND<0.33	ND<0.54	19	ND<0.22	ND<0.27	4.7	NA	NA	1.9	3.2	1.2	NA	0.027 J	ND<0.30	4.2	ND<0.60	ND<0.62	0.88 J	15	12
KB-2	KB-2-2.5	2.5	9/8/2021	ND<0.33	**3.2**	74	ND<0.22	0.55 J	22	NA	NA	6.6	25	54	2.1	0.027 J	ND<0.30	13	ND<0.60	ND<0.62	0.74 J	35	41
	KB-2-5	5.0	9/8/2021	ND<0.33	**1.9**	63	ND<0.22	0.48 J	20	NA	NA	6.2	16	8.4	NA	0.044 J	ND<0.30	12	ND<0.60	ND<0.62	0.62 J	35	34
	KB-2-25	25.0	9/8/2021	ND<0.33	ND<0.54	36	ND<0.22	0.34 J	13	NA	NA	5.7	1.7	1.2	NA	0.067 J	1.2	5.9	ND<0.60	ND<0.62	0.79 J	20	16
KB-3	KB-3-5	5.0	9/9/2021	ND<0.33	ND<0.54	110	ND<0.22	0.61 J	160	0.21 J	0.011 J	6.7	13	3.2	NA	0.017 J	ND<0.30	15	ND<0.60	ND<0.62	ND<0.35	36	34
	KB-3-10	10.0	9/9/2021	ND<0.33	ND<0.54	47	ND<0.22	0.52 J	19	NA	NA	5.0	13	2.4	NA	0.11	ND<0.30	11	ND<0.60	ND<0.62	0.55 J	30	28
	KB-3-20	20.0	9/9/2021	ND<0.33	ND<0.54	30	ND<0.22	0.33 J	9.6	NA	NA	3.5	4.3	1.0	NA	0.048 J	0.39 J	4.3	ND<0.60	ND<0.62	ND<0.35	20	17
KB-4	KB-4-2.5	2.5	9/9/2021	ND<0.33	**1.9**	90	ND<0.22	0.63 J	21	NA	NA	8.9	15	6.6	NA	0.069 J	ND<0.30	15	ND<0.60	ND<0.62	ND<0.35	37	56
	KB-4-5	5.0	9/9/2021	ND<0.33	**2.8**	68	ND<0.22	0.62 J	20	NA	NA	7.4	15	5.5	NA	0.048 J	ND<0.30	14	ND<0.60	ND<0.62	ND<0.35	34	34
	KB-4-10	10.0	9/9/2021	ND<0.33	ND<0.54	30	ND<0.22	0.37 J	7.9	NA	NA	4.7	5.5	1.4	NA	0.047 J	ND<0.30	5.4	ND<0.60	ND<0.62	ND<0.35	25	17
DTSC-SL – Residential				NV	0.11	NV	16	71	NV	NA	NA	NV	NV	80	NA	1	NV	820	NV	NV	NV	NV	NV
DTSC-SL – Commercial/Industrial				NV	0.36	NV	230	780	NV	NA	NA	NV	NV	320	NA	4.4	NV	11,000	NV	NV	NV	NV	NV
US EPA RSL – Residential				31	0.7	15,000	160	71*	120,000**	NA	NA	23	3,100	400	NA	11	390	1,500***	390	390	0.78***	390	23,000
US EPA RSL – Industrial				470	3.0	220,000	2,300	980*	1,800,000**	NA	NA	350	47,000	800	NA	46	5,800	22,000***	5,800	5,800	12	5,800	350,000
TTLC (mg/kg)				500	500	10,000	75	100	2,500	NA	NA	8,000	2,500	1,000	NA	20	3,500	2,000	100	500	700	2,400	5,000
STLC (mg/L)				15	5.0	100	0.75	1.0	5.0	5.0	NA	80	25	5.0	5.0	0.2	350	20	1.0	5.0	7.0	24	250
TCLP Value (mg/L)				NV	5.0	100	NV	1.0	5.0	NA	5.0	NV	NV	5.0	NA	0.2	NV	NV	1.0	5.0	NV	NV	NV
			10 times STLC	150	50	1,000	7.5	10	50	NA	NA	800	250	50	NA	2.0	3,500	200	10	50	70	240	2,500
			20 times TCLP	NV	100	2,000	NV	20	100	NA	NA	NV	NV	100	NA	4.0	NV	NV	20	100	NV	NV	NV

Notes:

mg/kg	Milligrams per kilogram.
bgs	Below ground surface.
6010B / 7471A	United States Environmental Protection Agency (US EPA) analytical method number.
WET	California Code of Regulations Title 22 Waste Extraction Test.
TCLP	Federal Toxicity Characteristic Leaching Procedure.
ND<0.33	Not present at a concentration at or above the indicated laboratory method detection limit that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
NA	Sample not analyzed for analyte (if indicated as a sample's analytical result) or item is not applicable to result (if shown beneath analytical results).
DTSC-SL	Modified soil screening level from California Environmental Protection Agency Department of Toxic Substances Control (DTSC) Office of Human and Ecological Risk (HERO) *Human Health Risk Assessment (HHRA) Note Number 3, DTSC-modified Screening Levels (DTSC-SLs)* . Release date: June 2020.
RSL	US EPA Regional Screening Level for soil, May 2021.
NV	Analyte has no published value.
*	Value is for cadmium in diet.
**	Value is for trivalent chromium.
***	Value is for soluble salts.
TTLC	California Code of Regulations Title 22 Total Threshold Limit Concentration.
STLC	California Code of Regulations Title 22 Soluble Threshold Limit Concentration.
mg/L	Milligrams per liter.
2.8	Result shown in bold font is higher than analyte's Commercial/Industrial DTSC-SL for soil.
	Result with highlighted background is greater than 10 times STLC and/or 20 times TCLP.

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TABLE 4
GROUNDWATER ANALYTICAL RESULTS - TPH AND VOCs
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

			TPH			VOCs								
Bore	Sample	Date Sampled	TPH-g (mg/L) 8015B(M)	TPH-d (mg/L) 8015B	TPH-mo (mg/L) 8015B	Benzene (µg/L) 8260B	Chloroform (µg/L) 8260B	Chloromethane (µg/L) 8260B	Ethylbenzene (µg/L) 8260B	PCE (µg/L) 8260B	Toluene (µg/L) 8260B	m,p-Xylenes (µg/L) 8260B	o-Xylenes (µg/L) 8260B	Other VOCs (µg/L) 8260B
KB-1	KB-1	9/10/2021	0.022 J	ND<0.20	ND<0.20	ND<0.11	ND<0.38	0.30 J	ND<0.11	2.4	ND<0.13	ND<0.23	ND<0.087	ND<0.051 - ND<4.7
KB-2	KB-2	9/10/2021	0.029 J	ND<0.20	ND<0.20	ND<0.11	ND<0.38	0.32 J	ND<0.11	0.52	ND<0.13	ND<0.23	ND<0.087	ND<0.051 - ND<4.7
KB-3	KB-3	9/10/2021	0.021 J	ND<0.20	ND<0.20	ND<0.11	ND<0.38	ND<0.23	ND<0.11	ND<0.25	ND<0.13	ND<0.23	ND<0.087	ND<0.051 - ND<4.7
KB-4	KB-4	9/10/2021	0.021 J	ND<0.20	ND<0.20	ND<0.11	0.75	ND<0.23	ND<0.11	0.69	ND<0.13	ND<0.23	ND<0.087	ND<0.051 - ND<4.7
B-1	B-1	9/13/2021	0.022 J	ND<0.20	ND<0.20	ND<0.11	ND<0.38	ND<0.23	ND<0.11	0.69	ND<0.13	ND<0.23	ND<0.087	ND<0.051 - ND<4.7
California MCL			NV	NV	NV	1.0	80*	NV	300	5.0	150	1,750		Vary or NV
US EPA MCL			NV	NV	NV	5.0	80*	NV	700	5.0	1,000	1,750		Vary or NV

Notes:

TPH	Total petroleum hydrocarbons.
VOCs	Volatile organic compounds.
TPH-g	Gasoline-range TPH (carbon range C_6 through C_{12}).
TPH-d	Diesel-range TPH (carbon range C_{13} through C_{22}).
TPH-mo	Motor oil-range TPH (carbon range C_{23} through C_{40}).
mg/L	Milligrams per liter.
µg/L	Micrograms per liter.
8015B/8015B(M)/8260B	United States Environmental Protection Agency (US EPA) analytical method number.
ND<0.20	Not present at a concentration at or above the indicated laboratory method detection limit that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
California MCL	California Maximum Contaminant Level (updated October 2018).
NV	Analyte has no published value.
US EPA MCL	Federal Maximum Contaminant Level (from US EPA May 2021 RSLs table).
*	MCL is for total trihalomethanes, which include chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

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TABLE 5
GROUNDWATER ANALYTICAL RESULTS - DISSOLVED METALS
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

Bore	Sample	Date Sampled	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Selenium (mg/L)	Silver (mg/L)	Thallium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
							6010B					7470A				6010B			
KB-1	KB-1	9/10/2021	ND<0.0045	ND<0.0077	0.044	ND<0.00031	ND<0.00085	0.0036	ND<0.0019	0.0086	ND<0.0040	ND<0.00012	0.023	ND<0.0020	ND<0.0085	ND<0.0024	**0.029**	0.0033	ND<0.0077
KB-2	KB-2	9/10/2021	ND<0.0045	ND<0.0077	0.043	ND<0.00031	ND<0.00085	0.0030 J	ND<0.0019	0.0076	ND<0.0040	ND<0.00012	0.016	ND<0.0020	ND<0.0085	ND<0.0024	**0.028**	0.0033	ND<0.0077
KB-3	KB-3	9/10/2021	ND<0.0045	ND<0.0077	0.053	ND<0.00031	ND<0.00085	0.0028 J	ND<0.0019	0.0074	ND<0.0040	ND<0.00012	0.014	ND<0.0020	ND<0.0085	ND<0.0024	**0.024**	0.0040	ND<0.0077
KB-4	KB-4	9/10/2021	ND<0.0045	ND<0.0077	0.042	ND<0.00031	ND<0.00085	0.0020 J	ND<0.0019	0.0074	ND<0.0040	ND<0.00012	0.017	ND<0.0020	ND<0.0085	ND<0.0024	**0.026**	0.0035	ND<0.0077
B-1	B-1	9/13/2021	ND<0.0045	ND<0.0077	0.040	ND<0.00031	ND<0.00085	0.0039	ND<0.0019	0.0071	ND<0.0040	ND<0.00012	0.0083	ND<0.0020	ND<0.0085	ND<0.0024	**0.025**	0.0035	ND<0.0077
California MCL			0.006	0.010	1.0	0.004	0.005	0.05	NV	1.3	0.015	0.002	NV	0.1	0.05	NV	0.002	NV	NV
US EPA MCL			0.006	0.010	2.0	0.004	0.005	0.10	NV	1.3	0.015	0.002	NV	NV	0.05	NV	0.002	NV	NV

Notes:

mg/L	Micrograms per liter.
ND<0.0045	Not present at a concentration at or above the indicated laboratory method detection limit that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
6010B / 7470A	United States Environmental Protection Agency (USEPA) analytical method number.
California MCL	California Maximum Contaminant Level (updated October 2018).
NV	Analyte has no published value.
US EPA MCL	Federal Maximum Contaminant Level (from US EPA May 2021 RSLs table).
0.029	Result shown in bold font is higher than analyte's MCL for drinking water.

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TABLE 6
SOIL VAPOR ANALYTICAL RESULTS
Proposed Costco Gasoline Station
13431 and 13455 Washington Boulevard
Culver City, California

Vapor Probe	Sample	Depth (feet bgs)	Date Sampled	Helium (leak check tracer)	VOCs																				
				µg/m³	Acetone	Benzene	2-Butanone (MEK)	Carbon disulfide	Chloroform	Chloro-methane	cis-1,2-Dichloroethene	Dichloro-difluoromethane (Freon 12)	Ethyl-benzene	4-Ethyltoluene	4-Methyl-2-pentanone (MIBK)	Methylene chloride	PCE	Toluene	Trichlorofluoro-methane	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	Vinyl Acetate	Vinyl Chloride	m,p-Xylenes	o-Xylene	Other VOCs
					µg/m³																				
					8260B																				
KVP-1	KVP-1-5	5.0	9/13/2021	ND<300,000	69.8	**25.8**	16.0	54.8	ND<1.18	1.77 J	14.6	3.59 J	6.22	56.1	ND<1.26	6.83	9.33	19.0	ND<1.10	113	29.8	24.1	2.44 J	36.7	19.7	ND<0.673 - ND<3.61
	KVP-1-15	15.0	9/13/2021	ND<290,000	60.9	ND<1.58	57.8	20.6	ND<1.88	ND<1.15	ND<1.75	ND<2.27	ND<1.82	ND<1.75	ND<2.00	110	**463**	8.82	54.3	5.38 J	ND<1.52	8.67 J	ND<1.21	7.13 J	4.22 J	ND<1.07 - ND<5.74
KVP-2	KVP-2-5	5.0	9/13/2021	ND<300,000	135	**29.5**	26.3	52.3	ND<5.19	ND<3.19	ND<4.82	ND<6.28	ND<5.03	25.2	11.7 J	159	ND<7.24	36.4	ND<4.82	44.2	ND<4.20	19.8 J	ND<3.35	23.7 J	19.0	ND<2.96 - ND<15.9
	KVP-2-15	15.0	9/13/2021	ND<300,000	42.8	2.40 J	56.8	35.1	3.51 J	ND<0.649	ND<0.982	ND<1.28	ND<1.02	ND<0.987	ND<1.13	92.9	**289**	5.28	38.6	ND<0.819	ND<0.855	6.80	ND<0.682	2.38 J	ND<0.849	ND<0.602 - ND<3.23
KVP-3	KVP-3-5	5.0	9/13/2021	ND<300,000	79.1	**17.4**	26.1	51.2	3.77 J	ND<0.637	ND<0.965	ND<1.26	4.01	ND<0.970	6.61 J	149	14.6	49.5	ND<0.965	4.87	ND<0.840	32.0	ND<0.670	10.1	4.30	ND<0.592 - ND<3.17
	KVP-3-15	15.0	9/13/2021	ND<340,000	54.6	4.89	87.3	35.7	5.45	ND<0.683	ND<1.03	ND<1.35	3.91	17.9	ND<1.18	13.3	**189**	34.0	38.9	34.6	7.61	10.7	ND<0.718	79.4	30.9	ND<0.634 - ND<3.40
KVP-4	KVP-4-5*	5.0	9/13/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	KVP-4-15	15.0	9/13/2021	ND<290,000	47.7	1.78 J	19.4	9.37	3.31 J	1.37 J	ND<0.999	3.87 J	ND<1.04	ND<1.00	ND<1.15	352	**88.7**	7.54	26.5	ND<0.834	ND<0.870	7.66	ND<0.694	2.72 J	ND<0.864	ND<0.613 - ND<3.28
KVP-5	KVP-5-5	5.0	9/13/2021	ND<300,000	26.4	2.35 J	10.3	16.2	9.61	ND<0.698	ND<1.06	ND<1.38	ND<1.10	ND<1.06	ND<1.21	64.0	22.6	12.8	4.34 J	3.26 J	ND<0.920	3.82 J	ND<0.734	4.63 J	2.72 J	ND<0.648 - ND<3.47
	KVP-5-15	15.0	9/13/2021	ND<440,000	31.5	ND<0.958	14.9	5.96	ND<1.14	ND<0.698	ND<1.06	ND<1.38	ND<1.10	ND<1.06	ND<1.21	6.71	11.2	ND<1.08	40.7	ND<0.882	ND<0.920	26.2	ND<0.734	ND<2.03	ND<0.914	ND<0.648 - ND<3.47
DTSC-SL – Residential (AF = 0.03)				--	NV	3.2	NV	NV	NV	NV	277	NV	NV	NV	NV	33	15	10,333	43,333	NV	NV	NV	0.32	NV	NV	Vary or NV
DTSC-SL – Commercial/Industrial (AF = 0.03)				--	NV	14	NV	NV	NV	NV	1,167	NV	NV	NV	NV	400	67	43,333	176,667	NV	NV	NV	5.3	NV	NV	Vary or NV
RSL - Residential (AF = 0.03)				--	1,066,667	12	173,333	24,333	4.0	3,133	NV	3,333	37	NV	103,333	3,333	367	173,333	NV	2,100	2,100	7,000	5.7	3,333	3,333	Vary or NV
RSL - Industrial (AF = 0.03)				--	4,666,667	53	733,333	103,333	18	13,000	NV	14,667	163	NV	433,333	40,000	1,567	733,333	NV	8,667	8,667	29,333	93	14,667	14,667	Vary or NV
DTSC-SL – Residential (AF = 0.001)				--	NV	97	NV	NV	NV	NV	8,300	NV	NV	NV	NV	1,000	460	310,000	1,300,000	NV	NV	NV	9.5	NV	NV	Vary or NV
DTSC-SL – Commercial/Industrial (AF = 0.001)				--	NV	420	NV	NV	NV	NV	35,000	NV	NV	NV	NV	12,000	2,000	1,300,000	5,300,000	NV	NV	NV	160	NV	NV	Vary or NV
RSL - Residential (AF = 0.001)				--	32,000,000	360	5,200,000	730,000	120	94,000	NV	100,000	1,100	NV	3,100,000	100,000	11,000	5,200,000	NV	63,000	63,000	210,000	170	100,000	100,000	Vary or NV
RSL - Industrial (AF = 0.001)				--	140,000,000	1,600	22,000,000	3,100,000	530	390,000	NV	440,000	4,900	NV	13,000,000	1,200,000	47,000	22,000,000	NV	260,000	260,000	880,000	2,800	440,000	440,000	Vary or NV

Notes:

VOCs	Volatile organic compounds.
MEK	Methyl ethyl ketone.
MIBK	Methyl isobutyl ketone.
PCE	Tetrachloroethylene.
µg/m³	micrograms per cubic meter.
bgs	Below ground surface.
ASTM D1946	ASTM International (ASTM) analytical method number.
8260B	United States Environmental Protection Agency (US EPA) analytical method number.
ND<10	Not present at a concentration at or above the indicated laboratory method detection limit that follows the less-than ("<") symbol.
J	Laboratory qualifier indicating result is between the MDL and practical quantitation limit and therefore is an estimated value.
*	Sample KVP-4-5 was lost during laboratory analysis.
DTSC-SL	Soil vapor screening level based on modified screening level for ambient air provided in California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO) *Human Health Risk Assessment (HHRA) Note, HERO HHRA Note Number 3, DTSC-modified Screening Levels (DTSC-SLs)* , June 2020.
AF	Soil vapor to indoor air attenuation factor recommended by the DTSC and US EPA.
NV	Analyte has no published value.
RSL	Soil vapor screening level based on US EPA Regional Screening Level for air, May 2021.
25.8	Result shown in bold font is higher than analyte's screening value based on analyte's Commercial/Industrial DTSC-SL and/or US EPA Industrial RSL.

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ATTACHMENT A
BORE LOGS

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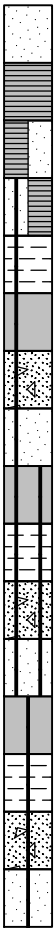
SAMPLE/SAMPLER TYPE GRAPHICS

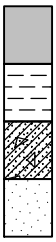
- Direct Push
- GEOPROBE SAMPLER
- GRAB SAMPLE

WELL MATERIAL GRAPHICS



- SAND
- SOIL VAPOR PROBE
- SOIL VAPOR PROBE IN SAND
- SOIL VAPOR PROBE AND TUBING IN SAND
- SOIL VAPOR TUBING IN BENTONITE CHIPS
- SOIL VAPOR TUBING IN BENTONITE
- SOIL VAPOR TUBING IN CEMENT GROUT
- SOIL VAPOR TUBING IN SAND
- SOIL VAPOR TUBING IN BENTONITE
- SOIL VAPOR TUBING IN BENTONITE CHIPS
- SOIL VAPOR TUBING IN CEMENT GROUT
- SOIL VAPOR TUBING IN SAND
- SOIL VAPOR TUBING IN BENTONITE
- SOIL VAPOR TUBING IN BENTONITE CHIPS
- SOIL VAPOR TUBING IN CEMENT-GROUT
- SOIL VAPOR TUBING IN SAND

WELL BACKFILL MATERIAL GRAPHICS

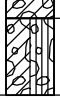


- BENTONITE
- BENTONITE CHIPS
- CEMENT GROUT
- SAND

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					**GC-GM**	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)				**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)				**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
					CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
					OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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PROJECT NO.: 20201678.001A

DRAWN BY:

CHECKED BY:

DATE:

GRAPHICS KEY

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

B-1

gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENV-LEG 1 (GRAPHICS KEY) WITH USCS]
PROJECT NUMBER: 20201678.001A
OFFICE FILTER: LAGUNA HILLS
PLOTTED: 10/13/2021 12:00 PM BY: LDandridge

Date Begin - End:	9/09/2021	**Drilling Company:**	Cascade	**BORE KB-1 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION

Surface Condition: Asphalt Concrete

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							Asphalt Concrete (approximately 7 in. to 8 in. thick)
	Hand Auger						**Silty SAND (SM)**: fine-grained, few coarse-grained, brown, moist, trace to few fine and coarse gravel
			KB-1-2.5		0.8		**Sandy CLAY (CL)**: fine-grained, few coarse-grained, brown, moist, low plasticity
5			KB-1-5	100%	4.2		**Silty SAND (SM)**: fine-grained, trace coarse-grained, dark brown, moist, trace to few fine and coarse gravel
							Sandy CLAY (CL): fine-grained, trace coarse-grained, dark brown, moist, low plasticity
							Clayey SAND (SC): fine-grained, dark brown, moist, low plasticity
			KB-1-10		0.3		**Silty SAND (SM)**: fine-grained, yellowish brown, moist
10				80%			**Poorly Graded SAND with Gravel (SP)**: fine-grained, little medium- to coarse-grained, yellowish brown, moist, few to little fine and coarse gravel
	Direct Push		KB-1-15		1.0		**Well Graded SAND (SW)**: fine- to coarse-grained, light brown, moist, few to little fine and coarse gravel
15				80%			
▼			KB-1-20		1.4		
20				100%			**CLAY (CL)**: yellowish brown, moist to wet, low plasticity
							Clayey SILT (CL-ML): yellowish brown, wet, low plasticity
							Well Graded SAND (SW): fine- to coarse-grained, light brown, wet
							CLAY (CL): yellowish brown, moist to wet, iron oxide staining
							Sandy CLAY (CL): fine-grained, olive brown, moist to wet, micaceous, low plasticity
25			KB-1-25		0.1		**CLAY (CL)**: olive brown, moist, high plasticity
30							

The exploration was terminated at 25 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 19.6 feet below ground surface after drilling.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was backfilled wiht Portland cement mixed with approximately 5-percent bentonite.

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

BORE KB-1 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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PAGE: 1 of 1

gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20201678.001A
OFFICE FILTER: LAGUNA HILLS
PLOTTED: 10/06/2021 04:38 PM BY: LDandridge

Date Begin - End:	9/09/2021	**Drilling Company:**	Cascade	**BORE KB-2 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt Concrete Lithologic Description
							Asphalt Concrete (approximately 5 in. to 6 in. thick)
	Hand Auger		KB-2-2.5		2.0		**Sandy CLAY (CL)**: fine-grained, few coarse-grained, dark brown, moist
							Sandy CLAY with Gravel (CL): reddish brown, fine and coarse gravel
5			KB-2-5	100%	2.4		**Silty SAND (SM)**: fine- to coarse-grained, dark brown, moist, little fine and coarse gravel, piece of concrete
							Silty ClayeySAND (SC-SM): fine-grained, little medium- to coarse-grained, dark brown, moist
							CLAY (CL): olive brown, moist, iron oxide staining, low plasticity
			KB-2-10		0.0		
10				100%			**Silty SAND (SM)**: fine-grained, yellowish brown, moist
							Poorly GradedSAND (SP): fine-grained, yellowish brown, moist
	Direct Push		KB-2-15		0.5		**Well Graded SAND with Gravel (SW)**: fine- to coarse-grained, yellowish brown, moist, little fine and coarse gravel
15				100%			cobble
							Gravelly SAND (SW): fine- to coarse-grained, yellowish brown, dry to moist, some fine and coarse gravel
▼ 20			KB-2-20		0.2		
				100%			**CLAY (CL)**: olive brown, moist, soft, high plasticity
							Sandy SILT (ML): fine-grained, olive brown, moist, micaceous
							Sandy CLAY (CL): olive brown, moist to wet, little fine-grained sand, low plasticity
							Silty ClayeySAND (SC-SM): fine- to coarse-grained, yellowish brown, moist
25			KB-2-25		4.4		powdered rock in sampler
30							

The exploration was terminated at 25 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 19.78 feet below ground surface after drilling.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was backfilled wiht Portland cement mixed with approximately 5-percent bentonite.

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

BORE KB-2 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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PAGE: 1 of 1

gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20201678.001A
OFFICE FILTER: LAGUNA HILLS
PLOTTED: 10/06/2021 04:38 PM BY: LDandridge

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade	**BORE KB-3 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt Concrete
							Asphalt Concrete (approximately 7 in. to 8 in. thick)
							Silty SAND with Gravel (SM): fine- to coarse-grained, brown, dry to moist, few to little fine and coarse gravel
	Hand Auger		KB-3-2.5		0.5		**Sandy CLAY (CL)**: little fine- to coarse-grained, dark brown, moist, thin clayey sand interbeds
							CLAY (CL): brown, moist, hard, low plasticity
5			KB-3-5	100%	0.7		**Sandy CLAY (CL)**: fine-grained, olive brown, moist
							Clayey SAND (SC): fine- to coarse-grained, dark brown, moist, low plasticity, few to little fine gravel
							CLAY (CL): olive brown, moist, low plasticity
			KB-3-10		0.7		
10				90%			**Sandy SILT (ML)**: fine-grained, olive brown, moist
							Silty SAND (SM): fine-grained, yellowish brown, moist
	Direct Push						**Poorly Graded SAND (SP)**: fine-grained, few to little medium- to coarse-grained, light brown, moist, trace fine gravel
			KB-3-15		0.7		medium- to coarse-grained
15				100%			**CLAY (CL)**: olive brown, moist, medium plasticity
							Clayey SAND (SC): fine-grained, olive brown, moist to wet, iron oxide staining
							Gravelly SAND (SW): fine- to coarse-grained, light grayish brown, moist, fine and coarse gravel
							Well Graded SAND (SW): fine- to coarse-grained, olive brown, moist, trace to few fine and coarse gravel
			KB-3-20		2.7		little gravel
20 ▼				60%			**Silty SAND (SM)**: fine-grained, olive brown, moist, some clay
							Silty Clayey SAND (SC-SM): fine-grained, brown to olive brown, wet
			KB-3-25		0.1		
25							
30							

The exploration was terminated at 25 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 20.57 feet below ground surface after drilling.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was backfilled wiht Portland cement mixed with approximately 5-percent bentonite.

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

BORE KB-3 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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PAGE: 1 of 1

gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20201678.001A
OFFICE FILTER: LAGUNA HILLS
PLOTTED: 10/06/2021 04:38 PM BY: LDandridge

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade	**BORE KB-4 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt Concrete Lithologic Description
							Asphalt Concrete (approximately 1 foot thick)
							Gravelly Silty SAND (SM): fine- to coarse-grained, dark brown, moist, fine and coarse gravel
	Hand Auger		KB-4-2.5		1.2		**CLAY (CL)**: brown, moist, low plasticity
			KB-4-5	100%	0.5		**Sandy CLAY (CL)**: fine-grained, yellowish brown, moist
5							fine-grained, few medium- to coarse-graiend, brown to dark brown, moist to wet, medium plasticity
							Silty Clayey SAND (SC-SM): fine-grained, yellowish brown, moist
			KB-4-10		4.4		**CLAY (CL)**: olive brown, moist, high plasticity
10				100%			**Sandy SILT (ML)**: fine-grained, yellowish brown, moist
							Silty SAND (SM): fine-grained, yellowish brown, moist
	Direct Push						**Poorly Graded SAND (SP)**: fine-grained, interbedded layers of fine- to coarse-grained, olive brown to yellowish brown, moist fine-grained, olive brown
			KB-4-15		0.0		**Well Graded SAND (SW)**: fine- to coarse-grained, light yellowish brown, moist, few fine gravel
15				100%			**Silty SAND (SM)**: fine-grained, few medium- to coarse-grained, light grayish brown, dry to moist, trace fine gravel
							Poorly Graded SAND (SP): fine-grained, trace medium- to coarse-grained, light grayish brown, moist
▼ 20			KB-4-20	100%	0.0		**Silty SAND (SM)**: fine-grained, yellowish brown, moist
							Well Graded SAND (SW): fine- to coarse-grained, light yellowish brown, moist, little fine and coarse gravel
							CLAY (CL): olive brown, moist, high plasticity
							Clayey SAND (SC): fine-grained, olive brown, wet, iron oxidation
			KB-4-25		0.0		**Silty SAND (SM)**: fine-grained, yellowish brown, wet
25							
30							

The exploration was terminated at 25 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
▼ Groundwater was observed at approximately 19.71 feet below ground surface after drilling.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was backfilled wiht Portland cement mixed with approximately 5-percent bentonite.

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

BORE KB-4 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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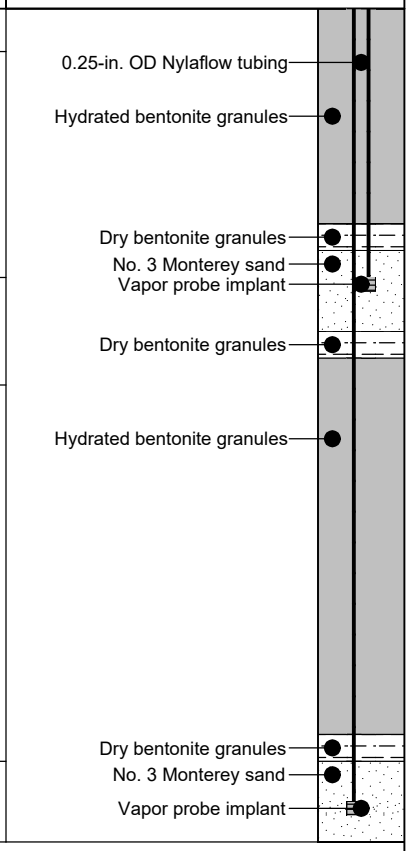
PAGE: 1 of 1

PLOTTED: 10/06/2021 04:38 PM BY: LDandridge
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	9/09/2021	**Drilling Company:**	Cascade	**SOIL VAPOR PROBE KVP-1 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION | SOIL VAPOR PROBE INSTALLATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Surface Condition: Asphalt Concrete Lithologic Description
							Asphalt Concrete (approximately 7 in. to 8 in. thick)
	Hand Auger						Not logged
5				100%			**Sandy CLAY (CL)**: fine-grained, few coarse-grained, brown to dark brown, moist, few fine and coarse gravel
							Silty SAND (SM): fine-grained, yellowish brown, moist, trace to few fine and coarse gravel
10	Direct Push			100%			fine- to coarse-grained, trace fine gravel hard (liner jammed)
15							**Well Graded SAND (SW)**: fine- to coarse-grained, light brown, dry, fine and coarse gravel
20							



The exploration was terminated at 15.5 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-1 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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PAGE: 1 of 1

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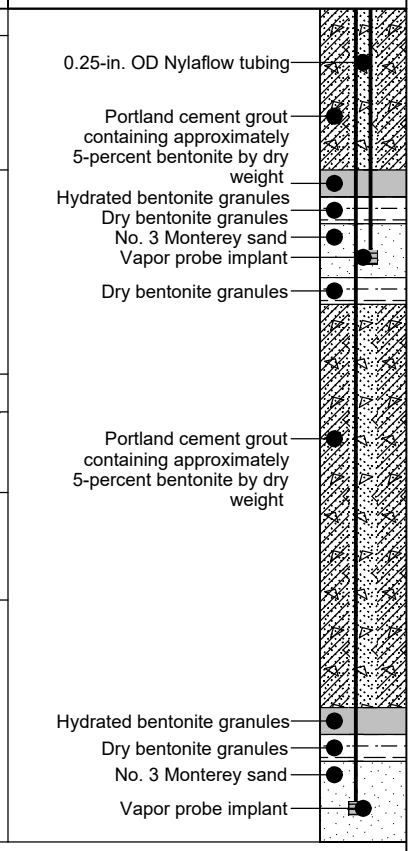
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	9/09/2021	**Drilling Company:**	Cascade	**SOIL VAPOR PROBE KVP-2 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION | SOIL VAPOR PROBE INSTALLATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt Concrete
							Asphalt Concrete (approximately 5 in. to 6 in. thick)
	Hand Auger						**Sandy CLAY (CL)**: fine-grained, few coarse-grained, dark brown, moist
							Clayey SAND with Gravel (SC): fine-grained, few medium- to coarse-grained, dark brown, moist, few fine gravel
5				100%			fine and coarse gravel
							Silty SAND with Clay (SM): fine-grained, little medium- to coarse-grained, dark brown, moist, few gravel
							CLAY (CL): olive brown, moist, iron oxide staining, low plasticity
	Direct Push						**Sandy SILT (ML)**: very fine-grained, olive brown, moist, iron oxidation staining
10				100%			
							Well Graded SAND (SW): fine- to coarse-grained, ligh brown, moist, fine and coarse gravel
15							
20							



The exploration was terminated at 15.5 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-2 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
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PAGE: 1 of 1

PLOTTED: 10/06/2021 04:39 PM BY: LDandridge
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	Sunny	**Bore Diameter:**	3 in. O.D.

SOIL VAPOR PROBE KVP-3-5 LOG

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	FIELD EXPLORATION	SOIL VAPOR PROBE INSTALLATION
							Surface Condition: Asphalt Concrete	
							Lithologic Description	
	Hand Auger						Not logged	0.25-in. OD Nylaflow tubing Portland cement grout containing approximately 5-percent bentonite by dry weight Hydrated bentonite granules Dry bentonite granules No. 3 Monterey sand Vapor probe implant

5

10

15

20

The exploration was terminated at 5.5 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

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PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-3-5 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT

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OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
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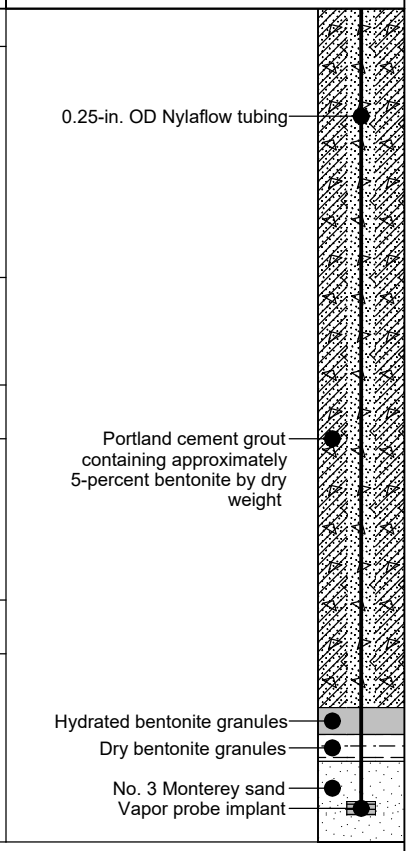
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade	**SOIL VAPOR PROBE KVP-3-15 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt Concrete
0	Hand Auger						Asphalt Concrete (approximately 6 in. to 8 in. thick)
							Not logged
5				100%			**Sandy CLAY (CL)**: fine-grained, brown to dark brown, moist, hard, low plasticity
							Clayey SAND (SC): fine-grained, dark brown, moist
							Sandy CLAY (CL): fine-grained, dark brown, moist, low plasticity
10	Direct Push			100%			
							Sandy SILT (ML): fine-grained, olive brown, moist, micaceous
							Well Graded SAND (SW): fine- to coarse-grained, yellowish brown, moist, trace to few fine gravel
15							
20							

SOIL VAPOR PROBE INSTALLATION



The exploration was terminated at 15.5 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-3-15 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

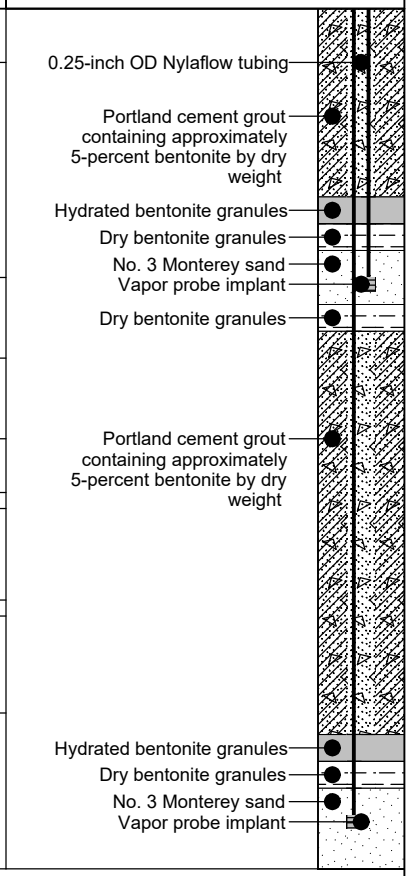
ATTACHMENT
B-9
PAGE: 1 of 1

PLOTTED: 10/06/2021 04:39 PM BY: LDandridge
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2021

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade	**SOIL VAPOR PROBE KVP-4 LOG**
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push	
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column	
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.	

FIELD EXPLORATION | SOIL VAPOR PROBE INSTALLATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt Concrete
	Hand Auger						Asphalt Concrete (approximately 1 foot thick)
							Not logged
5				100%			**CLAY (CL)**: olive brown, moist, hard, low plasticity
							Silty Clayey SAND (SC-SM): fine-grained, trace medium- to coarse-grained, brown to yellowish brown, moist
							CLAY (CL): olive brown, moist, hard, low plasticity
							Clayey SAND (SC): fine-grained, yellowish brown, moist
10	Direct Push			100%			**Silty SAND (SM)**: fine-grained, yellowish brown to grayish brown, moist
							Sandy SILT (ML): fine-grained, yellowish brown, moist
							Well Graded SAND (SW): fine- to coarse-grained, yellowish brown to light grayish brown, moist, some fine and coarse gravel
							Poorly Graded SAND (SP): fine-grained, light grayish brown, dry to moist
15				100%			
20							



The exploration was terminated at 16 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-4 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
B-10
PAGE: 1 of 1

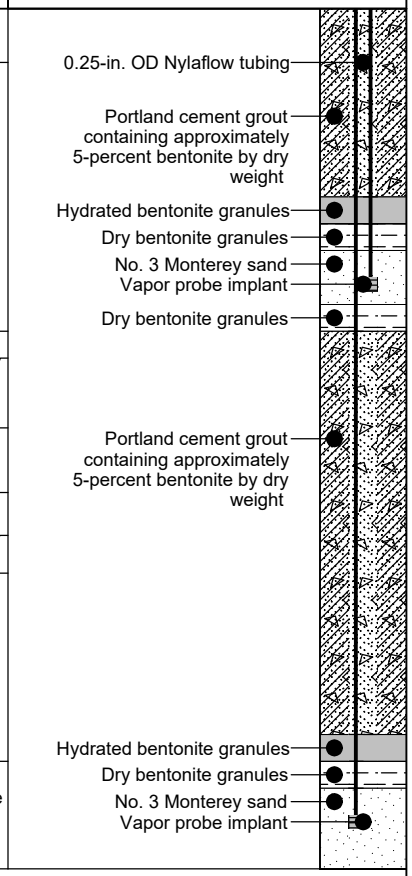
PLOTTED: 10/06/2021 04:39 PM BY: LDandridge
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	9/10/2021	**Drilling Company:**	Cascade
Logged By:	L. Dandridge-Perry	**Drill Crew:**	M. Guzman
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Hand Auger/Direct Push
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	Sunny	**Bore Diameter:**	2.25 in. O.D.

SOIL VAPOR PROBE KVP-5 LOG

FIELD EXPLORATION | SOIL VAPOR PROBE INSTALLATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID (ppmv)	Graphical Log	Lithologic Description
							Surface Condition: Asphalt Concrete
	Hand Auger						Asphalt Concrete (approximately 1 foot thick)
							Silty SAND (SM): fine-grained, brown, moist
							some clay
							cobble, some gravel
5				100%			
							Sandy CLAY (CL): fine-grained, dark olive brown, moist, low plasticity
							Clayey SAND (SC): fine-grained, dark grayish brown, moist
							CLAY (CL): olive brown, moist, hard, low plasticity
							Sandy CLAY (CL): fine-grained, olive brown, moist, iron oxide staining
10	Direct Push			100%			**Silty SAND (SM)**: fine-grained, olive brown, moist
							Poorly Graded SAND interbedded with Well Graded SAND (SP): fine- to coarse-grained, light yellowish brown, moist, few to little fine angular gravel
				100%			**Poorly Graded SAND (SP)**: medium- to coarse-grained, few to little fine-grained, light grayish brown, moist, trace to few gravel, iron oxide staining
15							
20							



The exploration was terminated at 16 feet below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Soils were screened during drilling for total volatile organic vapors using a photo-ionization detector (PID) that was calibrated before use.
ppmv = parts per million by volume.
O.D. = outer diameter.
in. = inches.
% = percent.
Bore was converted to a dual-nested soil vapor probe, which was left in place for potential resampling

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20201678.001A
DRAWN BY:	LDP
CHECKED BY:	HV
DATE:	10/6/2021

SOIL VAPOR PROBE KVP-5 LOG

Proposed Costco Wholesale Gasoline Station
13431 and 13455 Washington Blvd
Culver City, CA 90292

ATTACHMENT
B-11
PAGE: 1 of 1

PLOTTED: 10/06/2021 04:39 PM BY: LDandridge
OFFICE FILTER: LAGUNA HILLS
PROJECT NUMBER: 20201678.001A
gINT FILE: Klf_gint_master_2021
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2021.GLB [KLF_ENVIRONMENTAL LOG]

ATTACHMENT B
ANALYTICAL LABORATORY REPORTS

Copyright 2021 Kleinfelder

September 16, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047044

RE: Costco Culver City, 20201678.001A

Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 09, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,

Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047044

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical comments for EPA 7471A:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047044
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047044-001A	KB-1-2.5	Soil	9/9/2021 8:30:00 AM	9/9/2021	9/16/2021
N047044-002A	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-002B	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-002C	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-002D	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-002E	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-002F	KB-1-5	Soil	9/9/2021 8:55:00 AM	9/9/2021	9/16/2021
N047044-003A	KB-1-10	Soil	9/9/2021 9:08:00 AM	9/9/2021	9/16/2021
N047044-004A	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-004B	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-004C	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-004D	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-004E	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-004F	KB-1-15	Soil	9/9/2021 9:30:00 AM	9/9/2021	9/16/2021
N047044-005A	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-005B	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-005C	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-005D	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-005E	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-005F	KB-1-20	Soil	9/9/2021 9:36:00 AM	9/9/2021	9/16/2021
N047044-006A	KB-1-25	Soil	9/9/2021 9:41:00 AM	9/9/2021	9/16/2021
N047044-007A	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-007B	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-007C	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-007D	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-007E	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-007F	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/9/2021	9/16/2021
N047044-008A	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021
N047044-008B	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047044
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047044-008C	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021
N047044-008D	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021
N047044-008E	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021
N047044-008F	KB-2-5	Soil	9/9/2021 10:43:00 AM	9/9/2021	9/16/2021
N047044-009A	KB-2-10	Soil	9/9/2021 11:18:00 AM	9/9/2021	9/16/2021
N047044-010A	KB-2-15	Soil	9/9/2021 11:24:00 AM	9/9/2021	9/16/2021
N047044-011A	KB-2-20	Soil	9/9/2021 11:35:00 AM	9/9/2021	9/16/2021
N047044-012A	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021
N047044-012B	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021
N047044-012C	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021
N047044-012D	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021
N047044-012E	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021
N047044-012F	KB-2-25	Soil	9/9/2021 11:45:00 AM	9/9/2021	9/16/2021

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-5
Lab Order:	N047044	**Collection Date:**	9/9/2021 8:55:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210910A** QC Batch: **R21VS050**				PrepDate:	**9/10/2021**		Analyst: **AW**
1,1,1,2-Tetrachloroethane	ND	0.39	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1,1-Trichloroethane	ND	0.30	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1,2,2-Tetrachloroethane	ND	0.17	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1,2-Trichloroethane	ND	0.35	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1-Dichloroethane	ND	0.33	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1-Dichloroethene	ND	0.24	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,1-Dichloropropene	ND	0.24	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2,3-Trichlorobenzene	ND	0.15	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2,3-Trichloropropane	ND	0.35	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2,4-Trichlorobenzene	ND	0.14	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2,4-Trimethylbenzene	ND	0.091	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2-Dibromo-3-chloropropane	ND	0.51	7.6		µg/Kg	1	9/10/2021 07:02 PM
1,2-Dibromoethane	ND	0.28	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2-Dichlorobenzene	ND	0.12	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2-Dichloroethane	ND	0.25	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,2-Dichloropropane	ND	0.23	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,3,5-Trimethylbenzene	ND	0.42	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,3-Dichlorobenzene	ND	0.13	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,3-Dichloropropane	ND	0.20	3.8		µg/Kg	1	9/10/2021 07:02 PM
1,4-Dichlorobenzene	ND	0.12	3.8		µg/Kg	1	9/10/2021 07:02 PM
2,2-Dichloropropane	ND	0.29	3.8		µg/Kg	1	9/10/2021 07:02 PM
2-Butanone	8.5	7.1	38	J	µg/Kg	1	9/10/2021 07:02 PM
2-Chlorotoluene	ND	0.13	3.8		µg/Kg	1	9/10/2021 07:02 PM
4-Chlorotoluene	ND	0.10	3.8		µg/Kg	1	9/10/2021 07:02 PM
4-Isopropyltoluene	ND	0.12	3.8		µg/Kg	1	9/10/2021 07:02 PM
Benzene	ND	0.16	3.8		µg/Kg	1	9/10/2021 07:02 PM
Bromobenzene	ND	0.15	3.8		µg/Kg	1	9/10/2021 07:02 PM
Bromodichloromethane	ND	0.31	3.8		µg/Kg	1	9/10/2021 07:02 PM
Bromoform	ND	0.35	3.8		µg/Kg	1	9/10/2021 07:02 PM
Bromomethane	ND	0.68	3.8		µg/Kg	1	9/10/2021 07:02 PM
Carbon tetrachloride	ND	0.49	3.8		µg/Kg	1	9/10/2021 07:02 PM
Chlorobenzene	ND	0.16	3.8		µg/Kg	1	9/10/2021 07:02 PM
Chloroethane	ND	1.3	3.8		µg/Kg	1	9/10/2021 07:02 PM
Chloroform	ND	0.60	3.8		µg/Kg	1	9/10/2021 07:02 PM
Chloromethane	ND	0.35	3.8		µg/Kg	1	9/10/2021 07:02 PM
cis-1,2-Dichloroethene	ND	0.16	3.8		µg/Kg	1	9/10/2021 07:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-5
Lab Order:	N047044	**Collection Date:**	9/9/2021 8:55:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210910A** QC Batch: **R21VS050**					PrepDate: **9/10/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.24	3.8		µg/Kg	1	9/10/2021 07:02 PM
Di-isopropyl ether	ND	0.21	3.8		µg/Kg	1	9/10/2021 07:02 PM
Dibromochloromethane	ND	0.34	3.8		µg/Kg	1	9/10/2021 07:02 PM
Dibromomethane	ND	0.20	3.8		µg/Kg	1	9/10/2021 07:02 PM
Dichlorodifluoromethane	ND	0.58	3.8		µg/Kg	1	9/10/2021 07:02 PM
Ethyl Tert-butyl ether	ND	0.17	3.8		µg/Kg	1	9/10/2021 07:02 PM
Ethylbenzene	ND	0.17	3.8		µg/Kg	1	9/10/2021 07:02 PM
Freon-113	ND	0.41	3.8		µg/Kg	1	9/10/2021 07:02 PM
Hexachlorobutadiene	ND	0.45	3.8		µg/Kg	1	9/10/2021 07:02 PM
Isopropylbenzene	ND	0.14	3.8		µg/Kg	1	9/10/2021 07:02 PM
m,p-Xylene	ND	0.34	7.6		µg/Kg	1	9/10/2021 07:02 PM
Methylene chloride	ND	2.7	3.8		µg/Kg	1	9/10/2021 07:02 PM
MTBE	ND	0.65	3.8		µg/Kg	1	9/10/2021 07:02 PM
n-Butylbenzene	ND	0.15	3.8		µg/Kg	1	9/10/2021 07:02 PM
n-Propylbenzene	ND	0.15	3.8		µg/Kg	1	9/10/2021 07:02 PM
Naphthalene	ND	0.29	3.8		µg/Kg	1	9/10/2021 07:02 PM
o-Xylene	ND	0.13	3.8		µg/Kg	1	9/10/2021 07:02 PM
sec-Butylbenzene	ND	0.13	3.8		µg/Kg	1	9/10/2021 07:02 PM
Styrene	ND	0.89	3.8		µg/Kg	1	9/10/2021 07:02 PM
Tert-amyl methyl ether	ND	0.19	3.8		µg/Kg	1	9/10/2021 07:02 PM
Tert-Butanol	ND	4.9	19		µg/Kg	1	9/10/2021 07:02 PM
tert-Butylbenzene	ND	0.15	3.8		µg/Kg	1	9/10/2021 07:02 PM
Tetrachloroethene	ND	0.38	3.8		µg/Kg	1	9/10/2021 07:02 PM
Toluene	ND	0.22	3.8		µg/Kg	1	9/10/2021 07:02 PM
trans-1,2-Dichloroethene	ND	0.41	3.8		µg/Kg	1	9/10/2021 07:02 PM
Trichloroethene	ND	0.39	3.8		µg/Kg	1	9/10/2021 07:02 PM
Trichlorofluoromethane	ND	0.43	3.8		µg/Kg	1	9/10/2021 07:02 PM
Vinyl chloride	ND	0.29	3.8		µg/Kg	1	9/10/2021 07:02 PM
Surr: 1,2-Dichloroethane-d4	134	0	64-165		%REC	1	9/10/2021 07:02 PM
Surr: 4-Bromofluorobenzene	91.0	0	69-124		%REC	1	9/10/2021 07:02 PM
Surr: Dibromofluoromethane	120	0	72-142		%REC	1	9/10/2021 07:02 PM
Surr: Toluene-d8	92.6	0	75-124		%REC	1	9/10/2021 07:02 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914A** QC Batch: **89280**					PrepDate: **9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-002

Client Sample ID: KB-1-5
Collection Date: 9/9/2021 8:55:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210914A**	QC Batch: **89280**			PrepDate:		**9/14/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	170	99	99		mg/Kg	10	9/14/2021 03:10 PM
T/R Hydrocarbons: C23-C40	1800	99	99		mg/Kg	10	9/14/2021 03:10 PM
Surr: p-Terphenyl	83.8	0	56-133		%REC	10	9/14/2021 03:10 PM
GASOLINE RANGE ORGANICS BY GC/FID							
				EPA 8015B			
RunID: **NV00922-GC12_210910A**	QC Batch: **Q21VS115**			PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	ND	0.19	0.79		mg/Kg	1	9/10/2021 11:26 AM
Surr: Chlorobenzene - d5	85.6	0	54-160		%REC	1	9/10/2021 11:26 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
				EPA 7471A			
RunID: **NV00922-AA2_210910A**	QC Batch: **89235**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.030	0.010	0.10	J	mg/Kg	1	9/10/2021 01:05 PM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210911D**	QC Batch: **89234**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 10:50 PM
Arsenic	2.8	0.54	1.0		mg/Kg	1	9/13/2021 05:07 PM
Barium	70	0.31	1.0		mg/Kg	1	9/11/2021 10:50 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 10:50 PM
Cadmium	0.54	0.27	1.0	J	mg/Kg	1	9/11/2021 10:50 PM
Chromium	20	0.32	1.0		mg/Kg	1	9/13/2021 05:07 PM
Cobalt	6.6	0.29	1.0		mg/Kg	1	9/11/2021 10:50 PM
Copper	17	0.89	2.0		mg/Kg	1	9/11/2021 10:50 PM
Lead	8.3	0.29	1.0		mg/Kg	1	9/11/2021 10:50 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 10:50 PM
Nickel	13	0.34	1.0		mg/Kg	1	9/11/2021 10:50 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 10:50 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 10:50 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/11/2021 10:50 PM
Vanadium	35	0.22	1.0		mg/Kg	1	9/11/2021 10:50 PM
Zinc	37	0.30	1.0		mg/Kg	1	9/11/2021 10:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-15
Lab Order:	N047044	**Collection Date:**	9/9/2021 9:30:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-004		

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210910A** QC Batch: **R21VS050** PrepDate: **9/10/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.53	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1,1-Trichloroethane	ND	0.41	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1,2,2-Tetrachloroethane	ND	0.23	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1,2-Trichloroethane	ND	0.47	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1-Dichloroethane	ND	0.45	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1-Dichloroethene	ND	0.33	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,1-Dichloropropene	ND	0.33	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2,3-Trichlorobenzene	ND	0.21	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2,3-Trichloropropane	ND	0.48	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2,4-Trichlorobenzene	ND	0.19	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2,4-Trimethylbenzene	ND	0.12	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2-Dibromo-3-chloropropane	ND	0.70	10		µg/Kg	1	9/10/2021 07:27 PM
1,2-Dibromoethane	ND	0.38	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2-Dichlorobenzene	ND	0.16	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2-Dichloroethane	ND	0.33	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,2-Dichloropropane	ND	0.31	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,3,5-Trimethylbenzene	ND	0.57	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,3-Dichlorobenzene	ND	0.17	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,3-Dichloropropane	ND	0.27	5.1		µg/Kg	1	9/10/2021 07:27 PM
1,4-Dichlorobenzene	ND	0.17	5.1		µg/Kg	1	9/10/2021 07:27 PM
2,2-Dichloropropane	ND	0.40	5.1		µg/Kg	1	9/10/2021 07:27 PM
2-Butanone	ND	9.6	51		µg/Kg	1	9/10/2021 07:27 PM
2-Chlorotoluene	ND	0.18	5.1		µg/Kg	1	9/10/2021 07:27 PM
4-Chlorotoluene	ND	0.14	5.1		µg/Kg	1	9/10/2021 07:27 PM
4-Isopropyltoluene	ND	0.16	5.1		µg/Kg	1	9/10/2021 07:27 PM
Benzene	ND	0.22	5.1		µg/Kg	1	9/10/2021 07:27 PM
Bromobenzene	ND	0.20	5.1		µg/Kg	1	9/10/2021 07:27 PM
Bromodichloromethane	ND	0.42	5.1		µg/Kg	1	9/10/2021 07:27 PM
Bromoform	ND	0.47	5.1		µg/Kg	1	9/10/2021 07:27 PM
Bromomethane	ND	0.92	5.1		µg/Kg	1	9/10/2021 07:27 PM
Carbon tetrachloride	ND	0.66	5.1		µg/Kg	1	9/10/2021 07:27 PM
Chlorobenzene	ND	0.22	5.1		µg/Kg	1	9/10/2021 07:27 PM
Chloroethane	ND	1.7	5.1		µg/Kg	1	9/10/2021 07:27 PM
Chloroform	ND	0.81	5.1		µg/Kg	1	9/10/2021 07:27 PM
Chloromethane	ND	0.47	5.1		µg/Kg	1	9/10/2021 07:27 PM
cis-1,2-Dichloroethene	ND	0.21	5.1		µg/Kg	1	9/10/2021 07:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-004

Client Sample ID: KB-1-15
Collection Date: 9/9/2021 9:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210910A** QC Batch: **R21VS050**					PrepDate: **9/10/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.33	5.1		µg/Kg	1	9/10/2021 07:27 PM
Di-isopropyl ether	ND	0.29	5.1		µg/Kg	1	9/10/2021 07:27 PM
Dibromochloromethane	ND	0.46	5.1		µg/Kg	1	9/10/2021 07:27 PM
Dibromomethane	ND	0.27	5.1		µg/Kg	1	9/10/2021 07:27 PM
Dichlorodifluoromethane	ND	0.79	5.1		µg/Kg	1	9/10/2021 07:27 PM
Ethyl Tert-butyl ether	ND	0.23	5.1		µg/Kg	1	9/10/2021 07:27 PM
Ethylbenzene	ND	0.23	5.1		µg/Kg	1	9/10/2021 07:27 PM
Freon-113	ND	0.56	5.1		µg/Kg	1	9/10/2021 07:27 PM
Hexachlorobutadiene	ND	0.61	5.1		µg/Kg	1	9/10/2021 07:27 PM
Isopropylbenzene	ND	0.19	5.1		µg/Kg	1	9/10/2021 07:27 PM
m,p-Xylene	ND	0.46	10		µg/Kg	1	9/10/2021 07:27 PM
Methylene chloride	ND	3.7	5.1		µg/Kg	1	9/10/2021 07:27 PM
MTBE	ND	0.88	5.1		µg/Kg	1	9/10/2021 07:27 PM
n-Butylbenzene	ND	0.20	5.1		µg/Kg	1	9/10/2021 07:27 PM
n-Propylbenzene	ND	0.20	5.1		µg/Kg	1	9/10/2021 07:27 PM
Naphthalene	ND	0.39	5.1		µg/Kg	1	9/10/2021 07:27 PM
o-Xylene	ND	0.18	5.1		µg/Kg	1	9/10/2021 07:27 PM
sec-Butylbenzene	ND	0.17	5.1		µg/Kg	1	9/10/2021 07:27 PM
Styrene	ND	1.2	5.1		µg/Kg	1	9/10/2021 07:27 PM
Tert-amyl methyl ether	ND	0.26	5.1		µg/Kg	1	9/10/2021 07:27 PM
Tert-Butanol	ND	6.7	26		µg/Kg	1	9/10/2021 07:27 PM
tert-Butylbenzene	ND	0.21	5.1		µg/Kg	1	9/10/2021 07:27 PM
Tetrachloroethene	ND	0.51	5.1		µg/Kg	1	9/10/2021 07:27 PM
Toluene	ND	0.30	5.1		µg/Kg	1	9/10/2021 07:27 PM
trans-1,2-Dichloroethene	ND	0.56	5.1		µg/Kg	1	9/10/2021 07:27 PM
Trichloroethene	ND	0.52	5.1		µg/Kg	1	9/10/2021 07:27 PM
Trichlorofluoromethane	ND	0.59	5.1		µg/Kg	1	9/10/2021 07:27 PM
Vinyl chloride	ND	0.39	5.1		µg/Kg	1	9/10/2021 07:27 PM
Surr: 1,2-Dichloroethane-d4	133	0	64-165		%REC	1	9/10/2021 07:27 PM
Surr: 4-Bromofluorobenzene	91.0	0	69-124		%REC	1	9/10/2021 07:27 PM
Surr: Dibromofluoromethane	119	0	72-142		%REC	1	9/10/2021 07:27 PM
Surr: Toluene-d8	93.9	0	75-124		%REC	1	9/10/2021 07:27 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210910B** QC Batch: **89240**					PrepDate: **9/10/2021**		Analyst: **MCC**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-004

Client Sample ID: KB-1-15
Collection Date: 9/9/2021 9:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210910B**	QC Batch: **89240**			PrepDate:		**9/10/2021**	Analyst: **MCC**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/10/2021 08:41 PM
T/R Hydrocarbons: C23-C40	ND	10	10		mg/Kg	1	9/10/2021 08:41 PM
Surr: p-Terphenyl	108	0	56-133		%REC	1	9/10/2021 08:41 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210910A**	QC Batch: **Q21VS115**			PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	ND	0.22	0.88		mg/Kg	1	9/10/2021 11:59 AM
Surr: Chlorobenzene - d5	85.8	0	54-160		%REC	1	9/10/2021 11:59 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210910A**	QC Batch: **89235**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.048	0.010	0.10	J	mg/Kg	1	9/10/2021 01:09 PM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210910F**	QC Batch: **89234**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/10/2021 11:23 PM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/10/2021 11:23 PM
Barium	21	0.31	1.0		mg/Kg	1	9/10/2021 11:23 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/10/2021 11:23 PM
Cadmium	0.29	0.27	1.0	J	mg/Kg	1	9/10/2021 11:23 PM
Chromium	6.5	0.32	1.0		mg/Kg	1	9/13/2021 05:51 PM
Cobalt	3.3	0.29	1.0		mg/Kg	1	9/11/2021 10:56 PM
Copper	3.4	0.89	2.0		mg/Kg	1	9/10/2021 11:23 PM
Lead	0.77	0.30	1.0	J	mg/Kg	1	9/10/2021 11:23 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/10/2021 11:23 PM
Nickel	3.2	0.34	1.0		mg/Kg	1	9/11/2021 10:56 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/10/2021 11:23 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/10/2021 11:23 PM
Thallium	0.71	0.35	2.0	J	mg/Kg	1	9/10/2021 11:23 PM
Vanadium	25	0.22	1.0		mg/Kg	1	9/10/2021 11:23 PM
Zinc	12	0.30	1.0		mg/Kg	1	9/11/2021 10:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-20
Lab Order:	N047044	**Collection Date:**	9/9/2021 9:36:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210910A**	QC Batch: **R21VS050**				PrepDate:	**9/10/2021**	Analyst: **AW**
1,1,1,2-Tetrachloroethane	ND	0.48	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1,1-Trichloroethane	ND	0.37	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1,2,2-Tetrachloroethane	ND	0.21	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1,2-Trichloroethane	ND	0.43	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1-Dichloroethane	ND	0.41	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1-Dichloroethene	ND	0.30	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,1-Dichloropropene	ND	0.30	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2,3-Trichlorobenzene	ND	0.19	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2,3-Trichloropropane	ND	0.43	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2,4-Trichlorobenzene	ND	0.18	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2,4-Trimethylbenzene	ND	0.11	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2-Dibromo-3-chloropropane	ND	0.63	9.3		µg/Kg	1	9/10/2021 06:38 PM
1,2-Dibromoethane	ND	0.34	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2-Dichloroethane	ND	0.30	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,2-Dichloropropane	ND	0.28	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,3,5-Trimethylbenzene	ND	0.51	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,3-Dichlorobenzene	ND	0.16	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,3-Dichloropropane	ND	0.24	4.6		µg/Kg	1	9/10/2021 06:38 PM
1,4-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/10/2021 06:38 PM
2,2-Dichloropropane	ND	0.36	4.6		µg/Kg	1	9/10/2021 06:38 PM
2-Butanone	ND	8.7	46		µg/Kg	1	9/10/2021 06:38 PM
2-Chlorotoluene	ND	0.16	4.6		µg/Kg	1	9/10/2021 06:38 PM
4-Chlorotoluene	ND	0.13	4.6		µg/Kg	1	9/10/2021 06:38 PM
4-Isopropyltoluene	ND	0.14	4.6		µg/Kg	1	9/10/2021 06:38 PM
Benzene	ND	0.20	4.6		µg/Kg	1	9/10/2021 06:38 PM
Bromobenzene	ND	0.18	4.6		µg/Kg	1	9/10/2021 06:38 PM
Bromodichloromethane	ND	0.38	4.6		µg/Kg	1	9/10/2021 06:38 PM
Bromoform	ND	0.43	4.6		µg/Kg	1	9/10/2021 06:38 PM
Bromomethane	ND	0.84	4.6		µg/Kg	1	9/10/2021 06:38 PM
Carbon tetrachloride	ND	0.60	4.6		µg/Kg	1	9/10/2021 06:38 PM
Chlorobenzene	ND	0.20	4.6		µg/Kg	1	9/10/2021 06:38 PM
Chloroethane	ND	1.5	4.6		µg/Kg	1	9/10/2021 06:38 PM
Chloroform	ND	0.73	4.6		µg/Kg	1	9/10/2021 06:38 PM
Chloromethane	ND	0.43	4.6		µg/Kg	1	9/10/2021 06:38 PM
cis-1,2-Dichloroethene	ND	0.19	4.6		µg/Kg	1	9/10/2021 06:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-20
Lab Order:	N047044	**Collection Date:**	9/9/2021 9:36:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210910A** QC Batch: **R21VS050**					PrepDate: **9/10/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.30	4.6		µg/Kg	1	9/10/2021 06:38 PM
Di-isopropyl ether	ND	0.26	4.6		µg/Kg	1	9/10/2021 06:38 PM
Dibromochloromethane	ND	0.41	4.6		µg/Kg	1	9/10/2021 06:38 PM
Dibromomethane	ND	0.25	4.6		µg/Kg	1	9/10/2021 06:38 PM
Dichlorodifluoromethane	ND	0.72	4.6		µg/Kg	1	9/10/2021 06:38 PM
Ethyl Tert-butyl ether	ND	0.21	4.6		µg/Kg	1	9/10/2021 06:38 PM
Ethylbenzene	ND	0.21	4.6		µg/Kg	1	9/10/2021 06:38 PM
Freon-113	ND	0.51	4.6		µg/Kg	1	9/10/2021 06:38 PM
Hexachlorobutadiene	ND	0.55	4.6		µg/Kg	1	9/10/2021 06:38 PM
Isopropylbenzene	ND	0.17	4.6		µg/Kg	1	9/10/2021 06:38 PM
m,p-Xylene	ND	0.42	9.3		µg/Kg	1	9/10/2021 06:38 PM
Methylene chloride	ND	3.3	4.6		µg/Kg	1	9/10/2021 06:38 PM
MTBE	ND	0.80	4.6		µg/Kg	1	9/10/2021 06:38 PM
n-Butylbenzene	ND	0.18	4.6		µg/Kg	1	9/10/2021 06:38 PM
n-Propylbenzene	ND	0.18	4.6		µg/Kg	1	9/10/2021 06:38 PM
Naphthalene	ND	0.35	4.6		µg/Kg	1	9/10/2021 06:38 PM
o-Xylene	ND	0.16	4.6		µg/Kg	1	9/10/2021 06:38 PM
sec-Butylbenzene	ND	0.16	4.6		µg/Kg	1	9/10/2021 06:38 PM
Styrene	ND	1.1	4.6		µg/Kg	1	9/10/2021 06:38 PM
Tert-amyl methyl ether	ND	0.24	4.6		µg/Kg	1	9/10/2021 06:38 PM
Tert-Butanol	ND	6.0	23		µg/Kg	1	9/10/2021 06:38 PM
tert-Butylbenzene	ND	0.19	4.6		µg/Kg	1	9/10/2021 06:38 PM
Tetrachloroethene	ND	0.46	4.6		µg/Kg	1	9/10/2021 06:38 PM
Toluene	ND	0.27	4.6		µg/Kg	1	9/10/2021 06:38 PM
trans-1,2-Dichloroethene	ND	0.50	4.6		µg/Kg	1	9/10/2021 06:38 PM
Trichloroethene	ND	0.47	4.6		µg/Kg	1	9/10/2021 06:38 PM
Trichlorofluoromethane	ND	0.53	4.6		µg/Kg	1	9/10/2021 06:38 PM
Vinyl chloride	ND	0.35	4.6		µg/Kg	1	9/10/2021 06:38 PM
Surr: 1,2-Dichloroethane-d4	133	0	64-165		%REC	1	9/10/2021 06:38 PM
Surr: 4-Bromofluorobenzene	90.7	0	69-124		%REC	1	9/10/2021 06:38 PM
Surr: Dibromofluoromethane	121	0	72-142		%REC	1	9/10/2021 06:38 PM
Surr: Toluene-d8	96.2	0	75-124		%REC	1	9/10/2021 06:38 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210910B** QC Batch: **89240**					PrepDate: **9/10/2021**		Analyst: **MCC**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-1-20
Lab Order:	N047044	**Collection Date:**	9/9/2021 9:36:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210910B**	QC Batch: **89240**			PrepDate:		**9/10/2021**	Analyst: **MCC**
T/R Hydrocarbons: C13-C22	ND	9.9	9.9		mg/Kg	1	9/10/2021 09:10 PM
T/R Hydrocarbons: C23-C40	10	9.9	9.9		mg/Kg	1	9/10/2021 09:10 PM
Surr: p-Terphenyl	115	0	56-133		%REC	1	9/10/2021 09:10 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210910A**	QC Batch: **Q21VS115**			PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	ND	0.23	0.95		mg/Kg	1	9/10/2021 12:31 PM
Surr: Chlorobenzene - d5	94.2	0	54-160		%REC	1	9/10/2021 12:31 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210910A**	QC Batch: **89235**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.027	0.0099	0.099	J	mg/Kg	1	9/10/2021 01:19 PM
TOTAL METALS BY ICP							
	EPA 3050B		**EPA 6010B**				
RunID: **NV00922-ICP2_210910F**	QC Batch: **89234**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 01:05 AM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/11/2021 01:05 AM
Barium	19	0.31	1.0		mg/Kg	1	9/11/2021 01:05 AM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 01:05 AM
Cadmium	ND	0.27	1.0		mg/Kg	1	9/11/2021 01:05 AM
Chromium	4.7	0.32	1.0		mg/Kg	1	9/13/2021 05:55 PM
Cobalt	1.9	0.29	1.0		mg/Kg	1	9/11/2021 11:02 PM
Copper	3.2	0.89	2.0		mg/Kg	1	9/11/2021 01:05 AM
Lead	1.2	0.30	1.0		mg/Kg	1	9/11/2021 01:05 AM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 01:05 AM
Nickel	4.2	0.34	1.0		mg/Kg	1	9/11/2021 11:02 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 01:05 AM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 01:05 AM
Thallium	0.88	0.35	2.0	J	mg/Kg	1	9/11/2021 01:05 AM
Vanadium	15	0.22	1.0		mg/Kg	1	9/11/2021 01:05 AM
Zinc	12	0.30	1.0		mg/Kg	1	9/11/2021 11:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-007

Client Sample ID: KB-2-2.5
Collection Date: 9/9/2021 10:27:00 AM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.43	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1,1-Trichloroethane	ND	0.33	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1,2,2-Tetrachloroethane	ND	0.19	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1,2-Trichloroethane	ND	0.38	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1-Dichloroethane	ND	0.36	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1-Dichloroethene	ND	0.27	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,1-Dichloropropene	ND	0.27	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2,3-Trichlorobenzene	ND	0.17	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2,3-Trichloropropane	ND	0.39	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2,4-Trichlorobenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2,4-Trimethylbenzene	ND	0.099	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2-Dibromo-3-chloropropane	ND	0.56	8.3		µg/Kg	1	9/14/2021 01:02 PM
1,2-Dibromoethane	ND	0.30	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2-Dichlorobenzene	ND	0.13	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2-Dichloroethane	ND	0.27	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,2-Dichloropropane	ND	0.25	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,3,5-Trimethylbenzene	ND	0.46	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,3-Dichlorobenzene	ND	0.14	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,3-Dichloropropane	ND	0.22	4.1		µg/Kg	1	9/14/2021 01:02 PM
1,4-Dichlorobenzene	ND	0.13	4.1		µg/Kg	1	9/14/2021 01:02 PM
2,2-Dichloropropane	ND	0.32	4.1		µg/Kg	1	9/14/2021 01:02 PM
2-Butanone	10	7.7	41	J	µg/Kg	1	9/14/2021 01:02 PM
2-Chlorotoluene	ND	0.14	4.1		µg/Kg	1	9/14/2021 01:02 PM
4-Chlorotoluene	ND	0.11	4.1		µg/Kg	1	9/14/2021 01:02 PM
4-Isopropyltoluene	ND	0.13	4.1		µg/Kg	1	9/14/2021 01:02 PM
Benzene	ND	0.18	4.1		µg/Kg	1	9/14/2021 01:02 PM
Bromobenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 01:02 PM
Bromodichloromethane	ND	0.34	4.1		µg/Kg	1	9/14/2021 01:02 PM
Bromoform	ND	0.38	4.1		µg/Kg	1	9/14/2021 01:02 PM
Bromomethane	ND	0.75	4.1		µg/Kg	1	9/14/2021 01:02 PM
Carbon tetrachloride	ND	0.53	4.1		µg/Kg	1	9/14/2021 01:02 PM
Chlorobenzene	ND	0.18	4.1		µg/Kg	1	9/14/2021 01:02 PM
Chloroethane	ND	1.4	4.1		µg/Kg	1	9/14/2021 01:02 PM
Chloroform	ND	0.65	4.1		µg/Kg	1	9/14/2021 01:02 PM
Chloromethane	ND	0.38	4.1		µg/Kg	1	9/14/2021 01:02 PM
cis-1,2-Dichloroethene	ND	0.17	4.1		µg/Kg	1	9/14/2021 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-007

Client Sample ID: KB-2-2.5
Collection Date: 9/9/2021 10:27:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.26	4.1		µg/Kg	1	9/14/2021 01:02 PM
Di-isopropyl ether	ND	0.23	4.1		µg/Kg	1	9/14/2021 01:02 PM
Dibromochloromethane	ND	0.37	4.1		µg/Kg	1	9/14/2021 01:02 PM
Dibromomethane	ND	0.22	4.1		µg/Kg	1	9/14/2021 01:02 PM
Dichlorodifluoromethane	ND	0.64	4.1		µg/Kg	1	9/14/2021 01:02 PM
Ethyl Tert-butyl ether	ND	0.19	4.1		µg/Kg	1	9/14/2021 01:02 PM
Ethylbenzene	ND	0.18	4.1		µg/Kg	1	9/14/2021 01:02 PM
Freon-113	ND	0.45	4.1		µg/Kg	1	9/14/2021 01:02 PM
Hexachlorobutadiene	ND	0.49	4.1		µg/Kg	1	9/14/2021 01:02 PM
Isopropylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 01:02 PM
m,p-Xylene	ND	0.37	8.3		µg/Kg	1	9/14/2021 01:02 PM
Methylene chloride	ND	3.0	4.1		µg/Kg	1	9/14/2021 01:02 PM
MTBE	ND	0.71	4.1		µg/Kg	1	9/14/2021 01:02 PM
n-Butylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 01:02 PM
n-Propylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 01:02 PM
Naphthalene	ND	0.31	4.1		µg/Kg	1	9/14/2021 01:02 PM
o-Xylene	ND	0.14	4.1		µg/Kg	1	9/14/2021 01:02 PM
sec-Butylbenzene	ND	0.14	4.1		µg/Kg	1	9/14/2021 01:02 PM
Styrene	ND	0.98	4.1		µg/Kg	1	9/14/2021 01:02 PM
Tert-amyl methyl ether	ND	0.21	4.1		µg/Kg	1	9/14/2021 01:02 PM
Tert-Butanol	ND	5.4	21		µg/Kg	1	9/14/2021 01:02 PM
tert-Butylbenzene	ND	0.17	4.1		µg/Kg	1	9/14/2021 01:02 PM
Tetrachloroethene	ND	0.41	4.1		µg/Kg	1	9/14/2021 01:02 PM
Toluene	ND	0.24	4.1		µg/Kg	1	9/14/2021 01:02 PM
trans-1,2-Dichloroethene	ND	0.45	4.1		µg/Kg	1	9/14/2021 01:02 PM
Trichloroethene	ND	0.42	4.1		µg/Kg	1	9/14/2021 01:02 PM
Trichlorofluoromethane	ND	0.48	4.1		µg/Kg	1	9/14/2021 01:02 PM
Vinyl chloride	ND	0.31	4.1		µg/Kg	1	9/14/2021 01:02 PM
Surr: 1,2-Dichloroethane-d4	131	0	64-165		%REC	1	9/14/2021 01:02 PM
Surr: 4-Bromofluorobenzene	93.2	0	69-124		%REC	1	9/14/2021 01:02 PM
Surr: Dibromofluoromethane	120	0	72-142		%REC	1	9/14/2021 01:02 PM
Surr: Toluene-d8	94.2	0	75-124		%REC	1	9/14/2021 01:02 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210910B** QC Batch: **89240**					PrepDate: **9/10/2021**		Analyst: **MCC**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-007

Client Sample ID: KB-2-2.5
Collection Date: 9/9/2021 10:27:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210910B**	QC Batch: **89240**			PrepDate:		**9/10/2021**	Analyst: **MCC**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/10/2021 10:40 PM
T/R Hydrocarbons: C23-C40	76	10	10		mg/Kg	1	9/10/2021 10:40 PM
Surr: p-Terphenyl	112	0	56-133		%REC	1	9/10/2021 10:40 PM
GASOLINE RANGE ORGANICS BY GC/FID							
				EPA 8015B			
RunID: **NV00922-GC12_210910A**	QC Batch: **Q21VS115**			PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	ND	0.21	0.86		mg/Kg	1	9/10/2021 01:04 PM
Surr: Chlorobenzene - d5	88.3	0	54-160		%REC	1	9/10/2021 01:04 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
				EPA 7471A			
RunID: **NV00922-AA2_210910A**	QC Batch: **89235**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.027	0.010	0.10	J	mg/Kg	1	9/10/2021 01:22 PM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210910F**	QC Batch: **89234**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 01:10 AM
Arsenic	3.2	0.54	1.0		mg/Kg	1	9/13/2021 05:59 PM
Barium	74	0.31	1.0		mg/Kg	1	9/11/2021 01:10 AM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 01:10 AM
Cadmium	0.55	0.27	1.0	J	mg/Kg	1	9/11/2021 01:10 AM
Chromium	22	0.32	1.0		mg/Kg	1	9/13/2021 05:59 PM
Cobalt	6.6	0.29	1.0		mg/Kg	1	9/13/2021 05:59 PM
Copper	25	0.89	2.0		mg/Kg	1	9/11/2021 01:10 AM
Lead	54	0.30	1.0		mg/Kg	1	9/11/2021 01:10 AM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 01:10 AM
Nickel	13	0.34	1.0		mg/Kg	1	9/13/2021 05:59 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 01:10 AM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 01:10 AM
Thallium	0.74	0.35	2.0	J	mg/Kg	1	9/11/2021 01:10 AM
Vanadium	35	0.22	1.0		mg/Kg	1	9/11/2021 01:10 AM
Zinc	41	0.30	1.0		mg/Kg	1	9/13/2021 05:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-008

Client Sample ID: KB-2-5
Collection Date: 9/9/2021 10:43:00 AM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.46	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1,1-Trichloroethane	ND	0.36	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1,2,2-Tetrachloroethane	ND	0.20	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1,2-Trichloroethane	ND	0.41	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1-Dichloroethane	ND	0.39	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1-Dichloroethene	ND	0.29	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,1-Dichloropropene	ND	0.29	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2,3-Trichlorobenzene	ND	0.18	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2,3-Trichloropropane	ND	0.42	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2,4-Trichlorobenzene	ND	0.17	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2,4-Trimethylbenzene	ND	0.11	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2-Dibromo-3-chloropropane	ND	0.61	9.0		µg/Kg	1	9/14/2021 01:26 PM
1,2-Dibromoethane	ND	0.33	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2-Dichlorobenzene	ND	0.14	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2-Dichloroethane	ND	0.29	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,2-Dichloropropane	ND	0.27	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,3,5-Trimethylbenzene	ND	0.50	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,3-Dichlorobenzene	ND	0.15	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,3-Dichloropropane	ND	0.23	4.5		µg/Kg	1	9/14/2021 01:26 PM
1,4-Dichlorobenzene	ND	0.15	4.5		µg/Kg	1	9/14/2021 01:26 PM
2,2-Dichloropropane	ND	0.35	4.5		µg/Kg	1	9/14/2021 01:26 PM
2-Butanone	ND	8.4	45		µg/Kg	1	9/14/2021 01:26 PM
2-Chlorotoluene	ND	0.15	4.5		µg/Kg	1	9/14/2021 01:26 PM
4-Chlorotoluene	ND	0.12	4.5		µg/Kg	1	9/14/2021 01:26 PM
4-Isopropyltoluene	ND	0.14	4.5		µg/Kg	1	9/14/2021 01:26 PM
Benzene	ND	0.19	4.5		µg/Kg	1	9/14/2021 01:26 PM
Bromobenzene	ND	0.18	4.5		µg/Kg	1	9/14/2021 01:26 PM
Bromodichloromethane	ND	0.37	4.5		µg/Kg	1	9/14/2021 01:26 PM
Bromoform	ND	0.42	4.5		µg/Kg	1	9/14/2021 01:26 PM
Bromomethane	ND	0.81	4.5		µg/Kg	1	9/14/2021 01:26 PM
Carbon tetrachloride	ND	0.58	4.5		µg/Kg	1	9/14/2021 01:26 PM
Chlorobenzene	ND	0.19	4.5		µg/Kg	1	9/14/2021 01:26 PM
Chloroethane	ND	1.5	4.5		µg/Kg	1	9/14/2021 01:26 PM
Chloroform	ND	0.71	4.5		µg/Kg	1	9/14/2021 01:26 PM
Chloromethane	ND	0.41	4.5		µg/Kg	1	9/14/2021 01:26 PM
cis-1,2-Dichloroethene	ND	0.19	4.5		µg/Kg	1	9/14/2021 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-2-5
Lab Order:	N047044	**Collection Date:**	9/9/2021 10:43:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.29	4.5		µg/Kg	1	9/14/2021 01:26 PM
Di-isopropyl ether	ND	0.25	4.5		µg/Kg	1	9/14/2021 01:26 PM
Dibromochloromethane	ND	0.40	4.5		µg/Kg	1	9/14/2021 01:26 PM
Dibromomethane	ND	0.24	4.5		µg/Kg	1	9/14/2021 01:26 PM
Dichlorodifluoromethane	ND	0.69	4.5		µg/Kg	1	9/14/2021 01:26 PM
Ethyl Tert-butyl ether	ND	0.20	4.5		µg/Kg	1	9/14/2021 01:26 PM
Ethylbenzene	ND	0.20	4.5		µg/Kg	1	9/14/2021 01:26 PM
Freon-113	ND	0.49	4.5		µg/Kg	1	9/14/2021 01:26 PM
Hexachlorobutadiene	ND	0.53	4.5		µg/Kg	1	9/14/2021 01:26 PM
Isopropylbenzene	ND	0.17	4.5		µg/Kg	1	9/14/2021 01:26 PM
m,p-Xylene	ND	0.40	9.0		µg/Kg	1	9/14/2021 01:26 PM
Methylene chloride	ND	3.2	4.5		µg/Kg	1	9/14/2021 01:26 PM
MTBE	ND	0.77	4.5		µg/Kg	1	9/14/2021 01:26 PM
n-Butylbenzene	ND	0.17	4.5		µg/Kg	1	9/14/2021 01:26 PM
n-Propylbenzene	ND	0.18	4.5		µg/Kg	1	9/14/2021 01:26 PM
Naphthalene	ND	0.34	4.5		µg/Kg	1	9/14/2021 01:26 PM
o-Xylene	ND	0.16	4.5		µg/Kg	1	9/14/2021 01:26 PM
sec-Butylbenzene	ND	0.15	4.5		µg/Kg	1	9/14/2021 01:26 PM
Styrene	ND	1.1	4.5		µg/Kg	1	9/14/2021 01:26 PM
Tert-amyl methyl ether	ND	0.23	4.5		µg/Kg	1	9/14/2021 01:26 PM
Tert-Butanol	ND	5.8	22		µg/Kg	1	9/14/2021 01:26 PM
tert-Butylbenzene	ND	0.18	4.5		µg/Kg	1	9/14/2021 01:26 PM
Tetrachloroethene	ND	0.45	4.5		µg/Kg	1	9/14/2021 01:26 PM
Toluene	ND	0.26	4.5		µg/Kg	1	9/14/2021 01:26 PM
trans-1,2-Dichloroethene	ND	0.49	4.5		µg/Kg	1	9/14/2021 01:26 PM
Trichloroethene	ND	0.46	4.5		µg/Kg	1	9/14/2021 01:26 PM
Trichlorofluoromethane	ND	0.52	4.5		µg/Kg	1	9/14/2021 01:26 PM
Vinyl chloride	ND	0.34	4.5		µg/Kg	1	9/14/2021 01:26 PM
Surr: 1,2-Dichloroethane-d4	131	0	64-165		%REC	1	9/14/2021 01:26 PM
Surr: 4-Bromofluorobenzene	95.2	0	69-124		%REC	1	9/14/2021 01:26 PM
Surr: Dibromofluoromethane	120	0	72-142		%REC	1	9/14/2021 01:26 PM
Surr: Toluene-d8	94.9	0	75-124		%REC	1	9/14/2021 01:26 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210910B** QC Batch: **89240**					PrepDate: **9/10/2021**		Analyst: **MCC**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-008

Client Sample ID: KB-2-5
Collection Date: 9/9/2021 10:43:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210910B**	QC Batch: **89240**			PrepDate:		**9/10/2021**	Analyst: **MCC**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/10/2021 11:09 PM
T/R Hydrocarbons: C23-C40	110	10	10		mg/Kg	1	9/10/2021 11:09 PM
Surr: p-Terphenyl	108	0	56-133		%REC	1	9/10/2021 11:09 PM
GASOLINE RANGE ORGANICS BY GC/FID							
				EPA 8015B			
RunID: **NV00922-GC12_210910A**	QC Batch: **Q21VS115**			PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	ND	0.22	0.88		mg/Kg	1	9/10/2021 01:37 PM
Surr: Chlorobenzene - d5	85.1	0	54-160		%REC	1	9/10/2021 01:37 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
				EPA 7471A			
RunID: **NV00922-AA2_210910A**	QC Batch: **89235**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.044	0.010	0.10	J	mg/Kg	1	9/10/2021 01:26 PM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210910F**	QC Batch: **89234**			PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 01:16 AM
Arsenic	1.9	0.54	1.0		mg/Kg	1	9/13/2021 06:04 PM
Barium	63	0.31	1.0		mg/Kg	1	9/11/2021 01:16 AM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 01:16 AM
Cadmium	0.48	0.27	1.0	J	mg/Kg	1	9/11/2021 01:16 AM
Chromium	20	0.32	1.0		mg/Kg	1	9/13/2021 06:04 PM
Cobalt	6.2	0.29	1.0		mg/Kg	1	9/13/2021 06:04 PM
Copper	16	0.89	2.0		mg/Kg	1	9/11/2021 01:16 AM
Lead	8.4	0.29	1.0		mg/Kg	1	9/11/2021 01:16 AM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 01:16 AM
Nickel	12	0.34	1.0		mg/Kg	1	9/13/2021 06:04 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 01:16 AM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 01:16 AM
Thallium	0.62	0.35	2.0	J	mg/Kg	1	9/11/2021 01:16 AM
Vanadium	35	0.22	1.0		mg/Kg	1	9/11/2021 01:16 AM
Zinc	34	0.30	1.0		mg/Kg	1	9/13/2021 06:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-2-25
Lab Order:	N047044	**Collection Date:**	9/9/2021 11:45:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-012		

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.45	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1,1-Trichloroethane	ND	0.35	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1,2,2-Tetrachloroethane	ND	0.20	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1,2-Trichloroethane	ND	0.40	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1-Dichloroethane	ND	0.38	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1-Dichloroethene	ND	0.28	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,1-Dichloropropene	ND	0.28	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2,3-Trichlorobenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2,3-Trichloropropane	ND	0.40	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2,4-Trichlorobenzene	ND	0.16	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2,4-Trimethylbenzene	ND	0.10	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2-Dibromo-3-chloropropane	ND	0.59	8.6		µg/Kg	1	9/14/2021 01:51 PM
1,2-Dibromoethane	ND	0.32	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2-Dichlorobenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2-Dichloroethane	ND	0.28	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,2-Dichloropropane	ND	0.26	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,3,5-Trimethylbenzene	ND	0.48	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,3-Dichlorobenzene	ND	0.15	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,3-Dichloropropane	ND	0.22	4.3		µg/Kg	1	9/14/2021 01:51 PM
1,4-Dichlorobenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 01:51 PM
2,2-Dichloropropane	ND	0.33	4.3		µg/Kg	1	9/14/2021 01:51 PM
2-Butanone	ND	8.1	43		µg/Kg	1	9/14/2021 01:51 PM
2-Chlorotoluene	ND	0.15	4.3		µg/Kg	1	9/14/2021 01:51 PM
4-Chlorotoluene	ND	0.12	4.3		µg/Kg	1	9/14/2021 01:51 PM
4-Isopropyltoluene	ND	0.13	4.3		µg/Kg	1	9/14/2021 01:51 PM
Benzene	ND	0.18	4.3		µg/Kg	1	9/14/2021 01:51 PM
Bromobenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 01:51 PM
Bromodichloromethane	ND	0.35	4.3		µg/Kg	1	9/14/2021 01:51 PM
Bromoform	ND	0.40	4.3		µg/Kg	1	9/14/2021 01:51 PM
Bromomethane	ND	0.78	4.3		µg/Kg	1	9/14/2021 01:51 PM
Carbon tetrachloride	ND	0.56	4.3		µg/Kg	1	9/14/2021 01:51 PM
Chlorobenzene	ND	0.19	4.3		µg/Kg	1	9/14/2021 01:51 PM
Chloroethane	ND	1.4	4.3		µg/Kg	1	9/14/2021 01:51 PM
Chloroform	ND	0.68	4.3		µg/Kg	1	9/14/2021 01:51 PM
Chloromethane	ND	0.40	4.3		µg/Kg	1	9/14/2021 01:51 PM
cis-1,2-Dichloroethene	ND	0.18	4.3		µg/Kg	1	9/14/2021 01:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047044
Project: Costco Culver City, 20201678.001A
Lab ID: N047044-012

Client Sample ID: KB-2-25
Collection Date: 9/9/2021 11:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.28	4.3		µg/Kg	1	9/14/2021 01:51 PM
Di-isopropyl ether	ND	0.24	4.3		µg/Kg	1	9/14/2021 01:51 PM
Dibromochloromethane	ND	0.38	4.3		µg/Kg	1	9/14/2021 01:51 PM
Dibromomethane	ND	0.23	4.3		µg/Kg	1	9/14/2021 01:51 PM
Dichlorodifluoromethane	ND	0.67	4.3		µg/Kg	1	9/14/2021 01:51 PM
Ethyl Tert-butyl ether	ND	0.19	4.3		µg/Kg	1	9/14/2021 01:51 PM
Ethylbenzene	ND	0.19	4.3		µg/Kg	1	9/14/2021 01:51 PM
Freon-113	ND	0.47	4.3		µg/Kg	1	9/14/2021 01:51 PM
Hexachlorobutadiene	ND	0.51	4.3		µg/Kg	1	9/14/2021 01:51 PM
Isopropylbenzene	ND	0.16	4.3		µg/Kg	1	9/14/2021 01:51 PM
m,p-Xylene	ND	0.39	8.6		µg/Kg	1	9/14/2021 01:51 PM
Methylene chloride	ND	3.1	4.3		µg/Kg	1	9/14/2021 01:51 PM
MTBE	ND	0.74	4.3		µg/Kg	1	9/14/2021 01:51 PM
n-Butylbenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 01:51 PM
n-Propylbenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 01:51 PM
Naphthalene	ND	0.33	4.3		µg/Kg	1	9/14/2021 01:51 PM
o-Xylene	ND	0.15	4.3		µg/Kg	1	9/14/2021 01:51 PM
sec-Butylbenzene	ND	0.15	4.3		µg/Kg	1	9/14/2021 01:51 PM
Styrene	ND	1.0	4.3		µg/Kg	1	9/14/2021 01:51 PM
Tert-amyl methyl ether	ND	0.22	4.3		µg/Kg	1	9/14/2021 01:51 PM
Tert-Butanol	ND	5.6	22		µg/Kg	1	9/14/2021 01:51 PM
tert-Butylbenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 01:51 PM
Tetrachloroethene	ND	0.43	4.3		µg/Kg	1	9/14/2021 01:51 PM
Toluene	ND	0.25	4.3		µg/Kg	1	9/14/2021 01:51 PM
trans-1,2-Dichloroethene	ND	0.47	4.3		µg/Kg	1	9/14/2021 01:51 PM
Trichloroethene	ND	0.44	4.3		µg/Kg	1	9/14/2021 01:51 PM
Trichlorofluoromethane	ND	0.50	4.3		µg/Kg	1	9/14/2021 01:51 PM
Vinyl chloride	ND	0.33	4.3		µg/Kg	1	9/14/2021 01:51 PM
Surr: 1,2-Dichloroethane-d4	124	0	64-165		%REC	1	9/14/2021 01:51 PM
Surr: 4-Bromofluorobenzene	93.8	0	69-124		%REC	1	9/14/2021 01:51 PM
Surr: Dibromofluoromethane	114	0	72-142		%REC	1	9/14/2021 01:51 PM
Surr: Toluene-d8	97.3	0	75-124		%REC	1	9/14/2021 01:51 PM
HYDROCARBON CHAIN IDENTIFICATION							
		EPA 3550B		**EPA 8015B(M)**			
RunID: **NV00922-GC1_210910B** QC Batch: **89240**					PrepDate: **9/10/2021**		Analyst: **MCC**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-2-25
Lab Order:	N047044	**Collection Date:**	9/9/2021 11:45:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047044-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
EPA 3550B			**EPA 8015B(M)**				
RunID: **NV00922-GC1_210910B** QC Batch: **89240**				PrepDate:		**9/10/2021**	Analyst: **MCC**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/10/2021 10:10 PM
T/R Hydrocarbons: C23-C40	29	10	10		mg/Kg	1	9/10/2021 10:10 PM
Surr: p-Terphenyl	108	0	56-133		%REC	1	9/10/2021 10:10 PM
GASOLINE RANGE ORGANICS BY GC/FID							
EPA 8015B							
RunID: **NV00922-GC12_210910A** QC Batch: **Q21VS115**				PrepDate:		**9/10/2021**	Analyst: **YG**
GRO (C6 - C12)	0.21	0.20	0.81	J	mg/Kg	1	9/10/2021 02:10 PM
Surr: Chlorobenzene - d5	88.0	0	54-160		%REC	1	9/10/2021 02:10 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7471A							
RunID: **NV00922-AA2_210910A** QC Batch: **89235**				PrepDate:		**9/10/2021**	Analyst: **DJ**
Mercury	0.067	0.010	0.10	J	mg/Kg	1	9/10/2021 01:29 PM
TOTAL METALS BY ICP							
EPA 3050B			**EPA 6010B**				
RunID: **NV00922-ICP2_210910F** QC Batch: **89234**				PrepDate:		**9/10/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 01:22 AM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/11/2021 01:22 AM
Barium	36	0.31	1.0		mg/Kg	1	9/11/2021 01:22 AM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 01:22 AM
Cadmium	0.34	0.27	1.0	J	mg/Kg	1	9/11/2021 01:22 AM
Chromium	13	0.32	1.0		mg/Kg	1	9/13/2021 06:08 PM
Cobalt	3.5	0.29	1.0		mg/Kg	1	9/11/2021 11:19 PM
Copper	5.7	0.89	2.0		mg/Kg	1	9/11/2021 01:22 AM
Lead	1.7	0.30	1.0		mg/Kg	1	9/11/2021 01:22 AM
Molybdenum	1.2	0.30	1.0		mg/Kg	1	9/11/2021 11:19 PM
Nickel	5.9	0.34	1.0		mg/Kg	1	9/11/2021 11:19 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 01:22 AM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 01:22 AM
Thallium	0.79	0.35	2.0	J	mg/Kg	1	9/11/2021 01:22 AM
Vanadium	20	0.22	1.0		mg/Kg	1	9/11/2021 01:22 AM
Zinc	16	0.30	1.0		mg/Kg	1	9/11/2021 11:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-89234** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/10/2021** RunNo: **156592**
Client ID: **PBS** Batch ID: **89234** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/10/2021** SeqNo: **4345851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **LCS-89234** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/10/2021** RunNo: **156592**
Client ID: **LCSS** Batch ID: **89234** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/10/2021** SeqNo: **4345852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	25.182	2.0	25.00	0	101	80	120				
Arsenic	24.835	1.0	25.00	0	99.3	80	120				
Barium	25.148	1.0	25.00	0	101	80	120				
Beryllium	25.310	1.0	25.00	0	101	80	120				
Cadmium	25.237	1.0	25.00	0	101	80	120				
Chromium	25.088	1.0	25.00	0	100	80	120				
Cobalt	24.128	1.0	25.00	0	96.5	80	120				
Copper	25.113	2.0	25.00	0	100	80	120				
Lead	25.472	1.0	25.00	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-89234**	SampType: **LCS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156592**
Client ID: **LCSS**	Batch ID: **89234**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/10/2021**	SeqNo: **4345852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	25.062	1.0	25.00	0	100	80	120				
Nickel	25.090	1.0	25.00	0	100	80	120				
Selenium	24.913	1.0	25.00	0	99.7	80	120				
Silver	25.096	1.0	25.00	0	100	80	120				
Thallium	24.834	2.0	25.00	0	99.3	80	120				
Vanadium	25.301	1.0	25.00	0	101	80	120				
Zinc	25.105	1.0	25.00	0	100	80	120				

Sample ID: **N047043-001B-MS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg-dry**	Prep Date: **9/10/2021**	RunNo: **156592**
Client ID: **ZZZZZZ**	Batch ID: **89234**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/10/2021**	SeqNo: **4345856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.358	2.0	24.96	0	45.5	75	125				S
Arsenic	15.189	1.0	24.96	0	60.8	75	125				S
Barium	80.460	1.0	24.96	54.75	103	75	125				
Beryllium	15.445	1.0	24.96	0	61.9	75	125				S
Cadmium	16.472	1.0	24.96	0.3332	64.7	75	125				S
Chromium	33.117	1.0	24.96	14.48	74.7	75	125				S
Cobalt	26.187	1.0	24.96	7.113	76.4	75	125				
Copper	37.476	2.0	24.96	14.39	92.5	75	125				
Lead	22.920	1.0	24.96	5.497	69.8	75	125				S
Molybdenum	18.203	1.0	24.96	0.9319	69.2	75	125				S
Nickel	30.665	1.0	24.96	14.08	66.4	75	125				S
Selenium	14.182	1.0	24.96	0	56.8	75	125				S
Silver	16.502	1.0	24.96	0	66.1	75	125				S
Thallium	15.819	2.0	24.96	0.4608	61.5	75	125				S
Vanadium	53.197	1.0	24.96	29.18	96.2	75	125				
Zinc	60.835	1.0	24.96	45.30	62.2	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N047043-001B-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg-dry** Prep Date: **9/10/2021** RunNo: **156592**
Client ID: **ZZZZZZ** Batch ID: **89234** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/10/2021** SeqNo: **4345857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.543	2.0	24.89	0	50.4	75	125	11.36	9.91	20	S
Arsenic	16.326	1.0	24.89	0	65.6	75	125	15.19	7.22	20	S
Barium	80.371	1.0	24.89	54.75	103	75	125	80.46	0.110	20	
Beryllium	17.156	1.0	24.89	0	68.9	75	125	15.45	10.5	20	S
Cadmium	18.015	1.0	24.89	0.3332	71.0	75	125	16.47	8.94	20	S
Chromium	34.460	1.0	24.89	14.48	80.3	75	125	33.12	3.98	20	
Cobalt	27.193	1.0	24.89	7.113	80.7	75	125	26.19	3.77	20	
Copper	37.051	2.0	24.89	14.39	91.0	75	125	37.48	1.14	20	
Lead	26.712	1.0	24.89	5.497	85.2	75	125	22.92	15.3	20	
Molybdenum	19.476	1.0	24.89	0.9319	74.5	75	125	18.20	6.76	20	S
Nickel	31.825	1.0	24.89	14.08	71.3	75	125	30.66	3.71	20	S
Selenium	15.180	1.0	24.89	0	61.0	75	125	14.18	6.80	20	S
Silver	17.095	1.0	24.89	0	68.7	75	125	16.50	3.53	20	S
Thallium	16.757	2.0	24.89	0.4608	65.5	75	125	15.82	5.76	20	S
Vanadium	56.320	1.0	24.89	29.18	109	75	125	53.20	5.70	20	
Zinc	64.082	1.0	24.89	45.30	75.5	75	125	60.84	5.20	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-89235**	SampType: **MBLK**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156572**
Client ID: **PBS**	Batch ID: **89235**	TestNo: **EPA 7471A**		Analysis Date: **9/10/2021**	SeqNo: **4345092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-89235**	SampType: **LCS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156572**
Client ID: **LCSS**	Batch ID: **89235**	TestNo: **EPA 7471A**		Analysis Date: **9/10/2021**	SeqNo: **4345093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.439	0.10	0.4167	0	105	80	120				

Sample ID: **N047043-002A-MS**	SampType: **MS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156572**
Client ID: **ZZZZZZ**	Batch ID: **89235**	TestNo: **EPA 7471A**		Analysis Date: **9/10/2021**	SeqNo: **4345098**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.516	0.099	0.4105	0	126	75	125				S

Sample ID: **N047043-002A-MSD**	SampType: **MSD**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156572**
Client ID: **ZZZZZZ**	Batch ID: **89235**	TestNo: **EPA 7471A**		Analysis Date: **9/10/2021**	SeqNo: **4345099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.527	0.10	0.4160	0	127	75	125	0.5164	2.11	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_5035C6C12

Sample ID: **Q210910LCS** SampType: **LCS** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **LCSS** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	4.574	1.0	5.000	0	91.5	79	134				
Surr: Chlorobenzene - d5	89.287		100.0		89.3	54	160				

Sample ID: **Q210910LCSD** SampType: **LCSD** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **LCSS02** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	5.333	1.0	5.000	0	107	79	134	4.574	15.3	20	
Surr: Chlorobenzene - d5	92.184		100.0		92.2	54	160		0		

Sample ID: **Q210910MB** SampType: **MBLK** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **PBS** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	ND	1.0									
Surr: Chlorobenzene - d5	95.545		100.0		95.5	54	160				

Sample ID: **N047040-002BMS** SampType: **MS** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **ZZZZZZ** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	5.921	1.0	5.000	2.431	69.8	25	166				
Surr: Chlorobenzene - d5	68.567		100.0		68.6	54	160				

Sample ID: **N047040-002BMSD** SampType: **MSD** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **ZZZZZZ** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	6.220	1.0	5.000	2.431	75.8	25	166	5.921	4.93	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_5035C6C12

Sample ID: **N047040-002BMSD** SampType: **MSD** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156603**
Client ID: **ZZZZZZ** Batch ID: **Q21VS115** TestNo: **EPA 8015B** Analysis Date: **9/10/2021** SeqNo: **4347045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	69.039		100.0		69.0	54	160		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210910-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **LCSS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	40.030	5.0	40.00	0	100	76	125				
1,1,1-Trichloroethane	42.740	5.0	40.00	0	107	76	124				
1,1,2,2-Tetrachloroethane	36.120	5.0	40.00	0	90.3	71	120				
1,1,2-Trichloroethane	38.230	5.0	40.00	0	95.6	71	120				
1,1-Dichloroethane	39.080	5.0	40.00	0	97.7	74	127				
1,1-Dichloroethene	40.920	5.0	40.00	0	102	72	123				
1,1-Dichloropropene	44.810	5.0	40.00	0	112	80	127				
1,2,3-Trichlorobenzene	41.220	5.0	40.00	0	103	76	123				
1,2,3-Trichloropropane	39.860	5.0	40.00	0	99.7	69	119				
1,2,4-Trichlorobenzene	41.980	5.0	40.00	0	105	76	122				
1,2,4-Trimethylbenzene	39.980	5.0	40.00	0	100	80	132				
1,2-Dibromo-3-chloropropane	40.450	10	40.00	0	101	64	130				
1,2-Dibromoethane	39.840	5.0	40.00	0	99.6	73	121				
1,2-Dichlorobenzene	40.980	5.0	40.00	0	102	80	120				
1,2-Dichloroethane	38.590	5.0	40.00	0	96.5	76	121				
1,2-Dichloropropane	38.920	5.0	40.00	0	97.3	76	120				
1,3,5-Trimethylbenzene	39.710	5.0	40.00	0	99.3	80	129				
1,3-Dichlorobenzene	41.710	5.0	40.00	0	104	80	120				
1,3-Dichloropropane	39.110	5.0	40.00	0	97.8	76	120				
1,4-Dichlorobenzene	40.320	5.0	40.00	0	101	80	120				
2,2-Dichloropropane	42.310	5.0	40.00	0	106	68	132				
2-Butanone	423.320	50	400.0	0	106	34	149				
2-Chlorotoluene	43.240	5.0	40.00	0	108	80	122				
4-Chlorotoluene	43.850	5.0	40.00	0	110	79	124				
4-Isopropyltoluene	39.630	5.0	40.00	0	99.1	80	133				
Benzene	41.790	5.0	40.00	0	104	80	120				
Bromobenzene	40.330	5.0	40.00	0	101	80	120				
Bromodichloromethane	38.540	5.0	40.00	0	96.4	76	120				
Bromoform	39.260	5.0	40.00	0	98.2	70	131				
Bromomethane	44.530	5.0	40.00	0	111	62	144				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210910-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **LCSS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	43.600	5.0	40.00	0	109	72	136				
Chlorobenzene	40.510	5.0	40.00	0	101	80	120				
Chloroethane	40.540	5.0	40.00	0	101	64	155				
Chloroform	39.110	5.0	40.00	0	97.8	76	121				
Chloromethane	37.890	5.0	40.00	0	94.7	56	142				
cis-1,2-Dichloroethene	41.120	5.0	40.00	0	103	76	120				
cis-1,3-Dichloropropene	40.160	5.0	40.00	0	100	73	120				
Di-isopropyl ether	39.220	5.0	40.00	0	98.0	68	130				
Dibromochloromethane	40.040	5.0	40.00	0	100	76	123				
Dibromomethane	37.190	5.0	40.00	0	93.0	77	120				
Dichlorodifluoromethane	37.360	5.0	40.00	0	93.4	51	152				
Ethyl Tert-butyl ether	46.670	5.0	40.00	0	117	72	126				
Ethylbenzene	43.760	5.0	40.00	0	109	80	120				
Freon-113	40.610	5.0	40.00	0	102	57	136				
Hexachlorobutadiene	40.710	5.0	40.00	0	102	77	122				
Isopropylbenzene	39.790	5.0	40.00	0	99.5	79	128				
m,p-Xylene	86.720	10	80.00	0	108	69	141				
Methylene chloride	36.780	5.0	40.00	0	92.0	70	124				
MTBE	40.420	5.0	40.00	0	101	69	124				
n-Butylbenzene	39.190	5.0	40.00	0	98.0	80	131				
n-Propylbenzene	42.490	5.0	40.00	0	106	80	127				
Naphthalene	34.150	5.0	40.00	0	85.4	65	127				
o-Xylene	41.440	5.0	40.00	0	104	77	123				
sec-Butylbenzene	39.510	5.0	40.00	0	98.8	80	130				
Styrene	39.820	5.0	40.00	0	99.6	80	124				
Tert-amyl methyl ether	46.480	5.0	40.00	0	116	71	122				
Tert-Butanol	184.700	25	200.0	0	92.4	44	143				
tert-Butylbenzene	40.320	5.0	40.00	0	101	80	125				
Tetrachloroethene	43.590	5.0	40.00	0	109	80	122				
Toluene	43.110	5.0	40.00	0	108	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210910-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **LCSS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	40.220	5.0	40.00	0	101	71	125				
Trichloroethene	41.470	5.0	40.00	0	104	76	121				
Trichlorofluoromethane	39.780	5.0	40.00	0	99.4	66	163				
Vinyl chloride	39.750	5.0	40.00	0	99.4	65	141				
Surr: 1,2-Dichloroethane-d4	48.120		50.00		96.2	64	165				
Surr: 4-Bromofluorobenzene	50.140		50.00		100	69	124				
Surr: Dibromofluoromethane	48.520		50.00		97.0	72	142				
Surr: Toluene-d8	48.400		50.00		96.8	75	124				

Sample ID: **N046979-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	37.050	5.0	40.00	0	92.6	62	139				
1,1,1-Trichloroethane	31.050	5.0	40.00	0	77.6	56	154				
1,1,2,2-Tetrachloroethane	39.680	5.0	40.00	0	99.2	42	175				
1,1,2-Trichloroethane	37.600	5.0	40.00	0	94.0	55	166				
1,1-Dichloroethane	30.560	5.0	40.00	0	76.4	46	163				
1,1-Dichloroethene	29.780	5.0	40.00	0	74.4	49	157				
1,1-Dichloropropene	35.620	5.0	40.00	0	89.0	59	155				
1,2,3-Trichlorobenzene	45.550	5.0	40.00	0	114	38	154				
1,2,3-Trichloropropane	41.860	5.0	40.00	0	105	49	174				
1,2,4-Trichlorobenzene	44.160	5.0	40.00	0	110	38	146				
1,2,4-Trimethylbenzene	36.150	5.0	40.00	0	90.4	41	157				
1,2-Dibromo-3-chloropropane	43.990	10	40.00	0	110	48	185				
1,2-Dibromoethane	40.930	5.0	40.00	0	102	54	169				
1,2-Dichlorobenzene	41.070	5.0	40.00	0	103	59	136				
1,2-Dichloroethane	37.790	5.0	40.00	0	94.5	54	164				
1,2-Dichloropropane	34.450	5.0	40.00	0	86.1	60	142				
1,3,5-Trimethylbenzene	34.560	5.0	40.00	0	86.4	44	151				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N046979-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	39.420	5.0	40.00	0	98.6	57	133				
1,3-Dichloropropane	40.990	5.0	40.00	0	102	63	152				
1,4-Dichlorobenzene	38.840	5.0	40.00	0	97.1	57	133				
2,2-Dichloropropane	30.210	5.0	40.00	0	75.5	50	156				
2-Butanone	425.500	50	400.0	0	106	37	192				
2-Chlorotoluene	38.900	5.0	40.00	0	97.3	52	140				
4-Chlorotoluene	40.710	5.0	40.00	0	102	57	135				
4-Isopropyltoluene	33.720	5.0	40.00	0	84.3	46	152				
Benzene	35.180	5.0	40.00	0	88.0	59	147				
Bromobenzene	38.710	5.0	40.00	0	96.8	66	131				
Bromodichloromethane	35.520	5.0	40.00	0	88.8	54	152				
Bromoform	41.800	5.0	40.00	0	104	50	176				
Bromomethane	32.070	5.0	40.00	0	80.2	40	178				
Carbon tetrachloride	33.890	5.0	40.00	0	84.7	55	159				
Chlorobenzene	37.260	5.0	40.00	0	93.2	62	137				
Chloroethane	26.890	5.0	40.00	0	67.2	41	173				
Chloroform	31.780	5.0	40.00	0	79.4	50	157				
Chloromethane	28.730	5.0	40.00	0	71.8	41	165				
cis-1,2-Dichloroethene	33.340	5.0	40.00	0	83.4	48	158				
cis-1,3-Dichloropropene	37.880	5.0	40.00	0	94.7	59	146				
Di-isopropyl ether	34.310	5.0	40.00	0	85.8	44	165				
Dibromochloromethane	40.590	5.0	40.00	0	101	62	151				
Dibromomethane	37.320	5.0	40.00	0	93.3	52	170				
Dichlorodifluoromethane	26.640	5.0	40.00	0	66.6	36	175				
Ethyl Tert-butyl ether	40.710	5.0	40.00	0	102	52	161				
Ethylbenzene	37.780	5.0	40.00	0	94.4	55	141				
Freon-113	28.270	5.0	40.00	0	70.7	44	161				
Hexachlorobutadiene	37.190	5.0	40.00	0	93.0	34	142				
Isopropylbenzene	33.560	5.0	40.00	0	83.9	54	143				
m,p-Xylene	74.470	10	80.00	0	93.1	51	150				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N046979-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	31.570	5.0	40.00	0	78.9	49	159				
MTBE	36.840	5.0	40.00	0	92.1	43	179				
n-Butylbenzene	33.170	5.0	40.00	0	82.9	42	152				
n-Propylbenzene	36.180	5.0	40.00	0	90.4	54	140				
Naphthalene	39.900	5.0	40.00	0	99.8	37	172				
o-Xylene	37.160	5.0	40.00	0	92.9	49	146				
sec-Butylbenzene	33.560	5.0	40.00	0	83.9	51	145				
Styrene	36.620	5.0	40.00	0	91.6	57	145				
Tert-amyl methyl ether	44.830	5.0	40.00	0	112	58	156				
Tert-Butanol	191.910	25	200.0	0	96.0	40	189				
tert-Butylbenzene	34.090	5.0	40.00	0	85.2	55	140				
Tetrachloroethene	35.420	5.0	40.00	0	88.6	59	142				
Toluene	36.010	5.0	40.00	0	90.0	54	148				
trans-1,2-Dichloroethene	31.280	5.0	40.00	0	78.2	46	157				
Trichloroethene	34.170	5.0	40.00	0	85.4	52	161				
Trichlorofluoromethane	28.820	5.0	40.00	0	72.0	43	181				
Vinyl chloride	28.390	5.0	40.00	0	71.0	52	160				
Surr: 1,2-Dichloroethane-d4	42.810		50.00		85.6	64	165				
Surr: 4-Bromofluorobenzene	50.420		50.00		101	69	124				
Surr: Dibromofluoromethane	43.500		50.00		87.0	72	142				
Surr: Toluene-d8	47.340		50.00		94.7	75	124				

Sample ID: **N046979-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	36.920	5.0	40.00	0	92.3	62	139	37.05	0.351	20	
1,1,1-Trichloroethane	34.170	5.0	40.00	0	85.4	56	154	31.05	9.57	20	
1,1,2,2-Tetrachloroethane	40.170	5.0	40.00	0	100	42	175	39.68	1.23	20	
1,1,2-Trichloroethane	39.040	5.0	40.00	0	97.6	55	166	37.60	3.76	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N046979-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	33.660	5.0	40.00	0	84.2	46	163	30.56	9.65	20	
1,1-Dichloroethene	33.010	5.0	40.00	0	82.5	49	157	29.78	10.3	20	
1,1-Dichloropropene	36.620	5.0	40.00	0	91.6	59	155	35.62	2.77	20	
1,2,3-Trichlorobenzene	43.310	5.0	40.00	0	108	38	154	45.55	5.04	20	
1,2,3-Trichloropropane	41.870	5.0	40.00	0	105	49	174	41.86	0.0239	20	
1,2,4-Trichlorobenzene	40.810	5.0	40.00	0	102	38	146	44.16	7.89	20	
1,2,4-Trimethylbenzene	35.600	5.0	40.00	0	89.0	41	157	36.15	1.53	20	
1,2-Dibromo-3-chloropropane	46.520	10	40.00	0	116	48	185	43.99	5.59	20	
1,2-Dibromoethane	42.810	5.0	40.00	0	107	54	169	40.93	4.49	20	
1,2-Dichlorobenzene	40.180	5.0	40.00	0	100	59	136	41.07	2.19	20	
1,2-Dichloroethane	37.440	5.0	40.00	0	93.6	54	164	37.79	0.930	20	
1,2-Dichloropropane	35.960	5.0	40.00	0	89.9	60	142	34.45	4.29	20	
1,3,5-Trimethylbenzene	34.940	5.0	40.00	0	87.4	44	151	34.56	1.09	20	
1,3-Dichlorobenzene	39.470	5.0	40.00	0	98.7	57	133	39.42	0.127	20	
1,3-Dichloropropane	39.510	5.0	40.00	0	98.8	63	152	40.99	3.68	20	
1,4-Dichlorobenzene	38.340	5.0	40.00	0	95.9	57	133	38.84	1.30	20	
2,2-Dichloropropane	34.130	5.0	40.00	0	85.3	50	156	30.21	12.2	20	
2-Butanone	467.970	50	400.0	0	117	37	192	425.5	9.51	20	
2-Chlorotoluene	38.790	5.0	40.00	0	97.0	52	140	38.90	0.283	20	
4-Chlorotoluene	40.760	5.0	40.00	0	102	57	135	40.71	0.123	20	
4-Isopropyltoluene	33.640	5.0	40.00	0	84.1	46	152	33.72	0.238	20	
Benzene	36.360	5.0	40.00	0	90.9	59	147	35.18	3.30	20	
Bromobenzene	39.890	5.0	40.00	0	99.7	66	131	38.71	3.00	20	
Bromodichloromethane	36.390	5.0	40.00	0	91.0	54	152	35.52	2.42	20	
Bromoform	41.280	5.0	40.00	0	103	50	176	41.80	1.25	20	
Bromomethane	38.840	5.0	40.00	0	97.1	40	178	32.07	19.1	20	
Carbon tetrachloride	35.970	5.0	40.00	0	89.9	55	159	33.89	5.95	20	
Chlorobenzene	37.030	5.0	40.00	0	92.6	62	137	37.26	0.619	20	
Chloroethane	32.180	5.0	40.00	0	80.4	41	173	26.89	17.9	20	
Chloroform	35.010	5.0	40.00	0	87.5	50	157	31.78	9.67	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N046979-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	33.370	5.0	40.00	0	83.4	41	165	28.73	14.9	20	
cis-1,2-Dichloroethene	36.570	5.0	40.00	0	91.4	48	158	33.34	9.24	20	
cis-1,3-Dichloropropene	38.330	5.0	40.00	0	95.8	59	146	37.88	1.18	20	
Di-isopropyl ether	37.330	5.0	40.00	0	93.3	44	165	34.31	8.43	20	
Dibromochloromethane	40.170	5.0	40.00	0	100	62	151	40.59	1.04	20	
Dibromomethane	38.740	5.0	40.00	0	96.9	52	170	37.32	3.73	20	
Dichlorodifluoromethane	29.610	5.0	40.00	0	74.0	36	175	26.64	10.6	20	
Ethyl Tert-butyl ether	45.130	5.0	40.00	0	113	52	161	40.71	10.3	20	
Ethylbenzene	37.590	5.0	40.00	0	94.0	55	141	37.78	0.504	20	
Freon-113	32.220	5.0	40.00	0	80.6	44	161	28.27	13.1	20	
Hexachlorobutadiene	34.850	5.0	40.00	0	87.1	34	142	37.19	6.50	20	
Isopropylbenzene	33.960	5.0	40.00	0	84.9	54	143	33.56	1.18	20	
m,p-Xylene	73.970	10	80.00	0	92.5	51	150	74.47	0.674	20	
Methylene chloride	34.160	5.0	40.00	0	85.4	49	159	31.57	7.88	20	
MTBE	41.330	5.0	40.00	0	103	43	179	36.84	11.5	20	
n-Butylbenzene	33.100	5.0	40.00	0	82.8	42	152	33.17	0.211	20	
n-Propylbenzene	36.270	5.0	40.00	0	90.7	54	140	36.18	0.248	20	
Naphthalene	38.310	5.0	40.00	0	95.8	37	172	39.90	4.07	20	
o-Xylene	36.960	5.0	40.00	0	92.4	49	146	37.16	0.540	20	
sec-Butylbenzene	33.540	5.0	40.00	0	83.9	51	145	33.56	0.0596	20	
Styrene	35.920	5.0	40.00	0	89.8	57	145	36.62	1.93	20	
Tert-amyl methyl ether	47.200	5.0	40.00	0	118	58	156	44.83	5.15	20	
Tert-Butanol	207.440	25	200.0	0	104	40	189	191.9	7.78	20	
tert-Butylbenzene	34.340	5.0	40.00	0	85.9	55	140	34.09	0.731	20	
Tetrachloroethene	35.370	5.0	40.00	0	88.4	59	142	35.42	0.141	20	
Toluene	37.290	5.0	40.00	0	93.2	54	148	36.01	3.49	20	
trans-1,2-Dichloroethene	33.530	5.0	40.00	0	83.8	46	157	31.28	6.94	20	
Trichloroethene	35.300	5.0	40.00	0	88.2	52	161	34.17	3.25	20	
Trichlorofluoromethane	31.150	5.0	40.00	0	77.9	43	181	28.82	7.77	20	
Vinyl chloride	31.420	5.0	40.00	0	78.6	52	160	28.39	10.1	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N046979-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **ZZZZZZ** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	48.530		50.00		97.1	64	165		0		
Surr: 4-Bromofluorobenzene	50.280		50.00		101	69	124		0		
Surr: Dibromofluoromethane	47.170		50.00		94.3	72	142		0		
Surr: Toluene-d8	47.970		50.00		95.9	75	124		0		

Sample ID: **R210910-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **PBS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	10									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210910-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **PBS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	50									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
Benzene	ND	5.0									
Bromobenzene	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Di-isopropyl ether	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethyl Tert-butyl ether	ND	5.0									
Ethylbenzene	ND	5.0									
Freon-113	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methylene chloride	ND	5.0									
MTBE	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210910-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156597**
Client ID: **PBS** Batch ID: **R21VS050** TestNo: **EPA 8260B** Analysis Date: **9/10/2021** SeqNo: **4346454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	5.0									
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
Tert-amyl methyl ether	ND	5.0									
Tert-Butanol	ND	25									
tert-Butylbenzene	ND	5.0									
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Surr: 1,2-Dichloroethane-d4	54.090		50.00		108	64	165				
Surr: 4-Bromofluorobenzene	44.650		50.00		89.3	69	124				
Surr: Dibromofluoromethane	53.770		50.00		108	72	142				
Surr: Toluene-d8	47.690		50.00		95.4	75	124				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	44.280	5.0	40.00	0	111	76	125				
1,1,1-Trichloroethane	44.780	5.0	40.00	0	112	76	124				
1,1,2,2-Tetrachloroethane	38.200	5.0	40.00	0	95.5	71	120				
1,1,2-Trichloroethane	40.520	5.0	40.00	0	101	71	120				
1,1-Dichloroethane	40.000	5.0	40.00	0	100	74	127				
1,1-Dichloroethene	43.760	5.0	40.00	0	109	72	123				
1,1-Dichloropropene	48.100	5.0	40.00	0	120	80	127				
1,2,3-Trichlorobenzene	43.980	5.0	40.00	0	110	76	123				
1,2,3-Trichloropropane	42.720	5.0	40.00	0	107	69	119				
1,2,4-Trichlorobenzene	42.930	5.0	40.00	0	107	76	122				
1,2,4-Trimethylbenzene	43.340	5.0	40.00	0	108	80	132				
1,2-Dibromo-3-chloropropane	41.750	10	40.00	0	104	64	130				
1,2-Dibromoethane	43.210	5.0	40.00	0	108	73	121				
1,2-Dichlorobenzene	43.990	5.0	40.00	0	110	80	120				
1,2-Dichloroethane	42.330	5.0	40.00	0	106	76	121				
1,2-Dichloropropane	40.930	5.0	40.00	0	102	76	120				
1,3,5-Trimethylbenzene	43.320	5.0	40.00	0	108	80	129				
1,3-Dichlorobenzene	45.510	5.0	40.00	0	114	80	120				
1,3-Dichloropropane	41.350	5.0	40.00	0	103	76	120				
1,4-Dichlorobenzene	43.810	5.0	40.00	0	110	80	120				
2,2-Dichloropropane	44.070	5.0	40.00	0	110	68	132				
2-Butanone	411.860	50	400.0	0	103	34	149				
2-Chlorotoluene	46.700	5.0	40.00	0	117	80	122				
4-Chlorotoluene	47.190	5.0	40.00	0	118	79	124				
4-Isopropyltoluene	42.590	5.0	40.00	0	106	80	133				
Benzene	44.980	5.0	40.00	0	112	80	120				
Bromobenzene	42.930	5.0	40.00	0	107	80	120				
Bromodichloromethane	42.600	5.0	40.00	0	106	76	120				
Bromoform	44.910	5.0	40.00	0	112	70	131				
Bromomethane	47.780	5.0	40.00	0	119	62	144				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	49.670	5.0	40.00	0	124	72	136				
Chlorobenzene	44.780	5.0	40.00	0	112	80	120				
Chloroethane	42.500	5.0	40.00	0	106	64	155				
Chloroform	41.090	5.0	40.00	0	103	76	121				
Chloromethane	37.690	5.0	40.00	0	94.2	56	142				
cis-1,2-Dichloroethene	41.510	5.0	40.00	0	104	76	120				
cis-1,3-Dichloropropene	41.580	5.0	40.00	0	104	73	120				
Di-isopropyl ether	37.570	5.0	40.00	0	93.9	68	130				
Dibromochloromethane	43.100	5.0	40.00	0	108	76	123				
Dibromomethane	40.490	5.0	40.00	0	101	77	120				
Dichlorodifluoromethane	39.460	5.0	40.00	0	98.6	51	152				
Ethyl Tert-butyl ether	46.050	5.0	40.00	0	115	72	126				
Ethylbenzene	47.490	5.0	40.00	0	119	80	120				
Freon-113	44.590	5.0	40.00	0	111	57	136				
Hexachlorobutadiene	44.900	5.0	40.00	0	112	77	122				
Isopropylbenzene	41.870	5.0	40.00	0	105	79	128				
m,p-Xylene	94.400	10	80.00	0	118	69	141				
Methylene chloride	38.440	5.0	40.00	0	96.1	70	124				
MTBE	39.120	5.0	40.00	0	97.8	69	124				
n-Butylbenzene	42.120	5.0	40.00	0	105	80	131				
n-Propylbenzene	45.250	5.0	40.00	0	113	80	127				
Naphthalene	35.270	5.0	40.00	0	88.2	65	127				
o-Xylene	44.140	5.0	40.00	0	110	77	123				
sec-Butylbenzene	42.580	5.0	40.00	0	106	80	130				
Styrene	42.490	5.0	40.00	0	106	80	124				
Tert-amyl methyl ether	47.340	5.0	40.00	0	118	71	122				
Tert-Butanol	188.320	25	200.0	0	94.2	44	143				
tert-Butylbenzene	42.420	5.0	40.00	0	106	80	125				
Tetrachloroethene	47.740	5.0	40.00	0	119	80	122				
Toluene	46.120	5.0	40.00	0	115	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	40.780	5.0	40.00	0	102	71	125				
Trichloroethene	45.290	5.0	40.00	0	113	76	121				
Trichlorofluoromethane	43.710	5.0	40.00	0	109	66	163				
Vinyl chloride	41.230	5.0	40.00	0	103	65	141				
Surr: 1,2-Dichloroethane-d4	46.670		50.00		93.3	64	165				
Surr: 4-Bromofluorobenzene	49.200		50.00		98.4	69	124				
Surr: Dibromofluoromethane	47.150		50.00		94.3	72	142				
Surr: Toluene-d8	47.740		50.00		95.5	75	124				

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	37.930	5.0	40.00	0	94.8	62	139				
1,1,1-Trichloroethane	34.380	5.0	40.00	0	86.0	56	154				
1,1,2,2-Tetrachloroethane	38.120	5.0	40.00	0	95.3	42	175				
1,1,2-Trichloroethane	39.400	5.0	40.00	0	98.5	55	166				
1,1-Dichloroethane	32.830	5.0	40.00	0	82.1	46	163				
1,1-Dichloroethene	32.730	5.0	40.00	0	81.8	49	157				
1,1-Dichloropropene	36.700	5.0	40.00	0	91.8	59	155				
1,2,3-Trichlorobenzene	45.750	5.0	40.00	0	114	38	154				
1,2,3-Trichloropropane	41.290	5.0	40.00	0	103	49	174				
1,2,4-Trichlorobenzene	43.540	5.0	40.00	0	109	38	146				
1,2,4-Trimethylbenzene	35.090	5.0	40.00	0	87.7	41	157				
1,2-Dibromo-3-chloropropane	44.560	10	40.00	0	111	48	185				
1,2-Dibromoethane	43.070	5.0	40.00	0	108	54	169				
1,2-Dichlorobenzene	40.210	5.0	40.00	0	101	59	136				
1,2-Dichloroethane	39.860	5.0	40.00	0	99.7	54	164				
1,2-Dichloropropane	35.810	5.0	40.00	0	89.5	60	142				
1,3,5-Trimethylbenzene	33.710	5.0	40.00	0	84.3	44	151				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	39.340	5.0	40.00	0	98.4	57	133				
1,3-Dichloropropane	41.000	5.0	40.00	0	103	63	152				
1,4-Dichlorobenzene	37.990	5.0	40.00	0	95.0	57	133				
2,2-Dichloropropane	33.000	5.0	40.00	0	82.5	50	156				
2-Butanone	454.580	50	400.0	0	114	37	192				
2-Chlorotoluene	37.860	5.0	40.00	0	94.6	52	140				
4-Chlorotoluene	39.400	5.0	40.00	0	98.5	57	135				
4-Isopropyltoluene	32.450	5.0	40.00	0	81.1	46	152				
Benzene	36.130	5.0	40.00	0	90.3	59	147				
Bromobenzene	39.530	5.0	40.00	0	98.8	66	131				
Bromodichloromethane	37.540	5.0	40.00	0	93.8	54	152				
Bromoform	43.360	5.0	40.00	0	108	50	176				
Bromomethane	35.790	5.0	40.00	0	89.5	40	178				
Carbon tetrachloride	35.450	5.0	40.00	0	88.6	55	159				
Chlorobenzene	37.390	5.0	40.00	0	93.5	62	137				
Chloroethane	31.820	5.0	40.00	0	79.6	41	173				
Chloroform	34.720	5.0	40.00	0	86.8	50	157				
Chloromethane	29.310	5.0	40.00	0	73.3	41	165				
cis-1,2-Dichloroethene	36.140	5.0	40.00	0	90.4	48	158				
cis-1,3-Dichloropropene	37.890	5.0	40.00	0	94.7	59	146				
Di-isopropyl ether	34.970	5.0	40.00	0	87.4	44	165				
Dibromochloromethane	40.310	5.0	40.00	0	101	62	151				
Dibromomethane	39.360	5.0	40.00	0	98.4	52	170				
Dichlorodifluoromethane	26.420	5.0	40.00	0	66.1	36	175				
Ethyl Tert-butyl ether	42.480	5.0	40.00	0	106	52	161				
Ethylbenzene	37.550	5.0	40.00	0	93.9	55	141				
Freon-113	31.880	5.0	40.00	0	79.7	44	161				
Hexachlorobutadiene	37.350	5.0	40.00	0	93.4	34	142				
Isopropylbenzene	32.440	5.0	40.00	0	81.1	54	143				
m,p-Xylene	74.660	10	80.00	0	93.3	51	150				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	33.940	5.0	40.00	0	84.8	49	159				
MTBE	39.090	5.0	40.00	0	97.7	43	179				
n-Butylbenzene	32.020	5.0	40.00	0	80.1	42	152				
n-Propylbenzene	35.080	5.0	40.00	0	87.7	54	140				
Naphthalene	40.400	5.0	40.00	0	101	37	172				
o-Xylene	36.390	5.0	40.00	0	91.0	49	146				
sec-Butylbenzene	32.280	5.0	40.00	0	80.7	51	145				
Styrene	36.260	5.0	40.00	0	90.7	57	145				
Tert-amyl methyl ether	43.670	5.0	40.00	0	109	58	156				
Tert-Butanol	201.220	25	200.0	0	101	40	189				
tert-Butylbenzene	32.690	5.0	40.00	0	81.7	55	140				
Tetrachloroethene	37.080	5.0	40.00	0	92.7	59	142				
Toluene	36.850	5.0	40.00	0	92.1	54	148				
trans-1,2-Dichloroethene	33.360	5.0	40.00	0	83.4	46	157				
Trichloroethene	36.290	5.0	40.00	0	90.7	52	161				
Trichlorofluoromethane	31.610	5.0	40.00	0	79.0	43	181				
Vinyl chloride	29.460	5.0	40.00	0	73.6	52	160				
Surr: 1,2-Dichloroethane-d4	48.240		50.00		96.5	64	165				
Surr: 4-Bromofluorobenzene	49.910		50.00		99.8	69	124				
Surr: Dibromofluoromethane	49.390		50.00		98.8	72	142				
Surr: Toluene-d8	47.740		50.00		95.5	75	124				

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	37.860	5.0	40.00	0	94.6	62	139	37.93	0.185	20	
1,1,1-Trichloroethane	32.680	5.0	40.00	0	81.7	56	154	34.38	5.07	20	
1,1,2,2-Tetrachloroethane	36.210	5.0	40.00	0	90.5	42	175	38.12	5.14	20	
1,1,2-Trichloroethane	41.570	5.0	40.00	0	104	55	166	39.40	5.36	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	33.200	5.0	40.00	0	83.0	46	163	32.83	1.12	20	
1,1-Dichloroethene	32.640	5.0	40.00	0	81.6	49	157	32.73	0.275	20	
1,1-Dichloropropene	35.610	5.0	40.00	0	89.0	59	155	36.70	3.01	20	
1,2,3-Trichlorobenzene	42.910	5.0	40.00	0	107	38	154	45.75	6.41	20	
1,2,3-Trichloropropane	40.500	5.0	40.00	0	101	49	174	41.29	1.93	20	
1,2,4-Trichlorobenzene	41.220	5.0	40.00	0	103	38	146	43.54	5.47	20	
1,2,4-Trimethylbenzene	33.250	5.0	40.00	0	83.1	41	157	35.09	5.38	20	
1,2-Dibromo-3-chloropropane	43.550	10	40.00	0	109	48	185	44.56	2.29	20	
1,2-Dibromoethane	43.890	5.0	40.00	0	110	54	169	43.07	1.89	20	
1,2-Dichlorobenzene	39.300	5.0	40.00	0	98.2	59	136	40.21	2.29	20	
1,2-Dichloroethane	40.960	5.0	40.00	0	102	54	164	39.86	2.72	20	
1,2-Dichloropropane	37.230	5.0	40.00	0	93.1	60	142	35.81	3.89	20	
1,3,5-Trimethylbenzene	31.740	5.0	40.00	0	79.4	44	151	33.71	6.02	20	
1,3-Dichlorobenzene	37.820	5.0	40.00	0	94.6	57	133	39.34	3.94	20	
1,3-Dichloropropane	39.750	5.0	40.00	0	99.4	63	152	41.00	3.10	20	
1,4-Dichlorobenzene	36.990	5.0	40.00	0	92.5	57	133	37.99	2.67	20	
2,2-Dichloropropane	32.500	5.0	40.00	0	81.2	50	156	33.00	1.53	20	
2-Butanone	489.570	50	400.0	0	122	37	192	454.6	7.41	20	
2-Chlorotoluene	36.000	5.0	40.00	0	90.0	52	140	37.86	5.04	20	
4-Chlorotoluene	38.040	5.0	40.00	0	95.1	57	135	39.40	3.51	20	
4-Isopropyltoluene	29.800	5.0	40.00	0	74.5	46	152	32.45	8.51	20	
Benzene	36.460	5.0	40.00	0	91.2	59	147	36.13	0.909	20	
Bromobenzene	38.340	5.0	40.00	0	95.9	66	131	39.53	3.06	20	
Bromodichloromethane	38.410	5.0	40.00	0	96.0	54	152	37.54	2.29	20	
Bromoform	43.900	5.0	40.00	0	110	50	176	43.36	1.24	20	
Bromomethane	38.590	5.0	40.00	0	96.5	40	178	35.79	7.53	20	
Carbon tetrachloride	34.570	5.0	40.00	0	86.4	55	159	35.45	2.51	20	
Chlorobenzene	36.560	5.0	40.00	0	91.4	62	137	37.39	2.24	20	
Chloroethane	29.960	5.0	40.00	0	74.9	41	173	31.82	6.02	20	
Chloroform	35.910	5.0	40.00	0	89.8	50	157	34.72	3.37	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	29.290	5.0	40.00	0	73.2	41	165	29.31	0.0683	20	
cis-1,2-Dichloroethene	36.860	5.0	40.00	0	92.2	48	158	36.14	1.97	20	
cis-1,3-Dichloropropene	40.000	5.0	40.00	0	100	59	146	37.89	5.42	20	
Di-isopropyl ether	36.800	5.0	40.00	0	92.0	44	165	34.97	5.10	20	
Dibromochloromethane	40.050	5.0	40.00	0	100	62	151	40.31	0.647	20	
Dibromomethane	40.890	5.0	40.00	0	102	52	170	39.36	3.81	20	
Dichlorodifluoromethane	25.420	5.0	40.00	0	63.6	36	175	26.42	3.86	20	
Ethyl Tert-butyl ether	45.440	5.0	40.00	0	114	52	161	42.48	6.73	20	
Ethylbenzene	35.360	5.0	40.00	0	88.4	55	141	37.55	6.01	20	
Freon-113	30.790	5.0	40.00	0	77.0	44	161	31.88	3.48	20	
Hexachlorobutadiene	33.790	5.0	40.00	0	84.5	34	142	37.35	10.0	20	
Isopropylbenzene	29.790	5.0	40.00	0	74.5	54	143	32.44	8.52	20	
m,p-Xylene	70.700	10	80.00	0	88.4	51	150	74.66	5.45	20	
Methylene chloride	35.640	5.0	40.00	0	89.1	49	159	33.94	4.89	20	
MTBE	42.240	5.0	40.00	0	106	43	179	39.09	7.75	20	
n-Butylbenzene	28.870	5.0	40.00	0	72.2	42	152	32.02	10.3	20	
n-Propylbenzene	32.340	5.0	40.00	0	80.9	54	140	35.08	8.13	20	
Naphthalene	38.460	5.0	40.00	0	96.2	37	172	40.40	4.92	20	
o-Xylene	34.830	5.0	40.00	0	87.1	49	146	36.39	4.38	20	
sec-Butylbenzene	29.480	5.0	40.00	0	73.7	51	145	32.28	9.07	20	
Styrene	35.520	5.0	40.00	0	88.8	57	145	36.26	2.06	20	
Tert-amyl methyl ether	47.780	5.0	40.00	0	119	58	156	43.67	8.99	20	
Tert-Butanol	216.710	25	200.0	0	108	40	189	201.2	7.41	20	
tert-Butylbenzene	30.390	5.0	40.00	0	76.0	55	140	32.69	7.29	20	
Tetrachloroethene	33.830	5.0	40.00	0	84.6	59	142	37.08	9.17	20	
Toluene	37.230	5.0	40.00	0	93.1	54	148	36.85	1.03	20	
trans-1,2-Dichloroethene	32.730	5.0	40.00	0	81.8	46	157	33.36	1.91	20	
Trichloroethene	37.730	5.0	40.00	0	94.3	52	161	36.29	3.89	20	
Trichlorofluoromethane	29.530	5.0	40.00	0	73.8	43	181	31.61	6.80	20	
Vinyl chloride	28.410	5.0	40.00	0	71.0	52	160	29.46	3.63	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	51.170		50.00		102	64	165		0		
Surr: 4-Bromofluorobenzene	49.640		50.00		99.3	69	124		0		
Surr: Dibromofluoromethane	49.640		50.00		99.3	72	142		0		
Surr: Toluene-d8	47.020		50.00		94.0	75	124		0		

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	10									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	50									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
Benzene	ND	5.0									
Bromobenzene	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Di-isopropyl ether	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethyl Tert-butyl ether	ND	5.0									
Ethylbenzene	ND	5.0									
Freon-113	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methylene chloride	ND	5.0									
MTBE	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	5.0									
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
Tert-amyl methyl ether	ND	5.0									
Tert-Butanol	ND	25									
tert-Butylbenzene	ND	5.0									
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Surr: 1,2-Dichloroethane-d4	51.660		50.00		103	64	165				
Surr: 4-Bromofluorobenzene	45.680		50.00		91.4	69	124				
Surr: Dibromofluoromethane	52.310		50.00		105	72	142				
Surr: Toluene-d8	48.270		50.00		96.5	75	124				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: HC_S_SEMI

Sample ID: **MB-89240**	SampType: **MBLK**	TestCode: **HC_S_SEMI**	Units: **mg/Kg**	Prep Date: **9/10/2021**	RunNo: **156582**
Client ID: **PBS**	Batch ID: **89240**	TestNo: **EPA 8015B(M**	**EPA 3550B**	Analysis Date: **9/10/2021**	SeqNo: **4346349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C13-C22	ND	10									
T/R Hydrocarbons: C23-C40	ND	10									
Surr: p-Terphenyl	102.771		80.00		128	56	133				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047044
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: HC_S_SEMI

Sample ID: **MB-89280**	SampType: **MBLK**	TestCode: **HC_S_SEMI**	Units: **mg/Kg**	Prep Date: **9/14/2021**	RunNo: **156652**
Client ID: **PBS**	Batch ID: **89280**	TestNo: **EPA 8015B(M**	**EPA 3550B**	Analysis Date: **9/14/2021**	SeqNo: **4350861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C13-C22	ND	10									
T/R Hydrocarbons: C23-C40	ND	10									
Surr: p-Terphenyl	90.927		80.00		114	56	133				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

N047044

Page 1 of 2

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11110 Artesia Blvd. Ste. B • Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: Kleinfelder	Report to: Lindsey Dandridge-Perry	Bill to: SAME as Client	EDD Requirement: Excel EDD ☐ Geotracker ☐ Labspec ☐ Others ☐ Specify:
Address: 24411 Ridge Route Dr, Ste 225 Laguna Hills CA 92653	Company: Kleinfelder	Address:	QA/QC: RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory ☐ Specify State:
Address: Costa Mesa CA 92653	Email: LDandridge@kleinfelder.com	Email to: PO#	Global ID:
Phone: (949)585-3133 Fax:	Address: 24411 Ridge Route Dr. Laguna Hills CA 92653	Phone: Fax:	
Submitted By: Lindsey Dandridge-Perry	Phone: (949)585-3133 Fax:		
Title: Project Professional	Sampler's Signature and Date: 9/8/21		
Signature: Date: 9/8/21			

Sample Receipt Condition

	Y	N
1. Chilled	☒	☐
2. Headspace	☐	☐
3. Container Intact	☒	☐
4. Seal Present	☐	☐
5. IR number	#1	
6. Method of Cooling	ICE	

Sample Temp: 2.4°C

I hereby authorize ~~ASSET Labs~~ to perform the tests indicated below:

Project Name: Costco Culver City

Project Number: 70201678.001A

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampler's Name: Lindsey Dandridge-Perry

Matrix: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Sediment ☐ Soil ☒ Other Solid ☐

Analyses Requested: TPH-D (8015B) TPH-G (8260B) VOCs (8260B) Metals (6010B/7471A) TPH-G (8260B) Full Oxygenates

Courier: ASSET

Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	N047044-01	KB-1-2.5	9/8/21	0830		Soil						
2	-02	KB-1-5		0855								
3	-03	KB-1-10		0908								
4	-04	KB-1-15		0930								
5	-05	KB-1-20		0936								
6	-06	KB-1-25		0944								for Vegas
7	-07	KB-2-2.5		1027								4.9°C IR#1
8	-08	KB-2-5		1043								ISO# 0581
9	-09	KB-2-10		1118								
10	-10	KB-2-15		1124								

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
Lindsey Dandridge-Perry	9/8/21 1304		9/9/21 1304
	9/9/21 1612		9/9/21 1612
	9/9/21 1800		9/10/21 0820

Turn Around Time (TAT)

- ☐ A = < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☒ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction: TPH - carbon chain full scan for selected samples

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H = HCl | N = HNO3 | S = H2SO4 | C = 4°C | Z = Zn(AC)2 | O = NaOH | T = Na2S2O3 | Others/Specify:

Container Type: T = Tube | V = VOA | P = Pint | J = Jar | B = Tedlar | G = Glass | M = Metal | P = Plastic | C = Can

White = Laboratory Copy Yellow = Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11110 Artesia Blvd. Ste. B • Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 2 of 2

Client: Kleinfelder	**Report to:** Lindsey Dandridge-Perry	**Bill to:** same as Client	**EDD Requirement**
Address: 27441 Ridge Route Dr. Ste 225	**Company:** Kleinfelder	**Address:**	Excel EDD ☐
Address: Laguna Hills CA 92653	**Email:** LDandridge@Kleinfelder.com		Geotracker ☐
Phone: 949 585-3183 **Fax:**	**Address:** ← same	**Email to:** **PO#**	Labspec ☐
Submitted By: Lindsey Dandridge-Perry		**Phone:** **Fax:**	Others ☐
Title: Project Professional	**Phone:** **Fax:**		Specify:
Signature: **Date:** 9/8/21	**Sampler's Signature and Date:** 9/8/21		Global ID:

I hereby authorize ASSET Labs to perform the tests indicated below:

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Project Name:

Project Number:

Sampler's Name:

QA/QC

RTNE	☐
RWQCB	☐
CalTrans	☐
Level III	☐
LEVEL IV	☐
Regulatory	☐

Specify State:

Sampe Receipt Condition

	Y	N
1. Chilled	☒	☐
2. Headspace	☐	☐
3. Container Intact	☒	☐
4. Seal Present	☐	☐
5. IR number	#1	
6. Method of Cooling	ICE	

Sample Temp: 2.4°C

Courier: ASSET

Tracking No.

Matrix

Ground	☐	Sediment	☐
Potable	☐	Soil	☒
NPDES	☐	Other Solid	☐
Surface	☐		

Analyses Requested

item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	TPHcc D/MO (8015)	VOCs (8260B)	Metals (6010B/7471A)	TPHG (8260B)	Total Oxygenates	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	N047044-11	~~KB-20~~ KB-2-20	9/8/21	1133		SOIL											
2	-12	KB-2-25	"	1145		"		X	X	X	X	X					
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by (Signature and Printed Name): Lindsey Dandridge-Perry **Date / Time:** 9/8/21 1304	**Received by (Signature and Printed Name):** **Date / Time:** 9/9/21 1304
Relinquished by (Signature and Printed Name): **Date / Time:** 9/9/21 1612	**Received by (Signature and Printed Name):** THAD **Date / Time:** 9/9/21 1612
Relinquished by (Signature and Printed Name): THAD **Date / Time:** 9/9/21 1800	**Received by (Signature and Printed Name):** Giselle Garcia Santos **Date / Time:** 9/10/21 0820

Turn Around Time (TAT)

- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☒ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

for Vegas
4.9°C ice #1
COC #0581

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

Preservatives:

H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = Zn(AC)2	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:

T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy Yellow = Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/9/2021	Workorder:	N047044
Rep sample Temp (Deg C):	2.4	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: .Received at Las Vegas Lab on 09/10/21 at 4.9°C, IR#1, GSO # 0581.

For:

Checklist Completed By: TM GGarcia 9/10/2021

Reviewed By: MBC 9/13/2021

Subject: RE: Costco Culver City, 20201678.001A (ASSET Labs No. N047044)
From: <tmalit@assetlaboratories.com>
Date: 9/13/2021, 11:21 AM
To: "'Lindsey Dandridge-Perry'" <LDandridge@kleinfelder.com>
CC: "'Ashley Marie DaSilva'" <ashley@assetlaboratories.com>, "'Yoandra Rodriguez'" <yoandra@assetlaboratories.com>, "'Giselle G'" <giselle@assetlaboratories.com>, <rustico.aquino@assetlaboratoriesph.com>, "'Mary Ann'" <maryann.balilu@assetlaboratoriesph.com>

Hi Lindsey

Thank you for confirming via text message. We will analyze samples on the attached COC using EPA 8015 and not EPA 8260.

Regards
Thad

From: tmalit@assetlaboratories.com <tmalit@assetlaboratories.com>
Sent: Monday, September 13, 2021 10:53 AM
To: 'Lindsey Dandridge-Perry' <LDandridge@kleinfelder.com>
Cc: 'Ashley Marie DaSilva' <ashley@assetlaboratories.com>; 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>; 'Giselle G' <giselle@assetlaboratories.com>; 'rustico.aquino@assetlaboratoriesph.com' <rustico.aquino@assetlaboratoriesph.com>; 'Mary Ann' <maryann.balilu@assetlaboratoriesph.com>
Subject: Costco Culver City, 20201678.001A (ASSET Labs No. N047044)

Hi Lindsey

Hope this email finds you well!

Please confirm that you want TPH GRO analyzed by EPA 8015. Attached is the COC for your reference.

Regards
Thad

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Sent: Tuesday, September 14, 2021 10:42 AM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; Ashley@assetlaboratories.com
Subject: RE: Costco Culver City, 20201678.001A (ASSET Labs No. N047044)
Attachments: RE: N047044 COC and Work Order Summary for Sample Received 9/9/2021 (196 KB)

Correct, please see attached the correction email from Saturday. All the 9/8/21 dates should be 9/9/21.

Thanks,
Lindsey

From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Tuesday, September 14, 2021 9:20 AM
To: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Cc: maryann.balilu@assetlaboratoriesph.com; Ashley@assetlaboratories.com
Subject: Costco Culver City, 20201678.001A (ASSET Labs No. N047044)

External Email

Hi Lindsey,

For the above project, please note the relinquished date should be 9/9/21 instead of 9/8/21.

Attached is the COC for reference.

--
Thanks,

Yoandra Rodriguez
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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AssetLabs Sample Control

From: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Sent: Saturday, September 11, 2021 10:36 AM
To: AssetLabs Sample Control
Subject: RE: N047044 COC and Work Order Summary for Sample Received 9/9/2021
Attachments: N047044.pdf

Morning,

The sample collection date for KB-1 and KB-2 was actually 9/9/21.

Thank you!
Lindsey

From: AssetLabs Sample Control <samplecontrol@assetlaboratories.com>
Sent: Friday, September 10, 2021 4:09 PM
To: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Subject: N047044 COC and Work Order Summary for Sample Received 9/9/2021

External Email

Hi Lindsey Dandridge-Perry:

Enclosed are COC and WO Summary for samples received 9/9/2021. If you have any questions, please contact your Project Manager listed below.

Thad Malit
General Manager
11110 Artesia Blvd. Suite B
Cerritos, CA 90703

Tel. No.: (562) 219-7435
Fax No.: (562) 219-7436
Cell No.: (310) 503-2359
Email: tmalit@assetlaboratories.com/samplecontrol@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047044

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/9/2021

Comments: TPM- carbon Chain full scan for selected samples.

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047044-001A	KB-1-2.5	9/9/2021 8:30:00 AM		Soil			☐	☐	☐	WS
N047044-002A	KB-1-5	9/9/2021 8:55:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/16/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-002B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-002C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/16/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-002D							☐	☐	☐	VS-CA
N047044-002E							☐	☐	☐	VS
N047044-002F							☐	☐	☐	VS-CA
N047044-003A	KB-1-10	9/9/2021 9:08:00 AM					☐	☐	☐	WS
N047044-004A	KB-1-15	9/9/2021 9:30:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047044

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/9/2021

Comments: TPM- carbon Chain full scan for selected samples.

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047044-004A	KB-1-15	9/9/2021 9:30:00 AM	9/16/2021	Soil	EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-004B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-004C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/16/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-004D							☐	☐	☐	VS-CA
N047044-004E							☐	☐	☐	VS
N047044-004F							☐	☐	☐	VS-CA
N047044-005A	KB-1-20	9/9/2021 9:36:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/16/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-005B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-005C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/16/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-005D							☐	☐	☐	VS-CA
N047044-005E							☐	☐	☐	VS

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047044

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/9/2021

Comments: TPM- carbon Chain full scan for selected samples.

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047044-005F	KB-1-20	9/9/2021 9:36:00 AM		Soil			☐	☐	☐	VS-CA
N047044-006A	KB-1-25	9/9/2021 9:41:00 AM					☐	☐	☐	WS
N047044-007A	KB-2-2.5	9/9/2021 10:27:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/16/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-007B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-007C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/16/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-007D							☐	☐	☐	VS-CA
N047044-007E							☐	☐	☐	VS
N047044-007F							☐	☐	☐	VS-CA
N047044-008A	KB-2-5	9/9/2021 10:43:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047044

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/9/2021

Comments: TPM- carbon Chain full scan for selected samples.

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047044-008A	KB-2-5	9/9/2021 10:43:00 AM	9/16/2021	Soil	EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-008B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-008C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/16/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-008D							☐	☐	☐	VS-CA
N047044-008E							☐	☐	☐	VS
N047044-008F							☐	☐	☐	VS-CA
N047044-009A	KB-2-10	9/9/2021 11:18:00 AM					☐	☐	☐	WS
N047044-010A	KB-2-15	9/9/2021 11:24:00 AM					☐	☐	☐	WS
N047044-011A	KB-2-20	9/9/2021 11:35:00 AM					☐	☐	☐	WS
N047044-012A	KB-2-25	9/9/2021 11:45:00 AM	9/16/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/16/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/16/2021			MERCURY PREP	☐	☐	☐	WS
			9/16/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/16/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/16/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047044-012B			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/16/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047044-012C			9/16/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047044

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/9/2021

Comments: TPM- carbon Chain full scan for selected samples.

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047044-012C	KB-2-25	9/9/2021 11:45:00 AM	9/16/2021	Soil	EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047044-012D							☐	☐	☐	VS-CA
N047044-012E							☐	☐	☐	VS
N047044-012F							☐	☐	☐	VS-CA
N047044-013A	FOLDER	9/16/2021	9/16/2021		Folder	Folder	☐	☐	☐	LAB
			9/16/2021		Folder	Folder	☐	☐	☐	LAB

GLS

800-322-5555
www.gls-us.com

Ship From
ASSET LABORATORIES
THAD MALIT
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Tracking #: 554580581

PDS

Ship To
ASSET LABORATORIES
SAMPLE CONTROL
3151 W. POST RD.,
LAS VEGAS, NV 89118

LAS VEGAS

C89102A

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:

Signature Type: STANDARD

48985444

LVS NV891-A 0

Print Date: 9/9/2021 5:31 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the General Logistics Systems US, Inc. (GLS) service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gls-us.com.

4.9°C 1Pkt

September 17, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047070

RE: Costco Culver City, 20201678.001A

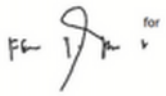
Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 10, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,



Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047070

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical Comments for EPA 8015B:

RPD for Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for GRO in QC samples N047112-005A-MS/MSD possibly due to non-homogeneity of sample; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047070
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047070-001A	KB-3-2.5	Soil	9/9/2021 8:04:00 AM	9/10/2021	9/17/2021
N047070-002A	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-002B	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-002C	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-002D	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-002E	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-002F	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/10/2021	9/17/2021
N047070-003A	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-003B	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-003C	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-003D	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-003E	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-003F	KB-3-10	Soil	9/9/2021 8:55:00 AM	9/10/2021	9/17/2021
N047070-004A	KB-3-15	Soil	9/9/2021 9:01:00 AM	9/10/2021	9/17/2021
N047070-005A	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-005B	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-005C	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-005D	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-005E	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-005F	KB-3-20	Soil	9/9/2021 9:20:00 AM	9/10/2021	9/17/2021
N047070-006A	KB-3-25	Soil	9/9/2021 9:33:00 AM	9/10/2021	9/17/2021
N047070-007A	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-007B	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-007C	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-007D	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-007E	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-007F	KB-4-2.5	Soil	9/9/2021 12:57:00 PM	9/10/2021	9/17/2021
N047070-008A	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021
N047070-008B	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047070
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047070-008C	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021
N047070-008D	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021
N047070-008E	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021
N047070-008F	KB-4-5	Soil	9/9/2021 1:03:00 PM	9/10/2021	9/17/2021
N047070-009A	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-009B	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-009C	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-009D	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-009E	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-009F	KB-4-10	Soil	9/9/2021 1:29:00 PM	9/10/2021	9/17/2021
N047070-010A	KB-4-15	Soil	9/9/2021 1:55:00 PM	9/10/2021	9/17/2021
N047070-011A	KB-4-20	Soil	9/9/2021 1:38:00 PM	9/10/2021	9/17/2021
N047070-012A	KB-4-25	Soil	9/9/2021 1:44:00 PM	9/10/2021	9/17/2021

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-3-5
Lab Order:	N047070	**Collection Date:**	9/9/2021 8:18:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047070-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A**	QC Batch: **R21VS051**				PrepDate:	**9/14/2021**	Analyst: **AW**
1,1,1,2-Tetrachloroethane	ND	0.41	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1,1-Trichloroethane	ND	0.32	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1,2,2-Tetrachloroethane	ND	0.18	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1,2-Trichloroethane	ND	0.37	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1-Dichloroethane	ND	0.35	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1-Dichloroethene	ND	0.26	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,1-Dichloropropene	ND	0.26	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2,3-Trichlorobenzene	ND	0.16	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2,3-Trichloropropane	ND	0.37	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2,4-Trichlorobenzene	ND	0.15	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2,4-Trimethylbenzene	ND	0.096	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2-Dibromo-3-chloropropane	ND	0.54	8.0		µg/Kg	1	9/14/2021 02:15 PM
1,2-Dibromoethane	ND	0.29	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2-Dichlorobenzene	ND	0.13	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2-Dichloroethane	ND	0.26	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,2-Dichloropropane	ND	0.24	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,3,5-Trimethylbenzene	ND	0.44	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,3-Dichlorobenzene	ND	0.14	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,3-Dichloropropane	ND	0.21	4.0		µg/Kg	1	9/14/2021 02:15 PM
1,4-Dichlorobenzene	ND	0.13	4.0		µg/Kg	1	9/14/2021 02:15 PM
2,2-Dichloropropane	ND	0.31	4.0		µg/Kg	1	9/14/2021 02:15 PM
2-Butanone	ND	7.5	40		µg/Kg	1	9/14/2021 02:15 PM
2-Chlorotoluene	ND	0.14	4.0		µg/Kg	1	9/14/2021 02:15 PM
4-Chlorotoluene	ND	0.11	4.0		µg/Kg	1	9/14/2021 02:15 PM
4-Isopropyltoluene	ND	0.12	4.0		µg/Kg	1	9/14/2021 02:15 PM
Benzene	ND	0.17	4.0		µg/Kg	1	9/14/2021 02:15 PM
Bromobenzene	ND	0.16	4.0		µg/Kg	1	9/14/2021 02:15 PM
Bromodichloromethane	ND	0.33	4.0		µg/Kg	1	9/14/2021 02:15 PM
Bromoform	ND	0.37	4.0		µg/Kg	1	9/14/2021 02:15 PM
Bromomethane	ND	0.72	4.0		µg/Kg	1	9/14/2021 02:15 PM
Carbon tetrachloride	ND	0.52	4.0		µg/Kg	1	9/14/2021 02:15 PM
Chlorobenzene	ND	0.17	4.0		µg/Kg	1	9/14/2021 02:15 PM
Chloroethane	ND	1.3	4.0		µg/Kg	1	9/14/2021 02:15 PM
Chloroform	ND	0.63	4.0		µg/Kg	1	9/14/2021 02:15 PM
Chloromethane	ND	0.37	4.0		µg/Kg	1	9/14/2021 02:15 PM
cis-1,2-Dichloroethene	ND	0.17	4.0		µg/Kg	1	9/14/2021 02:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-002

Client Sample ID: KB-3-5
Collection Date: 9/9/2021 8:18:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.25	4.0		µg/Kg	1	9/14/2021 02:15 PM
Di-isopropyl ether	ND	0.22	4.0		µg/Kg	1	9/14/2021 02:15 PM
Dibromochloromethane	ND	0.36	4.0		µg/Kg	1	9/14/2021 02:15 PM
Dibromomethane	ND	0.21	4.0		µg/Kg	1	9/14/2021 02:15 PM
Dichlorodifluoromethane	ND	0.62	4.0		µg/Kg	1	9/14/2021 02:15 PM
Ethyl Tert-butyl ether	ND	0.18	4.0		µg/Kg	1	9/14/2021 02:15 PM
Ethylbenzene	ND	0.18	4.0		µg/Kg	1	9/14/2021 02:15 PM
Freon-113	ND	0.44	4.0		µg/Kg	1	9/14/2021 02:15 PM
Hexachlorobutadiene	ND	0.47	4.0		µg/Kg	1	9/14/2021 02:15 PM
Isopropylbenzene	ND	0.15	4.0		µg/Kg	1	9/14/2021 02:15 PM
m,p-Xylene	ND	0.36	8.0		µg/Kg	1	9/14/2021 02:15 PM
Methylene chloride	ND	2.9	4.0		µg/Kg	1	9/14/2021 02:15 PM
MTBE	ND	0.69	4.0		µg/Kg	1	9/14/2021 02:15 PM
n-Butylbenzene	ND	0.15	4.0		µg/Kg	1	9/14/2021 02:15 PM
n-Propylbenzene	ND	0.16	4.0		µg/Kg	1	9/14/2021 02:15 PM
Naphthalene	ND	0.30	4.0		µg/Kg	1	9/14/2021 02:15 PM
o-Xylene	ND	0.14	4.0		µg/Kg	1	9/14/2021 02:15 PM
sec-Butylbenzene	ND	0.14	4.0		µg/Kg	1	9/14/2021 02:15 PM
Styrene	ND	0.95	4.0		µg/Kg	1	9/14/2021 02:15 PM
Tert-amyl methyl ether	ND	0.21	4.0		µg/Kg	1	9/14/2021 02:15 PM
Tert-Butanol	ND	5.2	20		µg/Kg	1	9/14/2021 02:15 PM
tert-Butylbenzene	ND	0.16	4.0		µg/Kg	1	9/14/2021 02:15 PM
Tetrachloroethene	ND	0.40	4.0		µg/Kg	1	9/14/2021 02:15 PM
Toluene	ND	0.23	4.0		µg/Kg	1	9/14/2021 02:15 PM
trans-1,2-Dichloroethene	ND	0.43	4.0		µg/Kg	1	9/14/2021 02:15 PM
Trichloroethene	ND	0.41	4.0		µg/Kg	1	9/14/2021 02:15 PM
Trichlorofluoromethane	ND	0.46	4.0		µg/Kg	1	9/14/2021 02:15 PM
Vinyl chloride	ND	0.30	4.0		µg/Kg	1	9/14/2021 02:15 PM
Surr: 1,2-Dichloroethane-d4	137	0	64-165		%REC	1	9/14/2021 02:15 PM
Surr: 4-Bromofluorobenzene	92.4	0	69-124		%REC	1	9/14/2021 02:15 PM
Surr: Dibromofluoromethane	122	0	72-142		%REC	1	9/14/2021 02:15 PM
Surr: Toluene-d8	94.3	0	75-124		%REC	1	9/14/2021 02:15 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B** QC Batch: **89263**					PrepDate: **9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-3-5
Lab Order:	N047070	**Collection Date:**	9/9/2021 8:18:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047070-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**			PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/13/2021 06:38 PM
T/R Hydrocarbons: C23-C40	25	10	10		mg/Kg	1	9/13/2021 06:38 PM
Surr: p-Terphenyl	126	0	56-133		%REC	1	9/13/2021 06:38 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210915B**	QC Batch: **Q21VS118**			PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.20	0.19	0.78	J	mg/Kg	1	9/16/2021 10:02 AM
Surr: Chlorobenzene - d5	90.3	0	54-160		%REC	1	9/16/2021 10:02 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210913A**	QC Batch: **89255**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.017	0.010	0.10	J	mg/Kg	1	9/13/2021 09:51 AM
TOTAL METALS BY ICP							
	EPA 3050B		**EPA 6010B**				
RunID: **NV00922-ICP2_210911D**	QC Batch: **89254**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 08:22 PM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/16/2021 09:59 PM
Barium	110	0.31	1.0		mg/Kg	1	9/11/2021 08:22 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 08:22 PM
Cadmium	0.61	0.27	1.0	J	mg/Kg	1	9/11/2021 08:22 PM
Chromium	160	0.32	1.0		mg/Kg	1	9/16/2021 09:59 PM
Cobalt	6.7	0.29	1.0		mg/Kg	1	9/11/2021 08:22 PM
Copper	13	0.89	2.0		mg/Kg	1	9/11/2021 08:22 PM
Lead	3.2	0.30	1.0		mg/Kg	1	9/11/2021 08:22 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 08:22 PM
Nickel	15	0.34	1.0		mg/Kg	1	9/11/2021 08:22 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 08:22 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 08:22 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/11/2021 08:22 PM
Vanadium	36	0.22	1.0		mg/Kg	1	9/11/2021 08:22 PM
Zinc	34	0.30	1.0		mg/Kg	1	9/11/2021 08:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-003

Client Sample ID: KB-3-10
Collection Date: 9/9/2021 8:55:00 AM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.47	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1,1-Trichloroethane	ND	0.37	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1,2,2-Tetrachloroethane	ND	0.21	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1,2-Trichloroethane	ND	0.42	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1-Dichloroethane	ND	0.40	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1-Dichloroethene	ND	0.29	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,1-Dichloropropene	ND	0.29	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2,3-Trichlorobenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2,3-Trichloropropane	ND	0.43	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2,4-Trichlorobenzene	ND	0.17	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2,4-Trimethylbenzene	ND	0.11	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2-Dibromo-3-chloropropane	ND	0.62	9.1		µg/Kg	1	9/14/2021 02:39 PM
1,2-Dibromoethane	ND	0.34	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2-Dichloroethane	ND	0.30	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,2-Dichloropropane	ND	0.28	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,3,5-Trimethylbenzene	ND	0.50	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,3-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,3-Dichloropropane	ND	0.24	4.6		µg/Kg	1	9/14/2021 02:39 PM
1,4-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 02:39 PM
2,2-Dichloropropane	ND	0.35	4.6		µg/Kg	1	9/14/2021 02:39 PM
2-Butanone	ND	8.5	46		µg/Kg	1	9/14/2021 02:39 PM
2-Chlorotoluene	ND	0.16	4.6		µg/Kg	1	9/14/2021 02:39 PM
4-Chlorotoluene	ND	0.13	4.6		µg/Kg	1	9/14/2021 02:39 PM
4-Isopropyltoluene	ND	0.14	4.6		µg/Kg	1	9/14/2021 02:39 PM
Benzene	ND	0.19	4.6		µg/Kg	1	9/14/2021 02:39 PM
Bromobenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 02:39 PM
Bromodichloromethane	ND	0.37	4.6		µg/Kg	1	9/14/2021 02:39 PM
Bromoform	ND	0.42	4.6		µg/Kg	1	9/14/2021 02:39 PM
Bromomethane	ND	0.82	4.6		µg/Kg	1	9/14/2021 02:39 PM
Carbon tetrachloride	ND	0.59	4.6		µg/Kg	1	9/14/2021 02:39 PM
Chlorobenzene	ND	0.20	4.6		µg/Kg	1	9/14/2021 02:39 PM
Chloroethane	ND	1.5	4.6		µg/Kg	1	9/14/2021 02:39 PM
Chloroform	ND	0.72	4.6		µg/Kg	1	9/14/2021 02:39 PM
Chloromethane	ND	0.42	4.6		µg/Kg	1	9/14/2021 02:39 PM
cis-1,2-Dichloroethene	ND	0.19	4.6		µg/Kg	1	9/14/2021 02:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-003

Client Sample ID: KB-3-10
Collection Date: 9/9/2021 8:55:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.29	4.6		µg/Kg	1	9/14/2021 02:39 PM
Di-isopropyl ether	ND	0.25	4.6		µg/Kg	1	9/14/2021 02:39 PM
Dibromochloromethane	ND	0.41	4.6		µg/Kg	1	9/14/2021 02:39 PM
Dibromomethane	ND	0.24	4.6		µg/Kg	1	9/14/2021 02:39 PM
Dichlorodifluoromethane	ND	0.70	4.6		µg/Kg	1	9/14/2021 02:39 PM
Ethyl Tert-butyl ether	ND	0.20	4.6		µg/Kg	1	9/14/2021 02:39 PM
Ethylbenzene	ND	0.20	4.6		µg/Kg	1	9/14/2021 02:39 PM
Freon-113	ND	0.50	4.6		µg/Kg	1	9/14/2021 02:39 PM
Hexachlorobutadiene	ND	0.54	4.6		µg/Kg	1	9/14/2021 02:39 PM
Isopropylbenzene	ND	0.17	4.6		µg/Kg	1	9/14/2021 02:39 PM
m,p-Xylene	ND	0.41	9.1		µg/Kg	1	9/14/2021 02:39 PM
Methylene chloride	ND	3.3	4.6		µg/Kg	1	9/14/2021 02:39 PM
MTBE	ND	0.79	4.6		µg/Kg	1	9/14/2021 02:39 PM
n-Butylbenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 02:39 PM
n-Propylbenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 02:39 PM
Naphthalene	ND	0.35	4.6		µg/Kg	1	9/14/2021 02:39 PM
o-Xylene	ND	0.16	4.6		µg/Kg	1	9/14/2021 02:39 PM
sec-Butylbenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 02:39 PM
Styrene	ND	1.1	4.6		µg/Kg	1	9/14/2021 02:39 PM
Tert-amyl methyl ether	ND	0.23	4.6		µg/Kg	1	9/14/2021 02:39 PM
Tert-Butanol	ND	5.9	23		µg/Kg	1	9/14/2021 02:39 PM
tert-Butylbenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 02:39 PM
Tetrachloroethene	ND	0.45	4.6		µg/Kg	1	9/14/2021 02:39 PM
Toluene	ND	0.26	4.6		µg/Kg	1	9/14/2021 02:39 PM
trans-1,2-Dichloroethene	ND	0.49	4.6		µg/Kg	1	9/14/2021 02:39 PM
Trichloroethene	ND	0.46	4.6		µg/Kg	1	9/14/2021 02:39 PM
Trichlorofluoromethane	ND	0.52	4.6		µg/Kg	1	9/14/2021 02:39 PM
Vinyl chloride	ND	0.35	4.6		µg/Kg	1	9/14/2021 02:39 PM
Surr: 1,2-Dichloroethane-d4	130	0	64-165		%REC	1	9/14/2021 02:39 PM
Surr: 4-Bromofluorobenzene	95.3	0	69-124		%REC	1	9/14/2021 02:39 PM
Surr: Dibromofluoromethane	120	0	72-142		%REC	1	9/14/2021 02:39 PM
Surr: Toluene-d8	99.3	0	75-124		%REC	1	9/14/2021 02:39 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B** QC Batch: **89263**					PrepDate: **9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-003

Client Sample ID: KB-3-10
Collection Date: 9/9/2021 8:55:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**			PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/13/2021 07:08 PM
T/R Hydrocarbons: C23-C40	ND	10	10		mg/Kg	1	9/13/2021 07:08 PM
Surr: p-Terphenyl	124	0	56-133		%REC	1	9/13/2021 07:08 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210915B**	QC Batch: **Q21VS118**			PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.20	0.19	0.78	J	mg/Kg	1	9/16/2021 10:35 AM
Surr: Chlorobenzene - d5	85.7	0	54-160		%REC	1	9/16/2021 10:35 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210913A**	QC Batch: **89255**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.11	0.010	0.10		mg/Kg	1	9/13/2021 09:55 AM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210911D**	QC Batch: **89254**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 08:28 PM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/13/2021 11:23 AM
Barium	47	0.31	1.0		mg/Kg	1	9/11/2021 08:28 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 08:28 PM
Cadmium	0.52	0.27	1.0	J	mg/Kg	1	9/11/2021 08:28 PM
Chromium	19	0.32	1.0		mg/Kg	1	9/13/2021 11:23 AM
Cobalt	5.0	0.29	1.0		mg/Kg	1	9/11/2021 08:28 PM
Copper	13	0.89	2.0		mg/Kg	1	9/11/2021 08:28 PM
Lead	2.4	0.30	1.0		mg/Kg	1	9/11/2021 08:28 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 08:28 PM
Nickel	11	0.34	1.0		mg/Kg	1	9/11/2021 08:28 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 08:28 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 08:28 PM
Thallium	0.55	0.35	2.0	J	mg/Kg	1	9/11/2021 08:28 PM
Vanadium	30	0.22	1.0		mg/Kg	1	9/11/2021 08:28 PM
Zinc	28	0.30	1.0		mg/Kg	1	9/11/2021 08:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-005

Client Sample ID: KB-3-20
Collection Date: 9/9/2021 9:20:00 AM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.48	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1,1-Trichloroethane	ND	0.37	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1,2,2-Tetrachloroethane	ND	0.21	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1,2-Trichloroethane	ND	0.43	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1-Dichloroethane	ND	0.41	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1-Dichloroethene	ND	0.30	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,1-Dichloropropene	ND	0.30	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2,3-Trichlorobenzene	ND	0.19	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2,3-Trichloropropane	ND	0.43	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2,4-Trichlorobenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2,4-Trimethylbenzene	ND	0.11	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2-Dibromo-3-chloropropane	ND	0.63	9.3		µg/Kg	1	9/14/2021 03:03 PM
1,2-Dibromoethane	ND	0.34	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2-Dichloroethane	ND	0.30	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,2-Dichloropropane	ND	0.28	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,3,5-Trimethylbenzene	ND	0.51	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,3-Dichlorobenzene	ND	0.16	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,3-Dichloropropane	ND	0.24	4.6		µg/Kg	1	9/14/2021 03:03 PM
1,4-Dichlorobenzene	ND	0.15	4.6		µg/Kg	1	9/14/2021 03:03 PM
2,2-Dichloropropane	ND	0.36	4.6		µg/Kg	1	9/14/2021 03:03 PM
2-Butanone	ND	8.6	46		µg/Kg	1	9/14/2021 03:03 PM
2-Chlorotoluene	ND	0.16	4.6		µg/Kg	1	9/14/2021 03:03 PM
4-Chlorotoluene	ND	0.13	4.6		µg/Kg	1	9/14/2021 03:03 PM
4-Isopropyltoluene	ND	0.14	4.6		µg/Kg	1	9/14/2021 03:03 PM
Benzene	ND	0.20	4.6		µg/Kg	1	9/14/2021 03:03 PM
Bromobenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 03:03 PM
Bromodichloromethane	ND	0.38	4.6		µg/Kg	1	9/14/2021 03:03 PM
Bromoform	ND	0.43	4.6		µg/Kg	1	9/14/2021 03:03 PM
Bromomethane	ND	0.83	4.6		µg/Kg	1	9/14/2021 03:03 PM
Carbon tetrachloride	ND	0.60	4.6		µg/Kg	1	9/14/2021 03:03 PM
Chlorobenzene	ND	0.20	4.6		µg/Kg	1	9/14/2021 03:03 PM
Chloroethane	ND	1.5	4.6		µg/Kg	1	9/14/2021 03:03 PM
Chloroform	ND	0.73	4.6		µg/Kg	1	9/14/2021 03:03 PM
Chloromethane	0.81	0.43	4.6	J	µg/Kg	1	9/14/2021 03:03 PM
cis-1,2-Dichloroethene	ND	0.19	4.6		µg/Kg	1	9/14/2021 03:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-005

Client Sample ID: KB-3-20
Collection Date: 9/9/2021 9:20:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.29	4.6		µg/Kg	1	9/14/2021 03:03 PM
Di-isopropyl ether	ND	0.26	4.6		µg/Kg	1	9/14/2021 03:03 PM
Dibromochloromethane	ND	0.41	4.6		µg/Kg	1	9/14/2021 03:03 PM
Dibromomethane	ND	0.25	4.6		µg/Kg	1	9/14/2021 03:03 PM
Dichlorodifluoromethane	ND	0.71	4.6		µg/Kg	1	9/14/2021 03:03 PM
Ethyl Tert-butyl ether	ND	0.21	4.6		µg/Kg	1	9/14/2021 03:03 PM
Ethylbenzene	ND	0.21	4.6		µg/Kg	1	9/14/2021 03:03 PM
Freon-113	ND	0.51	4.6		µg/Kg	1	9/14/2021 03:03 PM
Hexachlorobutadiene	ND	0.55	4.6		µg/Kg	1	9/14/2021 03:03 PM
Isopropylbenzene	ND	0.17	4.6		µg/Kg	1	9/14/2021 03:03 PM
m,p-Xylene	ND	0.42	9.3		µg/Kg	1	9/14/2021 03:03 PM
Methylene chloride	ND	3.3	4.6		µg/Kg	1	9/14/2021 03:03 PM
MTBE	ND	0.80	4.6		µg/Kg	1	9/14/2021 03:03 PM
n-Butylbenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 03:03 PM
n-Propylbenzene	ND	0.18	4.6		µg/Kg	1	9/14/2021 03:03 PM
Naphthalene	ND	0.35	4.6		µg/Kg	1	9/14/2021 03:03 PM
o-Xylene	ND	0.16	4.6		µg/Kg	1	9/14/2021 03:03 PM
sec-Butylbenzene	ND	0.16	4.6		µg/Kg	1	9/14/2021 03:03 PM
Styrene	ND	1.1	4.6		µg/Kg	1	9/14/2021 03:03 PM
Tert-amyl methyl ether	ND	0.24	4.6		µg/Kg	1	9/14/2021 03:03 PM
Tert-Butanol	ND	6.0	23		µg/Kg	1	9/14/2021 03:03 PM
tert-Butylbenzene	ND	0.19	4.6		µg/Kg	1	9/14/2021 03:03 PM
Tetrachloroethene	ND	0.46	4.6		µg/Kg	1	9/14/2021 03:03 PM
Toluene	ND	0.27	4.6		µg/Kg	1	9/14/2021 03:03 PM
trans-1,2-Dichloroethene	ND	0.50	4.6		µg/Kg	1	9/14/2021 03:03 PM
Trichloroethene	ND	0.47	4.6		µg/Kg	1	9/14/2021 03:03 PM
Trichlorofluoromethane	ND	0.53	4.6		µg/Kg	1	9/14/2021 03:03 PM
Vinyl chloride	ND	0.35	4.6		µg/Kg	1	9/14/2021 03:03 PM
Surr: 1,2-Dichloroethane-d4	131	0	64-165		%REC	1	9/14/2021 03:03 PM
Surr: 4-Bromofluorobenzene	91.8	0	69-124		%REC	1	9/14/2021 03:03 PM
Surr: Dibromofluoromethane	119	0	72-142		%REC	1	9/14/2021 03:03 PM
Surr: Toluene-d8	95.5	0	75-124		%REC	1	9/14/2021 03:03 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B** QC Batch: **89263**					PrepDate: **9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-005

Client Sample ID: KB-3-20
Collection Date: 9/9/2021 9:20:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**			PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/13/2021 07:38 PM
T/R Hydrocarbons: C23-C40	11	10	10		mg/Kg	1	9/13/2021 07:38 PM
Surr: p-Terphenyl	123	0	56-133		%REC	1	9/13/2021 07:38 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210915B**	QC Batch: **Q21VS118**			PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.21	0.20	0.81	J	mg/Kg	1	9/16/2021 11:08 AM
Surr: Chlorobenzene - d5	90.4	0	54-160		%REC	1	9/16/2021 11:08 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210913A**	QC Batch: **89255**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.048	0.010	0.10	J	mg/Kg	1	9/13/2021 09:58 AM
TOTAL METALS BY ICP							
	EPA 3050B		**EPA 6010B**				
RunID: **NV00922-ICP2_210911D**	QC Batch: **89254**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 08:34 PM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/13/2021 11:27 AM
Barium	30	0.31	1.0		mg/Kg	1	9/11/2021 08:34 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 08:34 PM
Cadmium	0.33	0.27	1.0	J	mg/Kg	1	9/11/2021 08:34 PM
Chromium	9.6	0.32	1.0		mg/Kg	1	9/13/2021 11:27 AM
Cobalt	3.5	0.29	1.0		mg/Kg	1	9/11/2021 08:34 PM
Copper	4.3	0.89	2.0		mg/Kg	1	9/11/2021 08:34 PM
Lead	1.0	0.30	1.0		mg/Kg	1	9/11/2021 08:34 PM
Molybdenum	0.39	0.30	1.0	J	mg/Kg	1	9/11/2021 08:34 PM
Nickel	4.3	0.34	1.0		mg/Kg	1	9/11/2021 08:34 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 08:34 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 08:34 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/11/2021 08:34 PM
Vanadium	20	0.22	1.0		mg/Kg	1	9/11/2021 08:34 PM
Zinc	17	0.30	1.0		mg/Kg	1	9/11/2021 08:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-007

Client Sample ID: KB-4-2.5
Collection Date: 9/9/2021 12:57:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.42	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1,1-Trichloroethane	ND	0.33	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1,2,2-Tetrachloroethane	ND	0.19	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1,2-Trichloroethane	ND	0.38	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1-Dichloroethane	ND	0.36	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1-Dichloroethene	ND	0.26	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,1-Dichloropropene	ND	0.26	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2,3-Trichlorobenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2,3-Trichloropropane	ND	0.38	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2,4-Trichlorobenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2,4-Trimethylbenzene	ND	0.098	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2-Dibromo-3-chloropropane	ND	0.55	8.2		µg/Kg	1	9/14/2021 03:27 PM
1,2-Dibromoethane	ND	0.30	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2-Dichlorobenzene	ND	0.13	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2-Dichloroethane	ND	0.27	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,2-Dichloropropane	ND	0.25	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,3,5-Trimethylbenzene	ND	0.45	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,3-Dichlorobenzene	ND	0.14	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,3-Dichloropropane	ND	0.21	4.1		µg/Kg	1	9/14/2021 03:27 PM
1,4-Dichlorobenzene	ND	0.13	4.1		µg/Kg	1	9/14/2021 03:27 PM
2,2-Dichloropropane	ND	0.32	4.1		µg/Kg	1	9/14/2021 03:27 PM
2-Butanone	ND	7.6	41		µg/Kg	1	9/14/2021 03:27 PM
2-Chlorotoluene	ND	0.14	4.1		µg/Kg	1	9/14/2021 03:27 PM
4-Chlorotoluene	ND	0.11	4.1		µg/Kg	1	9/14/2021 03:27 PM
4-Isopropyltoluene	ND	0.13	4.1		µg/Kg	1	9/14/2021 03:27 PM
Benzene	ND	0.17	4.1		µg/Kg	1	9/14/2021 03:27 PM
Bromobenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
Bromodichloromethane	ND	0.33	4.1		µg/Kg	1	9/14/2021 03:27 PM
Bromoform	ND	0.38	4.1		µg/Kg	1	9/14/2021 03:27 PM
Bromomethane	ND	0.73	4.1		µg/Kg	1	9/14/2021 03:27 PM
Carbon tetrachloride	ND	0.53	4.1		µg/Kg	1	9/14/2021 03:27 PM
Chlorobenzene	ND	0.18	4.1		µg/Kg	1	9/14/2021 03:27 PM
Chloroethane	ND	1.4	4.1		µg/Kg	1	9/14/2021 03:27 PM
Chloroform	ND	0.64	4.1		µg/Kg	1	9/14/2021 03:27 PM
Chloromethane	ND	0.38	4.1		µg/Kg	1	9/14/2021 03:27 PM
cis-1,2-Dichloroethene	ND	0.17	4.1		µg/Kg	1	9/14/2021 03:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-007

Client Sample ID: KB-4-2.5
Collection Date: 9/9/2021 12:57:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**				PrepDate:	**9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.26	4.1		µg/Kg	1	9/14/2021 03:27 PM
Di-isopropyl ether	ND	0.23	4.1		µg/Kg	1	9/14/2021 03:27 PM
Dibromochloromethane	ND	0.36	4.1		µg/Kg	1	9/14/2021 03:27 PM
Dibromomethane	ND	0.22	4.1		µg/Kg	1	9/14/2021 03:27 PM
Dichlorodifluoromethane	ND	0.63	4.1		µg/Kg	1	9/14/2021 03:27 PM
Ethyl Tert-butyl ether	ND	0.18	4.1		µg/Kg	1	9/14/2021 03:27 PM
Ethylbenzene	ND	0.18	4.1		µg/Kg	1	9/14/2021 03:27 PM
Freon-113	ND	0.44	4.1		µg/Kg	1	9/14/2021 03:27 PM
Hexachlorobutadiene	ND	0.48	4.1		µg/Kg	1	9/14/2021 03:27 PM
Isopropylbenzene	ND	0.15	4.1		µg/Kg	1	9/14/2021 03:27 PM
m,p-Xylene	ND	0.37	8.2		µg/Kg	1	9/14/2021 03:27 PM
Methylene chloride	ND	2.9	4.1		µg/Kg	1	9/14/2021 03:27 PM
MTBE	ND	0.70	4.1		µg/Kg	1	9/14/2021 03:27 PM
n-Butylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
n-Propylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
Naphthalene	ND	0.31	4.1		µg/Kg	1	9/14/2021 03:27 PM
o-Xylene	ND	0.14	4.1		µg/Kg	1	9/14/2021 03:27 PM
sec-Butylbenzene	ND	0.14	4.1		µg/Kg	1	9/14/2021 03:27 PM
Styrene	ND	0.96	4.1		µg/Kg	1	9/14/2021 03:27 PM
Tert-amyl methyl ether	ND	0.21	4.1		µg/Kg	1	9/14/2021 03:27 PM
Tert-Butanol	ND	5.3	20		µg/Kg	1	9/14/2021 03:27 PM
tert-Butylbenzene	ND	0.16	4.1		µg/Kg	1	9/14/2021 03:27 PM
Tetrachloroethene	ND	0.41	4.1		µg/Kg	1	9/14/2021 03:27 PM
Toluene	ND	0.24	4.1		µg/Kg	1	9/14/2021 03:27 PM
trans-1,2-Dichloroethene	ND	0.44	4.1		µg/Kg	1	9/14/2021 03:27 PM
Trichloroethene	ND	0.42	4.1		µg/Kg	1	9/14/2021 03:27 PM
Trichlorofluoromethane	ND	0.47	4.1		µg/Kg	1	9/14/2021 03:27 PM
Vinyl chloride	ND	0.31	4.1		µg/Kg	1	9/14/2021 03:27 PM
Surr: 1,2-Dichloroethane-d4	141	0	64-165		%REC	1	9/14/2021 03:27 PM
Surr: 4-Bromofluorobenzene	91.0	0	69-124		%REC	1	9/14/2021 03:27 PM
Surr: Dibromofluoromethane	128	0	72-142		%REC	1	9/14/2021 03:27 PM
Surr: Toluene-d8	97.7	0	75-124		%REC	1	9/14/2021 03:27 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B** QC Batch: **89263**				PrepDate:	**9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-007

Client Sample ID: KB-4-2.5
Collection Date: 9/9/2021 12:57:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**			PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	9.9	9.9		mg/Kg	1	9/13/2021 08:37 PM
T/R Hydrocarbons: C23-C40	49	9.9	9.9		mg/Kg	1	9/13/2021 08:37 PM
Surr: p-Terphenyl	109	0	56-133		%REC	1	9/13/2021 08:37 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210915B**	QC Batch: **Q21VS118**			PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.22	0.20	0.81	J	mg/Kg	1	9/16/2021 11:41 AM
Surr: Chlorobenzene - d5	85.9	0	54-160		%REC	1	9/16/2021 11:41 AM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210913A**	QC Batch: **89255**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.069	0.0099	0.099	J	mg/Kg	1	9/13/2021 10:02 AM
TOTAL METALS BY ICP							
	EPA 3050B		**EPA 6010B**				
RunID: **NV00922-ICP2_210916C**	QC Batch: **89254**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/16/2021 12:57 PM
Arsenic	1.9	0.54	1.0		mg/Kg	1	9/16/2021 07:10 PM
Barium	90	0.31	1.0		mg/Kg	1	9/16/2021 12:57 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/16/2021 12:57 PM
Cadmium	0.63	0.27	1.0	J	mg/Kg	1	9/16/2021 12:57 PM
Chromium	21	0.32	1.0		mg/Kg	1	9/16/2021 07:10 PM
Cobalt	8.9	0.29	1.0		mg/Kg	1	9/16/2021 12:57 PM
Copper	15	0.89	2.0		mg/Kg	1	9/16/2021 12:57 PM
Lead	6.6	0.29	1.0		mg/Kg	1	9/16/2021 12:57 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/16/2021 12:57 PM
Nickel	15	0.34	1.0		mg/Kg	1	9/16/2021 12:57 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/16/2021 12:57 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/16/2021 12:57 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/16/2021 12:57 PM
Vanadium	37	0.22	1.0		mg/Kg	1	9/16/2021 12:57 PM
Zinc	56	0.30	1.0		mg/Kg	1	9/16/2021 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-008

Client Sample ID: KB-4-5
Collection Date: 9/9/2021 1:03:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051** PrepDate: **9/14/2021** Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.44	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1,1-Trichloroethane	ND	0.34	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1,2,2-Tetrachloroethane	ND	0.19	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1,2-Trichloroethane	ND	0.39	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1-Dichloroethane	ND	0.37	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1-Dichloroethene	ND	0.27	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,1-Dichloropropene	ND	0.27	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2,3-Trichlorobenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2,3-Trichloropropane	ND	0.40	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2,4-Trichlorobenzene	ND	0.16	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2,4-Trimethylbenzene	ND	0.10	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2-Dibromo-3-chloropropane	ND	0.58	8.5		µg/Kg	1	9/14/2021 03:51 PM
1,2-Dibromoethane	ND	0.31	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2-Dichlorobenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2-Dichloroethane	ND	0.28	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,2-Dichloropropane	ND	0.26	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,3,5-Trimethylbenzene	ND	0.47	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,3-Dichlorobenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,3-Dichloropropane	ND	0.22	4.3		µg/Kg	1	9/14/2021 03:51 PM
1,4-Dichlorobenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 03:51 PM
2,2-Dichloropropane	ND	0.33	4.3		µg/Kg	1	9/14/2021 03:51 PM
2-Butanone	ND	8.0	43		µg/Kg	1	9/14/2021 03:51 PM
2-Chlorotoluene	ND	0.15	4.3		µg/Kg	1	9/14/2021 03:51 PM
4-Chlorotoluene	ND	0.12	4.3		µg/Kg	1	9/14/2021 03:51 PM
4-Isopropyltoluene	ND	0.13	4.3		µg/Kg	1	9/14/2021 03:51 PM
Benzene	ND	0.18	4.3		µg/Kg	1	9/14/2021 03:51 PM
Bromobenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 03:51 PM
Bromodichloromethane	ND	0.35	4.3		µg/Kg	1	9/14/2021 03:51 PM
Bromoform	ND	0.39	4.3		µg/Kg	1	9/14/2021 03:51 PM
Bromomethane	ND	0.77	4.3		µg/Kg	1	9/14/2021 03:51 PM
Carbon tetrachloride	ND	0.55	4.3		µg/Kg	1	9/14/2021 03:51 PM
Chlorobenzene	ND	0.18	4.3		µg/Kg	1	9/14/2021 03:51 PM
Chloroethane	ND	1.4	4.3		µg/Kg	1	9/14/2021 03:51 PM
Chloroform	ND	0.67	4.3		µg/Kg	1	9/14/2021 03:51 PM
Chloromethane	ND	0.39	4.3		µg/Kg	1	9/14/2021 03:51 PM
cis-1,2-Dichloroethene	ND	0.18	4.3		µg/Kg	1	9/14/2021 03:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-008

Client Sample ID: KB-4-5
Collection Date: 9/9/2021 1:03:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A** QC Batch: **R21VS051**					PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.27	4.3		µg/Kg	1	9/14/2021 03:51 PM
Di-isopropyl ether	ND	0.24	4.3		µg/Kg	1	9/14/2021 03:51 PM
Dibromochloromethane	ND	0.38	4.3		µg/Kg	1	9/14/2021 03:51 PM
Dibromomethane	ND	0.23	4.3		µg/Kg	1	9/14/2021 03:51 PM
Dichlorodifluoromethane	ND	0.66	4.3		µg/Kg	1	9/14/2021 03:51 PM
Ethyl Tert-butyl ether	ND	0.19	4.3		µg/Kg	1	9/14/2021 03:51 PM
Ethylbenzene	ND	0.19	4.3		µg/Kg	1	9/14/2021 03:51 PM
Freon-113	ND	0.47	4.3		µg/Kg	1	9/14/2021 03:51 PM
Hexachlorobutadiene	ND	0.50	4.3		µg/Kg	1	9/14/2021 03:51 PM
Isopropylbenzene	ND	0.16	4.3		µg/Kg	1	9/14/2021 03:51 PM
m,p-Xylene	ND	0.38	8.5		µg/Kg	1	9/14/2021 03:51 PM
Methylene chloride	ND	3.1	4.3		µg/Kg	1	9/14/2021 03:51 PM
MTBE	ND	0.73	4.3		µg/Kg	1	9/14/2021 03:51 PM
n-Butylbenzene	ND	0.16	4.3		µg/Kg	1	9/14/2021 03:51 PM
n-Propylbenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 03:51 PM
Naphthalene	ND	0.32	4.3		µg/Kg	1	9/14/2021 03:51 PM
o-Xylene	ND	0.15	4.3		µg/Kg	1	9/14/2021 03:51 PM
sec-Butylbenzene	ND	0.14	4.3		µg/Kg	1	9/14/2021 03:51 PM
Styrene	ND	1.0	4.3		µg/Kg	1	9/14/2021 03:51 PM
Tert-amyl methyl ether	ND	0.22	4.3		µg/Kg	1	9/14/2021 03:51 PM
Tert-Butanol	ND	5.5	21		µg/Kg	1	9/14/2021 03:51 PM
tert-Butylbenzene	ND	0.17	4.3		µg/Kg	1	9/14/2021 03:51 PM
Tetrachloroethene	ND	0.42	4.3		µg/Kg	1	9/14/2021 03:51 PM
Toluene	ND	0.25	4.3		µg/Kg	1	9/14/2021 03:51 PM
trans-1,2-Dichloroethene	ND	0.46	4.3		µg/Kg	1	9/14/2021 03:51 PM
Trichloroethene	ND	0.43	4.3		µg/Kg	1	9/14/2021 03:51 PM
Trichlorofluoromethane	ND	0.49	4.3		µg/Kg	1	9/14/2021 03:51 PM
Vinyl chloride	ND	0.32	4.3		µg/Kg	1	9/14/2021 03:51 PM
Surr: 1,2-Dichloroethane-d4	129	0	64-165		%REC	1	9/14/2021 03:51 PM
Surr: 4-Bromofluorobenzene	92.0	0	69-124		%REC	1	9/14/2021 03:51 PM
Surr: Dibromofluoromethane	116	0	72-142		%REC	1	9/14/2021 03:51 PM
Surr: Toluene-d8	95.7	0	75-124		%REC	1	9/14/2021 03:51 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B** QC Batch: **89263**					PrepDate: **9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-008

Client Sample ID: KB-4-5
Collection Date: 9/9/2021 1:03:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
EPA 3550B			**EPA 8015B(M)**				
RunID: **NV00922-GC1_210913B** QC Batch: **89263**				PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/13/2021 09:06 PM
T/R Hydrocarbons: C23-C40	40	10	10		mg/Kg	1	9/13/2021 09:06 PM
Surr: p-Terphenyl	110	0	56-133		%REC	1	9/13/2021 09:06 PM
GASOLINE RANGE ORGANICS BY GC/FID							
EPA 8015B							
RunID: **NV00922-GC12_210915B** QC Batch: **Q21VS118**				PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.20	0.20	0.80	J	mg/Kg	1	9/16/2021 12:13 PM
Surr: Chlorobenzene - d5	85.4	0	54-160		%REC	1	9/16/2021 12:13 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7471A							
RunID: **NV00922-AA2_210913A** QC Batch: **89255**				PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.048	0.010	0.10	J	mg/Kg	1	9/13/2021 10:05 AM
TOTAL METALS BY ICP							
EPA 3050B			**EPA 6010B**				
RunID: **NV00922-ICP2_210911D** QC Batch: **89254**				PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 09:08 PM
Arsenic	2.8	0.54	1.0		mg/Kg	1	9/13/2021 11:36 AM
Barium	68	0.31	1.0		mg/Kg	1	9/11/2021 09:08 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 09:08 PM
Cadmium	0.62	0.27	1.0	J	mg/Kg	1	9/11/2021 09:08 PM
Chromium	20	0.32	1.0		mg/Kg	1	9/13/2021 11:36 AM
Cobalt	7.4	0.29	1.0		mg/Kg	1	9/11/2021 09:08 PM
Copper	15	0.89	2.0		mg/Kg	1	9/11/2021 09:08 PM
Lead	5.5	0.30	1.0		mg/Kg	1	9/11/2021 09:08 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 09:08 PM
Nickel	14	0.34	1.0		mg/Kg	1	9/11/2021 09:08 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 09:08 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 09:08 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/11/2021 09:08 PM
Vanadium	34	0.22	1.0		mg/Kg	1	9/11/2021 09:08 PM
Zinc	34	0.30	1.0		mg/Kg	1	9/11/2021 09:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-4-10
Lab Order:	N047070	**Collection Date:**	9/9/2021 1:29:00 PM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047070-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A**	QC Batch: **R21VS051**				PrepDate:	**9/14/2021**	Analyst: **AW**
1,1,1,2-Tetrachloroethane	ND	0.52	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1,1-Trichloroethane	ND	0.41	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1,2,2-Tetrachloroethane	ND	0.23	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1,2-Trichloroethane	ND	0.47	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1-Dichloroethane	ND	0.45	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1-Dichloroethene	ND	0.33	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,1-Dichloropropene	ND	0.33	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2,3-Trichlorobenzene	ND	0.20	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2,3-Trichloropropane	ND	0.47	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2,4-Trichlorobenzene	ND	0.19	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2,4-Trimethylbenzene	ND	0.12	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2-Dibromo-3-chloropropane	ND	0.69	10		µg/Kg	1	9/14/2021 04:16 PM
1,2-Dibromoethane	ND	0.37	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2-Dichlorobenzene	ND	0.16	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2-Dichloroethane	ND	0.33	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,2-Dichloropropane	ND	0.31	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,3,5-Trimethylbenzene	ND	0.56	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,3-Dichlorobenzene	ND	0.17	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,3-Dichloropropane	ND	0.26	5.1		µg/Kg	1	9/14/2021 04:16 PM
1,4-Dichlorobenzene	ND	0.16	5.1		µg/Kg	1	9/14/2021 04:16 PM
2,2-Dichloropropane	ND	0.39	5.1		µg/Kg	1	9/14/2021 04:16 PM
2-Butanone	ND	9.5	51		µg/Kg	1	9/14/2021 04:16 PM
2-Chlorotoluene	ND	0.17	5.1		µg/Kg	1	9/14/2021 04:16 PM
4-Chlorotoluene	ND	0.14	5.1		µg/Kg	1	9/14/2021 04:16 PM
4-Isopropyltoluene	ND	0.16	5.1		µg/Kg	1	9/14/2021 04:16 PM
Benzene	ND	0.22	5.1		µg/Kg	1	9/14/2021 04:16 PM
Bromobenzene	ND	0.20	5.1		µg/Kg	1	9/14/2021 04:16 PM
Bromodichloromethane	ND	0.42	5.1		µg/Kg	1	9/14/2021 04:16 PM
Bromoform	ND	0.47	5.1		µg/Kg	1	9/14/2021 04:16 PM
Bromomethane	ND	0.91	5.1		µg/Kg	1	9/14/2021 04:16 PM
Carbon tetrachloride	ND	0.66	5.1		µg/Kg	1	9/14/2021 04:16 PM
Chlorobenzene	ND	0.22	5.1		µg/Kg	1	9/14/2021 04:16 PM
Chloroethane	ND	1.7	5.1		µg/Kg	1	9/14/2021 04:16 PM
Chloroform	ND	0.80	5.1		µg/Kg	1	9/14/2021 04:16 PM
Chloromethane	ND	0.47	5.1		µg/Kg	1	9/14/2021 04:16 PM
cis-1,2-Dichloroethene	ND	0.21	5.1		µg/Kg	1	9/14/2021 04:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-4-10
Lab Order:	N047070	**Collection Date:**	9/9/2021 1:29:00 PM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047070-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210914A**	QC Batch: **R21VS051**				PrepDate: **9/14/2021**		Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.32	5.1		µg/Kg	1	9/14/2021 04:16 PM
Di-isopropyl ether	ND	0.28	5.1		µg/Kg	1	9/14/2021 04:16 PM
Dibromochloromethane	ND	0.45	5.1		µg/Kg	1	9/14/2021 04:16 PM
Dibromomethane	ND	0.27	5.1		µg/Kg	1	9/14/2021 04:16 PM
Dichlorodifluoromethane	ND	0.78	5.1		µg/Kg	1	9/14/2021 04:16 PM
Ethyl Tert-butyl ether	ND	0.23	5.1		µg/Kg	1	9/14/2021 04:16 PM
Ethylbenzene	ND	0.23	5.1		µg/Kg	1	9/14/2021 04:16 PM
Freon-113	ND	0.55	5.1		µg/Kg	1	9/14/2021 04:16 PM
Hexachlorobutadiene	ND	0.60	5.1		µg/Kg	1	9/14/2021 04:16 PM
Isopropylbenzene	ND	0.19	5.1		µg/Kg	1	9/14/2021 04:16 PM
m,p-Xylene	ND	0.46	10		µg/Kg	1	9/14/2021 04:16 PM
Methylene chloride	ND	3.6	5.1		µg/Kg	1	9/14/2021 04:16 PM
MTBE	ND	0.88	5.1		µg/Kg	1	9/14/2021 04:16 PM
n-Butylbenzene	ND	0.20	5.1		µg/Kg	1	9/14/2021 04:16 PM
n-Propylbenzene	ND	0.20	5.1		µg/Kg	1	9/14/2021 04:16 PM
Naphthalene	ND	0.39	5.1		µg/Kg	1	9/14/2021 04:16 PM
o-Xylene	ND	0.18	5.1		µg/Kg	1	9/14/2021 04:16 PM
sec-Butylbenzene	ND	0.17	5.1		µg/Kg	1	9/14/2021 04:16 PM
Styrene	ND	1.2	5.1		µg/Kg	1	9/14/2021 04:16 PM
Tert-amyl methyl ether	ND	0.26	5.1		µg/Kg	1	9/14/2021 04:16 PM
Tert-Butanol	ND	6.6	25		µg/Kg	1	9/14/2021 04:16 PM
tert-Butylbenzene	ND	0.20	5.1		µg/Kg	1	9/14/2021 04:16 PM
Tetrachloroethene	ND	0.51	5.1		µg/Kg	1	9/14/2021 04:16 PM
Toluene	ND	0.29	5.1		µg/Kg	1	9/14/2021 04:16 PM
trans-1,2-Dichloroethene	ND	0.55	5.1		µg/Kg	1	9/14/2021 04:16 PM
Trichloroethene	ND	0.52	5.1		µg/Kg	1	9/14/2021 04:16 PM
Trichlorofluoromethane	ND	0.58	5.1		µg/Kg	1	9/14/2021 04:16 PM
Vinyl chloride	ND	0.39	5.1		µg/Kg	1	9/14/2021 04:16 PM
Surr: 1,2-Dichloroethane-d4	130	0	64-165		%REC	1	9/14/2021 04:16 PM
Surr: 4-Bromofluorobenzene	92.6	0	69-124		%REC	1	9/14/2021 04:16 PM
Surr: Dibromofluoromethane	119	0	72-142		%REC	1	9/14/2021 04:16 PM
Surr: Toluene-d8	99.7	0	75-124		%REC	1	9/14/2021 04:16 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3550B		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**				PrepDate: **9/13/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047070
Project: Costco Culver City, 20201678.001A
Lab ID: N047070-009

Client Sample ID: KB-4-10
Collection Date: 9/9/2021 1:29:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3550B			**EPA 8015B(M)**			
RunID: **NV00922-GC1_210913B**	QC Batch: **89263**			PrepDate:		**9/13/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	10	10		mg/Kg	1	9/13/2021 08:07 PM
T/R Hydrocarbons: C23-C40	ND	10	10		mg/Kg	1	9/13/2021 08:07 PM
Surr: p-Terphenyl	113	0	56-133		%REC	1	9/13/2021 08:07 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC12_210915B**	QC Batch: **Q21VS118**			PrepDate:		**9/15/2021**	Analyst: **YG**
GRO (C6 - C12)	0.26	0.24	0.97	J	mg/Kg	1	9/16/2021 12:46 PM
Surr: Chlorobenzene - d5	87.3	0	54-160		%REC	1	9/16/2021 12:46 PM
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA2_210913A**	QC Batch: **89255**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Mercury	0.047	0.0099	0.099	J	mg/Kg	1	9/13/2021 10:08 AM
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **NV00922-ICP2_210911D**	QC Batch: **89254**			PrepDate:		**9/11/2021**	Analyst: **DJ**
Antimony	ND	0.33	2.0		mg/Kg	1	9/11/2021 09:14 PM
Arsenic	ND	0.54	1.0		mg/Kg	1	9/13/2021 11:48 AM
Barium	30	0.31	1.0		mg/Kg	1	9/11/2021 09:14 PM
Beryllium	ND	0.22	1.0		mg/Kg	1	9/11/2021 09:14 PM
Cadmium	0.37	0.27	1.0	J	mg/Kg	1	9/11/2021 09:14 PM
Chromium	7.9	0.32	1.0		mg/Kg	1	9/13/2021 11:48 AM
Cobalt	4.7	0.29	1.0		mg/Kg	1	9/11/2021 09:14 PM
Copper	5.5	0.89	2.0		mg/Kg	1	9/11/2021 09:14 PM
Lead	1.4	0.29	1.0		mg/Kg	1	9/11/2021 09:14 PM
Molybdenum	ND	0.30	1.0		mg/Kg	1	9/11/2021 09:14 PM
Nickel	5.4	0.34	1.0		mg/Kg	1	9/11/2021 09:14 PM
Selenium	ND	0.60	1.0		mg/Kg	1	9/11/2021 09:14 PM
Silver	ND	0.62	1.0		mg/Kg	1	9/11/2021 09:14 PM
Thallium	ND	0.35	2.0		mg/Kg	1	9/11/2021 09:14 PM
Vanadium	25	0.22	1.0		mg/Kg	1	9/11/2021 09:14 PM
Zinc	17	0.30	1.0		mg/Kg	1	9/11/2021 09:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-89254** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **PBS** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **LCS-89254** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **LCSS** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	26.982	2.0	25.00	0	108	80	120				
Barium	27.377	1.0	25.00	0	110	80	120				
Beryllium	26.573	1.0	25.00	0	106	80	120				
Cadmium	26.398	1.0	25.00	0	106	80	120				
Cobalt	26.366	1.0	25.00	0	105	80	120				
Copper	26.465	2.0	25.00	0	106	80	120				
Lead	26.792	1.0	25.00	0	107	80	120				
Molybdenum	27.416	1.0	25.00	0	110	80	120				
Nickel	26.832	1.0	25.00	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-89254** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **LCSS** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	25.781	1.0	25.00	0	103	80	120				
Silver	27.920	1.0	25.00	0	112	80	120				
Thallium	25.892	2.0	25.00	0	104	80	120				
Vanadium	26.577	1.0	25.00	0	106	80	120				
Zinc	26.574	1.0	25.00	0	106	80	120				

Sample ID: **N047061-001A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **ZZZZZZ** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Barium	97.913	1.0						98.24	0.335	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	0.557	1.0						0.5778	0	20	J
Cobalt	8.079	1.0						8.434	4.30	20	
Copper	17.401	2.0						18.58	6.53	20	
Lead	20.186	1.0						31.78	44.6	20	R
Molybdenum	ND	1.0						0	0	20	
Nickel	12.325	1.0						13.16	6.55	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	2.0						0	0	20	
Vanadium	28.248	1.0						29.66	4.87	20	
Zinc	54.181	1.0						54.37	0.341	20	

Sample ID: **N047061-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **ZZZZZZ** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	16.705	2.0	24.99	0	66.9	75	125				S

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N047061-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **ZZZZZZ** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	118.813	1.0	24.99	98.24	82.3	75	125				
Beryllium	16.997	1.0	24.99	0	68.0	75	125				S
Cadmium	16.825	1.0	24.99	0.5778	65.0	75	125				S
Cobalt	26.871	1.0	24.99	8.434	73.8	75	125				S
Copper	39.949	2.0	24.99	18.58	85.5	75	125				
Lead	40.487	1.0	24.99	31.78	34.8	75	125				S
Molybdenum	18.329	1.0	24.99	0	73.4	75	125				S
Nickel	30.181	1.0	24.99	13.16	68.1	75	125				S
Selenium	13.860	1.0	24.99	0	55.5	75	125				S
Silver	20.162	1.0	24.99	0	80.7	75	125				
Thallium	15.522	2.0	24.99	0	62.1	75	125				S
Vanadium	49.389	1.0	24.99	29.66	79.0	75	125				
Zinc	74.708	1.0	24.99	54.37	81.4	75	125				

Sample ID: **N047061-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **9/11/2021** RunNo: **156599**
Client ID: **ZZZZZZ** Batch ID: **89254** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **9/11/2021** SeqNo: **4346725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	17.041	2.0	24.98	0	68.2	75	125	16.71	1.99	20	S
Barium	131.658	1.0	24.98	98.24	134	75	125	118.8	10.3	20	S
Beryllium	17.510	1.0	24.98	0	70.1	75	125	17.00	2.97	20	S
Cadmium	17.349	1.0	24.98	0.5778	67.2	75	125	16.83	3.07	20	S
Cobalt	27.771	1.0	24.98	8.434	77.4	75	125	26.87	3.29	20	
Copper	41.601	2.0	24.98	18.58	92.2	75	125	39.95	4.05	20	
Lead	41.766	1.0	24.98	31.78	40.0	75	125	40.49	3.11	20	S
Molybdenum	18.850	1.0	24.98	0	75.5	75	125	18.33	2.80	20	
Nickel	30.858	1.0	24.98	13.16	70.9	75	125	30.18	2.22	20	S
Selenium	14.187	1.0	24.98	0	56.8	75	125	13.86	2.33	20	S
Silver	20.819	1.0	24.98	0	83.4	75	125	20.16	3.21	20	
Thallium	15.856	2.0	24.98	0	63.5	75	125	15.52	2.13	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N047061-001A-MSD**	SampType: **MSD**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156599**
Client ID: **ZZZZZZ**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/11/2021**	SeqNo: **4346725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	52.290	1.0	24.98	29.66	90.6	75	125	49.39	5.71	20	
Zinc	80.177	1.0	24.98	54.37	103	75	125	74.71	7.06	20	

Sample ID: **MB-89254**	SampType: **MBLK**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **PBS**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0									
Chromium	ND	1.0									

Sample ID: **LCS-89254**	SampType: **LCS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **LCSS**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	27.464	1.0	25.00	0	110	80	120				
Chromium	26.112	1.0	25.00	0	104	80	120				

Sample ID: **N047061-001A-DUP**	SampType: **DUP**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **ZZZZZZ**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0						0	0	20	
Chromium	15.435	1.0						16.23	5.00	20	

Sample ID: **N047061-001A-MS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **ZZZZZZ**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.143	1.0	24.99	0	80.6	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N047061-001A-MS**	SampType: **MS**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **ZZZZZZ**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	35.517	1.0	24.99	16.23	77.2	75	125				

Sample ID: **N047061-001A-MSD**	SampType: **MSD**	TestCode: **6010_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156621**
Client ID: **ZZZZZZ**	Batch ID: **89254**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **9/13/2021**	SeqNo: **4348368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.895	1.0	24.98	0	79.7	75	125	20.14	1.24	20	
Chromium	35.650	1.0	24.98	16.23	77.8	75	125	35.52	0.374	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-89255**	SampType: **MBLK**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156615**
Client ID: **PBS**	Batch ID: **89255**	TestNo: **EPA 7471A**		Analysis Date: **9/13/2021**	SeqNo: **4347903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.011	0.10									J

Sample ID: **LCS-89255**	SampType: **LCS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156615**
Client ID: **LCSS**	Batch ID: **89255**	TestNo: **EPA 7471A**		Analysis Date: **9/13/2021**	SeqNo: **4347904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.440	0.10	0.4167	0	106	80	120				

Sample ID: **N047062-001A-MS**	SampType: **MS**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156615**
Client ID: **ZZZZZZ**	Batch ID: **89255**	TestNo: **EPA 7471A**		Analysis Date: **9/13/2021**	SeqNo: **4347909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.469	0.099	0.4105	0.01206	111	75	125				

Sample ID: **N047062-001A-MSD**	SampType: **MSD**	TestCode: **7471_S**	Units: **mg/Kg**	Prep Date: **9/11/2021**	RunNo: **156615**
Client ID: **ZZZZZZ**	Batch ID: **89255**	TestNo: **EPA 7471A**		Analysis Date: **9/13/2021**	SeqNo: **4347910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.389	0.10	0.4153	0.01206	90.7	75	125	0.4688	18.7	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_5035C6C12

Sample ID: **Q210915LCS** SampType: **LCS** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **LCSS** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352987**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	4.455	1.0	5.000	0	89.1	79	134				
Surr: Chlorobenzene - d5	85.533		100.0		85.5	54	160				

Sample ID: **Q210915LCSD** SampType: **LCSD** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **LCSS02** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	4.359	1.0	5.000	0	87.2	79	134	4.455	2.18	20	
Surr: Chlorobenzene - d5	88.702		100.0		88.7	54	160		0		

Sample ID: **Q210915MB** SampType: **MBLK** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **PBS** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	0.298	1.0									J
Surr: Chlorobenzene - d5	93.040		100.0		93.0	54	160				

Sample ID: **N047112-005AMSD** SampType: **MSD** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **ZZZZZZ** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	3.405	1.0	5.000	0	68.1	25	166	4.260	22.3	20	R
Surr: Chlorobenzene - d5	61.755		100.0		61.8	54	160		0		

Sample ID: **N047112-005AMS** SampType: **MS** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **ZZZZZZ** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	4.260	1.0	5.000	0	85.2	25	166				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_5035C6C12

Sample ID: **N047112-005AMS** SampType: **MS** TestCode: **8015GAS_503** Units: **mg/Kg** Prep Date: RunNo: **156695**
Client ID: **ZZZZZZ** Batch ID: **Q21VS118** TestNo: **EPA 8015B** Analysis Date: **9/16/2021** SeqNo: **4352999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	85.138		100.0		85.1	54	160				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	44.280	5.0	40.00	0	111	76	125				
1,1,1-Trichloroethane	44.780	5.0	40.00	0	112	76	124				
1,1,2,2-Tetrachloroethane	38.200	5.0	40.00	0	95.5	71	120				
1,1,2-Trichloroethane	40.520	5.0	40.00	0	101	71	120				
1,1-Dichloroethane	40.000	5.0	40.00	0	100	74	127				
1,1-Dichloroethene	43.760	5.0	40.00	0	109	72	123				
1,1-Dichloropropene	48.100	5.0	40.00	0	120	80	127				
1,2,3-Trichlorobenzene	43.980	5.0	40.00	0	110	76	123				
1,2,3-Trichloropropane	42.720	5.0	40.00	0	107	69	119				
1,2,4-Trichlorobenzene	42.930	5.0	40.00	0	107	76	122				
1,2,4-Trimethylbenzene	43.340	5.0	40.00	0	108	80	132				
1,2-Dibromo-3-chloropropane	41.750	10	40.00	0	104	64	130				
1,2-Dibromoethane	43.210	5.0	40.00	0	108	73	121				
1,2-Dichlorobenzene	43.990	5.0	40.00	0	110	80	120				
1,2-Dichloroethane	42.330	5.0	40.00	0	106	76	121				
1,2-Dichloropropane	40.930	5.0	40.00	0	102	76	120				
1,3,5-Trimethylbenzene	43.320	5.0	40.00	0	108	80	129				
1,3-Dichlorobenzene	45.510	5.0	40.00	0	114	80	120				
1,3-Dichloropropane	41.350	5.0	40.00	0	103	76	120				
1,4-Dichlorobenzene	43.810	5.0	40.00	0	110	80	120				
2,2-Dichloropropane	44.070	5.0	40.00	0	110	68	132				
2-Butanone	411.860	50	400.0	0	103	34	149				
2-Chlorotoluene	46.700	5.0	40.00	0	117	80	122				
4-Chlorotoluene	47.190	5.0	40.00	0	118	79	124				
4-Isopropyltoluene	42.590	5.0	40.00	0	106	80	133				
Benzene	44.980	5.0	40.00	0	112	80	120				
Bromobenzene	42.930	5.0	40.00	0	107	80	120				
Bromodichloromethane	42.600	5.0	40.00	0	106	76	120				
Bromoform	44.910	5.0	40.00	0	112	70	131				
Bromomethane	47.780	5.0	40.00	0	119	62	144				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	49.670	5.0	40.00	0	124	72	136				
Chlorobenzene	44.780	5.0	40.00	0	112	80	120				
Chloroethane	42.500	5.0	40.00	0	106	64	155				
Chloroform	41.090	5.0	40.00	0	103	76	121				
Chloromethane	37.690	5.0	40.00	0	94.2	56	142				
cis-1,2-Dichloroethene	41.510	5.0	40.00	0	104	76	120				
cis-1,3-Dichloropropene	41.580	5.0	40.00	0	104	73	120				
Di-isopropyl ether	37.570	5.0	40.00	0	93.9	68	130				
Dibromochloromethane	43.100	5.0	40.00	0	108	76	123				
Dibromomethane	40.490	5.0	40.00	0	101	77	120				
Dichlorodifluoromethane	39.460	5.0	40.00	0	98.6	51	152				
Ethyl Tert-butyl ether	46.050	5.0	40.00	0	115	72	126				
Ethylbenzene	47.490	5.0	40.00	0	119	80	120				
Freon-113	44.590	5.0	40.00	0	111	57	136				
Hexachlorobutadiene	44.900	5.0	40.00	0	112	77	122				
Isopropylbenzene	41.870	5.0	40.00	0	105	79	128				
m,p-Xylene	94.400	10	80.00	0	118	69	141				
Methylene chloride	38.440	5.0	40.00	0	96.1	70	124				
MTBE	39.120	5.0	40.00	0	97.8	69	124				
n-Butylbenzene	42.120	5.0	40.00	0	105	80	131				
n-Propylbenzene	45.250	5.0	40.00	0	113	80	127				
Naphthalene	35.270	5.0	40.00	0	88.2	65	127				
o-Xylene	44.140	5.0	40.00	0	110	77	123				
sec-Butylbenzene	42.580	5.0	40.00	0	106	80	130				
Styrene	42.490	5.0	40.00	0	106	80	124				
Tert-amyl methyl ether	47.340	5.0	40.00	0	118	71	122				
Tert-Butanol	188.320	25	200.0	0	94.2	44	143				
tert-Butylbenzene	42.420	5.0	40.00	0	106	80	125				
Tetrachloroethene	47.740	5.0	40.00	0	119	80	122				
Toluene	46.120	5.0	40.00	0	115	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-LCS** SampType: **LCS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **LCSS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	40.780	5.0	40.00	0	102	71	125				
Trichloroethene	45.290	5.0	40.00	0	113	76	121				
Trichlorofluoromethane	43.710	5.0	40.00	0	109	66	163				
Vinyl chloride	41.230	5.0	40.00	0	103	65	141				
Surr: 1,2-Dichloroethane-d4	46.670		50.00		93.3	64	165				
Surr: 4-Bromofluorobenzene	49.200		50.00		98.4	69	124				
Surr: Dibromofluoromethane	47.150		50.00		94.3	72	142				
Surr: Toluene-d8	47.740		50.00		95.5	75	124				

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	37.930	5.0	40.00	0	94.8	62	139				
1,1,1-Trichloroethane	34.380	5.0	40.00	0	86.0	56	154				
1,1,2,2-Tetrachloroethane	38.120	5.0	40.00	0	95.3	42	175				
1,1,2-Trichloroethane	39.400	5.0	40.00	0	98.5	55	166				
1,1-Dichloroethane	32.830	5.0	40.00	0	82.1	46	163				
1,1-Dichloroethene	32.730	5.0	40.00	0	81.8	49	157				
1,1-Dichloropropene	36.700	5.0	40.00	0	91.8	59	155				
1,2,3-Trichlorobenzene	45.750	5.0	40.00	0	114	38	154				
1,2,3-Trichloropropane	41.290	5.0	40.00	0	103	49	174				
1,2,4-Trichlorobenzene	43.540	5.0	40.00	0	109	38	146				
1,2,4-Trimethylbenzene	35.090	5.0	40.00	0	87.7	41	157				
1,2-Dibromo-3-chloropropane	44.560	10	40.00	0	111	48	185				
1,2-Dibromoethane	43.070	5.0	40.00	0	108	54	169				
1,2-Dichlorobenzene	40.210	5.0	40.00	0	101	59	136				
1,2-Dichloroethane	39.860	5.0	40.00	0	99.7	54	164				
1,2-Dichloropropane	35.810	5.0	40.00	0	89.5	60	142				
1,3,5-Trimethylbenzene	33.710	5.0	40.00	0	84.3	44	151				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	39.340	5.0	40.00	0	98.4	57	133				
1,3-Dichloropropane	41.000	5.0	40.00	0	103	63	152				
1,4-Dichlorobenzene	37.990	5.0	40.00	0	95.0	57	133				
2,2-Dichloropropane	33.000	5.0	40.00	0	82.5	50	156				
2-Butanone	454.580	50	400.0	0	114	37	192				
2-Chlorotoluene	37.860	5.0	40.00	0	94.6	52	140				
4-Chlorotoluene	39.400	5.0	40.00	0	98.5	57	135				
4-Isopropyltoluene	32.450	5.0	40.00	0	81.1	46	152				
Benzene	36.130	5.0	40.00	0	90.3	59	147				
Bromobenzene	39.530	5.0	40.00	0	98.8	66	131				
Bromodichloromethane	37.540	5.0	40.00	0	93.8	54	152				
Bromoform	43.360	5.0	40.00	0	108	50	176				
Bromomethane	35.790	5.0	40.00	0	89.5	40	178				
Carbon tetrachloride	35.450	5.0	40.00	0	88.6	55	159				
Chlorobenzene	37.390	5.0	40.00	0	93.5	62	137				
Chloroethane	31.820	5.0	40.00	0	79.6	41	173				
Chloroform	34.720	5.0	40.00	0	86.8	50	157				
Chloromethane	29.310	5.0	40.00	0	73.3	41	165				
cis-1,2-Dichloroethene	36.140	5.0	40.00	0	90.4	48	158				
cis-1,3-Dichloropropene	37.890	5.0	40.00	0	94.7	59	146				
Di-isopropyl ether	34.970	5.0	40.00	0	87.4	44	165				
Dibromochloromethane	40.310	5.0	40.00	0	101	62	151				
Dibromomethane	39.360	5.0	40.00	0	98.4	52	170				
Dichlorodifluoromethane	26.420	5.0	40.00	0	66.1	36	175				
Ethyl Tert-butyl ether	42.480	5.0	40.00	0	106	52	161				
Ethylbenzene	37.550	5.0	40.00	0	93.9	55	141				
Freon-113	31.880	5.0	40.00	0	79.7	44	161				
Hexachlorobutadiene	37.350	5.0	40.00	0	93.4	34	142				
Isopropylbenzene	32.440	5.0	40.00	0	81.1	54	143				
m,p-Xylene	74.660	10	80.00	0	93.3	51	150				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MS** SampType: **MS** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	33.940	5.0	40.00	0	84.8	49	159				
MTBE	39.090	5.0	40.00	0	97.7	43	179				
n-Butylbenzene	32.020	5.0	40.00	0	80.1	42	152				
n-Propylbenzene	35.080	5.0	40.00	0	87.7	54	140				
Naphthalene	40.400	5.0	40.00	0	101	37	172				
o-Xylene	36.390	5.0	40.00	0	91.0	49	146				
sec-Butylbenzene	32.280	5.0	40.00	0	80.7	51	145				
Styrene	36.260	5.0	40.00	0	90.7	57	145				
Tert-amyl methyl ether	43.670	5.0	40.00	0	109	58	156				
Tert-Butanol	201.220	25	200.0	0	101	40	189				
tert-Butylbenzene	32.690	5.0	40.00	0	81.7	55	140				
Tetrachloroethene	37.080	5.0	40.00	0	92.7	59	142				
Toluene	36.850	5.0	40.00	0	92.1	54	148				
trans-1,2-Dichloroethene	33.360	5.0	40.00	0	83.4	46	157				
Trichloroethene	36.290	5.0	40.00	0	90.7	52	161				
Trichlorofluoromethane	31.610	5.0	40.00	0	79.0	43	181				
Vinyl chloride	29.460	5.0	40.00	0	73.6	52	160				
Surr: 1,2-Dichloroethane-d4	48.240		50.00		96.5	64	165				
Surr: 4-Bromofluorobenzene	49.910		50.00		99.8	69	124				
Surr: Dibromofluoromethane	49.390		50.00		98.8	72	142				
Surr: Toluene-d8	47.740		50.00		95.5	75	124				

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	37.860	5.0	40.00	0	94.6	62	139	37.93	0.185	20	
1,1,1-Trichloroethane	32.680	5.0	40.00	0	81.7	56	154	34.38	5.07	20	
1,1,2,2-Tetrachloroethane	36.210	5.0	40.00	0	90.5	42	175	38.12	5.14	20	
1,1,2-Trichloroethane	41.570	5.0	40.00	0	104	55	166	39.40	5.36	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	33.200	5.0	40.00	0	83.0	46	163	32.83	1.12	20	
1,1-Dichloroethene	32.640	5.0	40.00	0	81.6	49	157	32.73	0.275	20	
1,1-Dichloropropene	35.610	5.0	40.00	0	89.0	59	155	36.70	3.01	20	
1,2,3-Trichlorobenzene	42.910	5.0	40.00	0	107	38	154	45.75	6.41	20	
1,2,3-Trichloropropane	40.500	5.0	40.00	0	101	49	174	41.29	1.93	20	
1,2,4-Trichlorobenzene	41.220	5.0	40.00	0	103	38	146	43.54	5.47	20	
1,2,4-Trimethylbenzene	33.250	5.0	40.00	0	83.1	41	157	35.09	5.38	20	
1,2-Dibromo-3-chloropropane	43.550	10	40.00	0	109	48	185	44.56	2.29	20	
1,2-Dibromoethane	43.890	5.0	40.00	0	110	54	169	43.07	1.89	20	
1,2-Dichlorobenzene	39.300	5.0	40.00	0	98.2	59	136	40.21	2.29	20	
1,2-Dichloroethane	40.960	5.0	40.00	0	102	54	164	39.86	2.72	20	
1,2-Dichloropropane	37.230	5.0	40.00	0	93.1	60	142	35.81	3.89	20	
1,3,5-Trimethylbenzene	31.740	5.0	40.00	0	79.4	44	151	33.71	6.02	20	
1,3-Dichlorobenzene	37.820	5.0	40.00	0	94.6	57	133	39.34	3.94	20	
1,3-Dichloropropane	39.750	5.0	40.00	0	99.4	63	152	41.00	3.10	20	
1,4-Dichlorobenzene	36.990	5.0	40.00	0	92.5	57	133	37.99	2.67	20	
2,2-Dichloropropane	32.500	5.0	40.00	0	81.2	50	156	33.00	1.53	20	
2-Butanone	489.570	50	400.0	0	122	37	192	454.6	7.41	20	
2-Chlorotoluene	36.000	5.0	40.00	0	90.0	52	140	37.86	5.04	20	
4-Chlorotoluene	38.040	5.0	40.00	0	95.1	57	135	39.40	3.51	20	
4-Isopropyltoluene	29.800	5.0	40.00	0	74.5	46	152	32.45	8.51	20	
Benzene	36.460	5.0	40.00	0	91.2	59	147	36.13	0.909	20	
Bromobenzene	38.340	5.0	40.00	0	95.9	66	131	39.53	3.06	20	
Bromodichloromethane	38.410	5.0	40.00	0	96.0	54	152	37.54	2.29	20	
Bromoform	43.900	5.0	40.00	0	110	50	176	43.36	1.24	20	
Bromomethane	38.590	5.0	40.00	0	96.5	40	178	35.79	7.53	20	
Carbon tetrachloride	34.570	5.0	40.00	0	86.4	55	159	35.45	2.51	20	
Chlorobenzene	36.560	5.0	40.00	0	91.4	62	137	37.39	2.24	20	
Chloroethane	29.960	5.0	40.00	0	74.9	41	173	31.82	6.02	20	
Chloroform	35.910	5.0	40.00	0	89.8	50	157	34.72	3.37	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	29.290	5.0	40.00	0	73.2	41	165	29.31	0.0683	20	
cis-1,2-Dichloroethene	36.860	5.0	40.00	0	92.2	48	158	36.14	1.97	20	
cis-1,3-Dichloropropene	40.000	5.0	40.00	0	100	59	146	37.89	5.42	20	
Di-isopropyl ether	36.800	5.0	40.00	0	92.0	44	165	34.97	5.10	20	
Dibromochloromethane	40.050	5.0	40.00	0	100	62	151	40.31	0.647	20	
Dibromomethane	40.890	5.0	40.00	0	102	52	170	39.36	3.81	20	
Dichlorodifluoromethane	25.420	5.0	40.00	0	63.6	36	175	26.42	3.86	20	
Ethyl Tert-butyl ether	45.440	5.0	40.00	0	114	52	161	42.48	6.73	20	
Ethylbenzene	35.360	5.0	40.00	0	88.4	55	141	37.55	6.01	20	
Freon-113	30.790	5.0	40.00	0	77.0	44	161	31.88	3.48	20	
Hexachlorobutadiene	33.790	5.0	40.00	0	84.5	34	142	37.35	10.0	20	
Isopropylbenzene	29.790	5.0	40.00	0	74.5	54	143	32.44	8.52	20	
m,p-Xylene	70.700	10	80.00	0	88.4	51	150	74.66	5.45	20	
Methylene chloride	35.640	5.0	40.00	0	89.1	49	159	33.94	4.89	20	
MTBE	42.240	5.0	40.00	0	106	43	179	39.09	7.75	20	
n-Butylbenzene	28.870	5.0	40.00	0	72.2	42	152	32.02	10.3	20	
n-Propylbenzene	32.340	5.0	40.00	0	80.9	54	140	35.08	8.13	20	
Naphthalene	38.460	5.0	40.00	0	96.2	37	172	40.40	4.92	20	
o-Xylene	34.830	5.0	40.00	0	87.1	49	146	36.39	4.38	20	
sec-Butylbenzene	29.480	5.0	40.00	0	73.7	51	145	32.28	9.07	20	
Styrene	35.520	5.0	40.00	0	88.8	57	145	36.26	2.06	20	
Tert-amyl methyl ether	47.780	5.0	40.00	0	119	58	156	43.67	8.99	20	
Tert-Butanol	216.710	25	200.0	0	108	40	189	201.2	7.41	20	
tert-Butylbenzene	30.390	5.0	40.00	0	76.0	55	140	32.69	7.29	20	
Tetrachloroethene	33.830	5.0	40.00	0	84.6	59	142	37.08	9.17	20	
Toluene	37.230	5.0	40.00	0	93.1	54	148	36.85	1.03	20	
trans-1,2-Dichloroethene	32.730	5.0	40.00	0	81.8	46	157	33.36	1.91	20	
Trichloroethene	37.730	5.0	40.00	0	94.3	52	161	36.29	3.89	20	
Trichlorofluoromethane	29.530	5.0	40.00	0	73.8	43	181	31.61	6.80	20	
Vinyl chloride	28.410	5.0	40.00	0	71.0	52	160	29.46	3.63	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **N047080-001A-MSD** SampType: **MSD** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **ZZZZZZ** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	51.170		50.00		102	64	165		0		
Surr: 4-Bromofluorobenzene	49.640		50.00		99.3	69	124		0		
Surr: Dibromofluoromethane	49.640		50.00		99.3	72	142		0		
Surr: Toluene-d8	47.020		50.00		94.0	75	124		0		

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	10									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	50									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
Benzene	ND	5.0									
Bromobenzene	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Di-isopropyl ether	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethyl Tert-butyl ether	ND	5.0									
Ethylbenzene	ND	5.0									
Freon-113	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methylene chloride	ND	5.0									
MTBE	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL5035

Sample ID: **R210914-MB2** SampType: **MBLK** TestCode: **8260SOIL503** Units: **µg/Kg** Prep Date: RunNo: **156639**
Client ID: **PBS** Batch ID: **R21VS051** TestNo: **EPA 8260B** Analysis Date: **9/14/2021** SeqNo: **4350430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	5.0									
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
Tert-amyl methyl ether	ND	5.0									
Tert-Butanol	ND	25									
tert-Butylbenzene	ND	5.0									
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Surr: 1,2-Dichloroethane-d4	51.660		50.00		103	64	165				
Surr: 4-Bromofluorobenzene	45.680		50.00		91.4	69	124				
Surr: Dibromofluoromethane	52.310		50.00		105	72	142				
Surr: Toluene-d8	48.270		50.00		96.5	75	124				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047070
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: HC_S_SEMI

Sample ID: **MB-89263**	SampType: **MBLK**	TestCode: **HC_S_SEMI**	Units: **mg/Kg**	Prep Date: **9/13/2021**	RunNo: **156628**		
Client ID: **PBS**	Batch ID: **89263**	TestNo: **EPA 8015B(M**	**EPA 3550B**	Analysis Date: **9/13/2021**	SeqNo: **4349842**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C13-C22	ND	10									
T/R Hydrocarbons: C23-C40	ND	10									
Surr: p-Terphenyl	97.232		80.00		122	56	133				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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N047070

CHAIN OF CUSTODY RECORD

Page ____ of ____

Client: Kleinfelder	Report to: Lindsey Dandridge-Perry	Bill to: same as →	EDD Requirement: Excel EDD ☐ Geotracker ☐ Labspec ☐ Others ☐
Address: 2141 Ridge Park Dr Ste 225	Company: Kleinfelder	Address:	QA/QC: RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory ☐
Address: Laguna Hills CA 92653	Email: LDandridge@kleinfelder.com		Sample Receipt Condition: Y / N — 1. Chilled X / ☐; 2. Headspace ☐ / ☐; 3. Container Intact X / ☐; 4. Seal Present ☐ / X; 5. IR number #1; 6. Method of Cooling: ICE
Phone: (949) 727-4466 Fax:	Address: 2141 Ridge Park Dr. Ste 225 Laguna Hills CA 92653	Email to: PO#	Specify:
Submitted By: Lindsey Dandridge-Perry		Phone: Fax:	Global ID:
Title: Project Professional	Phone: (949) 727-4466 Fax:		Specify State:
Signature: Date: 9/9/21	Sampler's Signature and Date: 9/9/21		Sample Temp: 4.0°C

I hereby authorize ASSET Labs to perform the tests indicated below:

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Project Name: Costco Wilder City

Project Number: 20201678.001A

Sampler's Name: Lindsey Dandridge-Perry

Courier: ASSET

Tracking No.

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil X NPDES ☐ Other Solid ☐ Surface ☐

Analyses Requested: TPH CCID (8015B) | VOCs + OXY (8260B) | Methane (6010B/7471A)

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	TPH CCID (8015B)	VOCs + OXY (8260B)	Methane (6010B/7471A)	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	N047070-01	KB-3-2.5	9/9/21	0804		X									HOLD
2	-02	KB-3-5		0818		X		X	X	X					
3	-03	KB-3-10		0855		X		X	X	X					
4	-04	KB-3-15		0901		X									HOLD
5	-05	KB-3-20		0920		X		X	X	X					
6	-06	KB-3-25		0933		X									HOLD
7	-07	KB-4-2.5		1257		X		X	X	X					
8	-08	KB-4-5		1303		X		X	X	X					
9	-09	KB-4-10		1329		X		X	X	X					
10	-10	KB-4-15		1355		X									HOLD

Relinquished by (Signature and Printed Name): Lindsey Dandridge-Perry	Date / Time: 9/9/21 1500	Received by (Signature and Printed Name): J. ARCEO	Date / Time: 9/10/21 1505
Relinquished by (Signature and Printed Name): J. ARCEO	Date / Time: 9/10/21 1655	Received by (Signature and Printed Name): A. DASILVA	Date / Time: 9/10/21 1655
Relinquished by (Signature and Printed Name): A. DASILVA	Date / Time: 9/10/21 1800	Received by (Signature and Printed Name):	Date / Time: 9/11/21 @1000

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:
Las Vegas
3.1°C INA 1
COC#: 2889

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 25% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

Preservatives: H = HCl | N = HNO3 | S = H2SO4 | C = 4°C | Z = Zn(AC)2 | O = NaOH | T = Na2S2O3 | Others/Specify:

Container Type: T = Tube | V = VOA | P = Pint | J = Jar | B = Tedlar | G = Glass | M = Metal | P = Plastic | C = Can

White = Laboratory Copy Yellow = Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11110 Artesia Blvd. Ste. B • Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page [ ] of [ ]

Client: Kleinfelder	**Report to:** Lindsey Dandridge-Perry	**Bill to:** Same as Client	**EDD Requirement**	**QA/QC**	**Sampe Receipt Condition**
Address: 24411 Ridge Route Dr Ste 275	**Company:** Kleinfelder	**Address:**	Excel EDD ☐	RTNE ☐	Y N
Address: Laguna Hills CA 92653	**Email:** LDandridge@Kleinfelder.com		Geotracker ☐	RWQCB ☐	1. Chilled ☒ ☐
Phone: (949) 727-4481 **Fax:**	**Address:** Same	**Email to:** **PO#**	Labspec ☐	CalTrans ☐	2. Headspace ☐ ☐
Submitted By: Lindsey Dandridge-Perry		**Phone:** **Fax:**	Others ☐	Level III ☐	3. Container Intact ☒ ☐
Title: Project Professional	**Phone:** **Fax:**		**Specify:**	LEVEL IV ☐	4. Seal Present ☐ ☒
Signature: **Date:** 9/9/21	**Sampler's Signature and Date:**		**Global ID:**	Regulatory ☐	5. IR number #1
I hereby authorize ASSET Labs to perform the tests indicated below:	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*			**Specify State:**	6. Method of Cooling ICE
Project Name: Costco Culver City	**Sampler's Name:** Lindsey Dandridge Perry				**Sample Temp:** 4.0°C
Project Number: 20201678.001A					**Courier:** ASSET **Tracking No.**

Matrix: Ground ☐ | Sediment ☐ | Potable ☐ | Soil ☐ | NPDES ☐ | Other Solid ☐ | Surface ☐

Analyses Requested: TPH (DRO) VOCs + Oxy Metals

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	N047070-11	KB-4-20	9/9/21	1338								HOLD
2	-12	KB-4-25		1344								HOLD
3												
4												
5												
6												
7												
8												
9												
10												

Relinquished by (Signature and Printed Name): Lindsey Dandridge Perry	**Date / Time** 9/9/21 1505	**Received by (Signature and Printed Name):** ALEO	**Date / Time** 9/10/21 1505
Relinquished by (Signature and Printed Name): ALEO	**Date / Time** 9/10/21 1655	**Received by (Signature and Printed Name):** A. DASILVA	**Date / Time** 9/10/21 1655
Relinquished by (Signature and Printed Name): A. DASILVA	**Date / Time** 9/10/21 1800	**Received by (Signature and Printed Name):**	**Date / Time** 9/11/21 0800

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction: Las Vegas 3.1°C DNA1 GSO#: 2889

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less then 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

Preservatives: H = HCl | N = HNO3 | S = H2SO4 | C = 4°C | Z = Zn(AC)2 | O = NaOH | T = Na2S2O3 | Others/Specify:

Container Type: T = Tube | V = VOA | P = Pint | J = Jar | B = Tedlar | G = Glass | M = Metal | P = Plastic | C = Can

White = Laboratory Copy Yellow = Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/10/2021	Workorder:	N047070
Rep sample Temp (Deg C):	4.0	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Received at Las Vegas Lab on 9/11/21 at 3.1oC, IR#1, GSO #2889.

For:

Checklist Completed By: AD GGarcia 9/13/2021

Reviewed By: MBC 9/13/2021

AssetLabs Sample Control

From: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Sent: Saturday, September 11, 2021 10:17 AM
To: Ashley Marie DaSilva
Cc: tmalit@assetlaboratories.com; AssetLabs Sample Control; 'Yoandra Rodriguez'; Mary Ann; Rustico Aquino
Subject: RE: [ASSET#N047070] Costco Culver City

Thanks Ashley, the sample date should also be 9/10/21.

-----Original Message-----
From: Ashley Marie DaSilva <ashley@assetlaboratories.com>
Sent: Friday, September 10, 2021 6:29 PM
To: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Cc: tmalit@assetlaboratories.com; AssetLabs Sample Control <samplecontrol@assetlaboratories.com>; 'Yoandra Rodriguez' <yoandra@assetlaboratories.com>; Mary Ann <maryann.balilu@assetlaboratoriesph.com>; Rustico Aquino <rustico.aquino@assetlaboratoriesph.com>
Subject: [ASSET#N047070] Costco Culver City

External Email

Hi Lindsey!

For the above project, please note the relinquished date should be
9/10/21 instead of 9/9/21.

Please also confirm the sample collection date and TAT required for this project.

Attached are the COCs for reference.

Thank you!
Ashley DaSilva

--
ASSET Laboratories
11110 Artesia Blvd., Suite B.
Cerritos, CA 90703

W: 562-219-7435

--
This email has been checked for viruses by Avast antivirus software.
https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.avast.com%2Fantivirus&data=04%7C01%7CLDandridge%40kleinfelder.com%7C114be480f41e46b5803808d974c3863b%7Cf47e3906f3d244ab9f1b76742a93945b%7C0%7C0%7C637669205525607986%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJ

ASSET Laboratories

WORK ORDER Summary

13-Sep-21

WorkOrder: N047070

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/10/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047070-001A	KB-3-2.5	9/9/2021 8:04:00 AM		Soil			☐	☐	☐	VS
N047070-002A	KB-3-5	9/9/2021 8:18:00 AM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/17/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047070-002B			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-002C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-002D							☐	☐	☐	VS-CA
N047070-002E							☐	☐	☐	VS
N047070-002F							☐	☐	☐	VS-CA
N047070-003A	KB-3-10	9/9/2021 8:55:00 AM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/17/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS

ASSET Laboratories

WORK ORDER Summary

13-Sep-21

WorkOrder: N047070

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/10/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047070-003B	KB-3-10	9/9/2021 8:55:00 AM	9/17/2021	Soil	EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-003C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-003D							☐	☐	☐	VS-CA
N047070-003E							☐	☐	☐	VS
N047070-003F							☐	☐	☐	VS-CA
N047070-004A	KB-3-15	9/9/2021 9:01:00 AM					☐	☐	☐	VS
N047070-005A	KB-3-20	9/9/2021 9:20:00 AM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/17/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047070-005B			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-005C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-005D							☐	☐	☐	VS-CA
N047070-005E							☐	☐	☐	VS

ASSET Laboratories

WORK ORDER Summary

13-Sep-21

WorkOrder: N047070

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/10/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047070-005F	KB-3-20	9/9/2021 9:20:00 AM		Soil			☐	☐	☐	VS-CA
N047070-006A	KB-3-25	9/9/2021 9:33:00 AM					☐	☐	☐	VS
N047070-007A	KB-4-2.5	9/9/2021 12:57:00 PM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/17/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047070-007B			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-007C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-007D							☐	☐	☐	VS-CA
N047070-007E							☐	☐	☐	VS
N047070-007F							☐	☐	☐	VS-CA
N047070-008A	KB-4-5	9/9/2021 1:03:00 PM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS

ASSET Laboratories

WORK ORDER Summary

13-Sep-21

WorkOrder: N047070

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/10/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047070-008A	KB-4-5	9/9/2021 1:03:00 PM	9/17/2021	Soil	EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047070-008B			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-008C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-008D							☐	☐	☐	VS-CA
N047070-008E							☐	☐	☐	VS
N047070-008F							☐	☐	☐	VS-CA
N047070-009A	KB-4-10	9/9/2021 1:29:00 PM	9/17/2021		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			9/17/2021		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			9/17/2021			MERCURY PREP	☐	☐	☐	WS
			9/17/2021		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			9/17/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WS
			9/17/2021		EPA 3550B	SHAKE-OUT METHOD: EXTRACTABLE FUELS	☐	☐	☐	WS
N047070-009B			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS-CA
			9/17/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS-CA
N047070-009C			9/17/2021		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			9/17/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VS
N047070-009D							☐	☐	☐	VS-CA
N047070-009E							☐	☐	☐	VS

ASSET Laboratories

WORK ORDER Summary

13-Sep-21

WorkOrder: N047070

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/10/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047070-009F	KB-4-10	9/9/2021 1:29:00 PM		Soil			☐	☐	☐	VS-CA
N047070-010A	KB-4-15	9/9/2021 1:55:00 PM					☐	☐	☐	VS
N047070-011A	KB-4-20	9/9/2021 1:38:00 PM					☐	☐	☐	VS
N047070-012A	KB-4-25	9/9/2021 1:44:00 PM					☐	☐	☐	VS
N047070-013A	FOLDER	9/17/2021	9/17/2021		Folder	Folder	☐	☐	☐	LAB
			9/17/2021		Folder	Folder	☐	☐	☐	LAB

GLS

800-322-5555
www.gls-us.com

Ship From
ASSET LABORATORIES
THAD MALIT
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
SAMPLE CONTROL
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICKUP
Signature Type: STANDARD

Tracking #: 554592889

SDS

LAS VEGAS

C89102A

49068429

LVS NV891-A 0

Print Date: 9/10/2021 6:04 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the General Logistics Systems US, Inc. (GLS) service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gls-us.com.

September 20, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047085

RE: Costco Culver City, 20201678.001A

Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 13, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,

Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047085

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical comments for EPA 6010B:

Laboratory Control Sample (LCS) recovery biased high on analyte Silver. Sample results were non-detect (ND) for these analytes therefore reanalysis of the samples was not necessary.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047085
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047085-001A	KB-1	Groundwater	9/10/2021 5:55:00 PM	9/13/2021	9/20/2021
N047085-001B	KB-1	Groundwater	9/10/2021 5:55:00 PM	9/13/2021	9/20/2021
N047085-001C	KB-1	Groundwater	9/10/2021 5:55:00 PM	9/13/2021	9/20/2021
N047085-001D	KB-1	Groundwater	9/10/2021 5:55:00 PM	9/13/2021	9/20/2021
N047085-001E	KB-1	Groundwater	9/10/2021 5:55:00 PM	9/13/2021	9/20/2021
N047085-002A	KB-2	Groundwater	9/10/2021 6:38:00 PM	9/13/2021	9/20/2021
N047085-002B	KB-2	Groundwater	9/10/2021 6:38:00 PM	9/13/2021	9/20/2021
N047085-002C	KB-2	Groundwater	9/10/2021 6:38:00 PM	9/13/2021	9/20/2021
N047085-002D	KB-2	Groundwater	9/10/2021 6:38:00 PM	9/13/2021	9/20/2021
N047085-002E	KB-2	Groundwater	9/10/2021 6:38:00 PM	9/13/2021	9/20/2021
N047085-003A	KB-3	Groundwater	9/10/2021 8:15:00 PM	9/13/2021	9/20/2021
N047085-003B	KB-3	Groundwater	9/10/2021 8:15:00 PM	9/13/2021	9/20/2021
N047085-003C	KB-3	Groundwater	9/10/2021 8:15:00 PM	9/13/2021	9/20/2021
N047085-003D	KB-3	Groundwater	9/10/2021 8:15:00 PM	9/13/2021	9/20/2021
N047085-003E	KB-3	Groundwater	9/10/2021 8:15:00 PM	9/13/2021	9/20/2021
N047085-004A	KB-4	Groundwater	9/10/2021 7:58:00 PM	9/13/2021	9/20/2021
N047085-004B	KB-4	Groundwater	9/10/2021 7:58:00 PM	9/13/2021	9/20/2021
N047085-004C	KB-4	Groundwater	9/10/2021 7:58:00 PM	9/13/2021	9/20/2021
N047085-004D	KB-4	Groundwater	9/10/2021 7:58:00 PM	9/13/2021	9/20/2021
N047085-004E	KB-4	Groundwater	9/10/2021 7:58:00 PM	9/13/2021	9/20/2021
N047085-005A	B-1	Groundwater	9/13/2021 12:31:00 PM	9/13/2021	9/20/2021
N047085-005B	B-1	Groundwater	9/13/2021 12:31:00 PM	9/13/2021	9/20/2021
N047085-005C	B-1	Groundwater	9/13/2021 12:31:00 PM	9/13/2021	9/20/2021
N047085-005D	B-1	Groundwater	9/13/2021 12:31:00 PM	9/13/2021	9/20/2021
N047085-005E	B-1	Groundwater	9/13/2021 12:31:00 PM	9/13/2021	9/20/2021

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-001

Client Sample ID: KB-1
Collection Date: 9/10/2021 5:55:00 PM
Matrix: GROUNDWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118** PrepDate: Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.25	0.50		µg/L	1	9/15/2021 04:07 PM
1,1,1-Trichloroethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:07 PM
1,1,2,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	9/15/2021 04:07 PM
1,1,2-Trichloroethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:07 PM
1,1-Dichloroethane	ND	0.22	0.50		µg/L	1	9/15/2021 04:07 PM
1,1-Dichloroethene	ND	0.17	0.50		µg/L	1	9/15/2021 04:07 PM
1,1-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:07 PM
1,2,3-Trichlorobenzene	ND	0.37	0.50		µg/L	1	9/15/2021 04:07 PM
1,2,3-Trichloropropane	ND	0.23	0.50		µg/L	1	9/15/2021 04:07 PM
1,2,4-Trichlorobenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:07 PM
1,2,4-Trimethylbenzene	ND	0.060	0.50		µg/L	1	9/15/2021 04:07 PM
1,2-Dibromo-3-chloropropane	ND	0.32	1.0		µg/L	1	9/15/2021 04:07 PM
1,2-Dibromoethane	ND	0.19	0.50		µg/L	1	9/15/2021 04:07 PM
1,2-Dichlorobenzene	ND	0.089	0.50		µg/L	1	9/15/2021 04:07 PM
1,2-Dichloroethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:07 PM
1,2-Dichloropropane	ND	0.16	0.50		µg/L	1	9/15/2021 04:07 PM
1,3,5-Trimethylbenzene	ND	0.051	0.50		µg/L	1	9/15/2021 04:07 PM
1,3-Dichlorobenzene	ND	0.081	0.50		µg/L	1	9/15/2021 04:07 PM
1,3-Dichloropropane	ND	0.13	0.50		µg/L	1	9/15/2021 04:07 PM
1,4-Dichlorobenzene	ND	0.080	0.50		µg/L	1	9/15/2021 04:07 PM
2,2-Dichloropropane	ND	0.22	0.50		µg/L	1	9/15/2021 04:07 PM
2-Butanone	ND	4.7	5.0		µg/L	1	9/15/2021 04:07 PM
2-Chlorotoluene	ND	0.090	0.50		µg/L	1	9/15/2021 04:07 PM
4-Chlorotoluene	ND	0.065	0.50		µg/L	1	9/15/2021 04:07 PM
4-Isopropyltoluene	ND	0.085	0.50		µg/L	1	9/15/2021 04:07 PM
Benzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:07 PM
Bromobenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:07 PM
Bromodichloromethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:07 PM
Bromoform	ND	0.23	0.50		µg/L	1	9/15/2021 04:07 PM
Bromomethane	ND	0.38	1.0		µg/L	1	9/15/2021 04:07 PM
Carbon tetrachloride	ND	0.33	0.50		µg/L	1	9/15/2021 04:07 PM
Chlorobenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:07 PM
Chloroethane	ND	0.69	1.0		µg/L	1	9/15/2021 04:07 PM
Chloroform	ND	0.38	0.50		µg/L	1	9/15/2021 04:07 PM
Chloromethane	0.30	0.23	0.50	J	µg/L	1	9/15/2021 04:07 PM
cis-1,2-Dichloroethene	ND	0.11	0.50		µg/L	1	9/15/2021 04:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-001

Client Sample ID: KB-1
Collection Date: 9/10/2021 5:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118**				PrepDate:			Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:07 PM
Di-isopropyl ether	ND	0.15	0.50		µg/L	1	9/15/2021 04:07 PM
Dibromochloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:07 PM
Dibromomethane	ND	0.13	0.50		µg/L	1	9/15/2021 04:07 PM
Dichlorodifluoromethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:07 PM
Ethyl tert-butyl ether	ND	0.10	0.50		µg/L	1	9/15/2021 04:07 PM
Ethylbenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:07 PM
Freon-113	ND	0.28	0.50		µg/L	1	9/15/2021 04:07 PM
Hexachlorobutadiene	ND	0.30	0.50		µg/L	1	9/15/2021 04:07 PM
Isopropylbenzene	ND	0.092	0.50		µg/L	1	9/15/2021 04:07 PM
m,p-Xylene	ND	0.23	1.0		µg/L	1	9/15/2021 04:07 PM
Methylene chloride	ND	1.2	2.0		µg/L	1	9/15/2021 04:07 PM
MTBE	ND	0.44	0.50		µg/L	1	9/15/2021 04:07 PM
n-Butylbenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:07 PM
n-Propylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:07 PM
Naphthalene	ND	0.41	0.50		µg/L	1	9/15/2021 04:07 PM
o-Xylene	ND	0.087	0.50		µg/L	1	9/15/2021 04:07 PM
sec-Butylbenzene	ND	0.076	0.50		µg/L	1	9/15/2021 04:07 PM
Styrene	ND	0.41	0.50		µg/L	1	9/15/2021 04:07 PM
Tert-amyl methyl ether	ND	0.13	0.50		µg/L	1	9/15/2021 04:07 PM
Tert-Butanol	ND	2.8	5.0		µg/L	1	9/15/2021 04:07 PM
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:07 PM
Tetrachloroethene	2.4	0.25	0.50		µg/L	1	9/15/2021 04:07 PM
Toluene	ND	0.13	0.50		µg/L	1	9/15/2021 04:07 PM
trans-1,2-Dichloroethene	ND	0.27	0.50		µg/L	1	9/15/2021 04:07 PM
Trichloroethene	ND	0.26	0.50		µg/L	1	9/15/2021 04:07 PM
Trichlorofluoromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:07 PM
Vinyl chloride	ND	0.19	0.50		µg/L	1	9/15/2021 04:07 PM
Surr: 1,2-Dichloroethane-d4	112	0	72-132		%REC	1	9/15/2021 04:07 PM
Surr: 4-Bromofluorobenzene	90.1	0	80-120		%REC	1	9/15/2021 04:07 PM
Surr: Dibromofluoromethane	113	0	78-130		%REC	1	9/15/2021 04:07 PM
Surr: Toluene-d8	98.6	0	80-120		%REC	1	9/15/2021 04:07 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3510C		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914B** QC Batch: **89279**				PrepDate:	**9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-001

Client Sample ID: KB-1
Collection Date: 9/10/2021 5:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3510C		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210914B**	QC Batch: **89279**			PrepDate:		**9/14/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	0.20	0.20		mg/L	1	9/14/2021 10:07 PM
T/R Hydrocarbons: C23-C40	ND	0.20	0.20		mg/L	1	9/14/2021 10:07 PM
Surr: p-Terphenyl	90.6	0	54-139		%REC	1	9/14/2021 10:07 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_210915A**	QC Batch: **E21VW089**			PrepDate:			Analyst: **YG**
GRO (C6 - C12)	0.022	0.019	0.050	J	mg/L	1	9/15/2021 12:43 PM
Surr: Chlorobenzene - d5	84.3	0	66-123		%REC	1	9/15/2021 12:43 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_210915B**	QC Batch: **89300**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Mercury	ND	0.12	0.20		µg/L	1	9/15/2021 04:09 PM
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_210916A**	QC Batch: **89308**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Antimony	ND	0.0045	0.010		mg/L	1	9/16/2021 11:34 AM
Arsenic	ND	0.0077	0.010		mg/L	1	9/16/2021 11:34 AM
Barium	0.044	0.0010	0.0030		mg/L	1	9/16/2021 11:34 AM
Beryllium	ND	0.00031	0.0030		mg/L	1	9/16/2021 11:34 AM
Cadmium	ND	0.00085	0.0030		mg/L	1	9/16/2021 11:34 AM
Chromium	0.0036	0.00054	0.0030		mg/L	1	9/16/2021 07:48 PM
Cobalt	ND	0.0019	0.0030		mg/L	1	9/16/2021 11:34 AM
Copper	0.0086	0.0011	0.0050		mg/L	1	9/16/2021 11:34 AM
Lead	ND	0.0040	0.010		mg/L	1	9/16/2021 11:34 AM
Molybdenum	0.023	0.0026	0.0050		mg/L	1	9/16/2021 11:34 AM
Nickel	ND	0.0020	0.0050		mg/L	1	9/16/2021 11:34 AM
Selenium	ND	0.0085	0.010		mg/L	1	9/16/2021 11:34 AM
Silver	ND	0.0024	0.0030		mg/L	1	9/16/2021 11:34 AM
Thallium	0.029	0.0060	0.015		mg/L	1	9/16/2021 07:48 PM
Vanadium	0.0033	0.0012	0.0030		mg/L	1	9/16/2021 07:48 PM
Zinc	ND	0.0077	0.010		mg/L	1	9/16/2021 11:34 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-002

Client Sample ID: KB-2
Collection Date: 9/10/2021 6:38:00 PM
Matrix: GROUNDWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118** PrepDate: Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.25	0.50		µg/L	1	9/15/2021 04:31 PM
1,1,1-Trichloroethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:31 PM
1,1,2,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	9/15/2021 04:31 PM
1,1,2-Trichloroethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:31 PM
1,1-Dichloroethane	ND	0.22	0.50		µg/L	1	9/15/2021 04:31 PM
1,1-Dichloroethene	ND	0.17	0.50		µg/L	1	9/15/2021 04:31 PM
1,1-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:31 PM
1,2,3-Trichlorobenzene	ND	0.37	0.50		µg/L	1	9/15/2021 04:31 PM
1,2,3-Trichloropropane	ND	0.23	0.50		µg/L	1	9/15/2021 04:31 PM
1,2,4-Trichlorobenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:31 PM
1,2,4-Trimethylbenzene	ND	0.060	0.50		µg/L	1	9/15/2021 04:31 PM
1,2-Dibromo-3-chloropropane	ND	0.32	1.0		µg/L	1	9/15/2021 04:31 PM
1,2-Dibromoethane	ND	0.19	0.50		µg/L	1	9/15/2021 04:31 PM
1,2-Dichlorobenzene	ND	0.089	0.50		µg/L	1	9/15/2021 04:31 PM
1,2-Dichloroethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:31 PM
1,2-Dichloropropane	ND	0.16	0.50		µg/L	1	9/15/2021 04:31 PM
1,3,5-Trimethylbenzene	ND	0.051	0.50		µg/L	1	9/15/2021 04:31 PM
1,3-Dichlorobenzene	ND	0.081	0.50		µg/L	1	9/15/2021 04:31 PM
1,3-Dichloropropane	ND	0.13	0.50		µg/L	1	9/15/2021 04:31 PM
1,4-Dichlorobenzene	ND	0.080	0.50		µg/L	1	9/15/2021 04:31 PM
2,2-Dichloropropane	ND	0.22	0.50		µg/L	1	9/15/2021 04:31 PM
2-Butanone	ND	4.7	5.0		µg/L	1	9/15/2021 04:31 PM
2-Chlorotoluene	ND	0.090	0.50		µg/L	1	9/15/2021 04:31 PM
4-Chlorotoluene	ND	0.065	0.50		µg/L	1	9/15/2021 04:31 PM
4-Isopropyltoluene	ND	0.085	0.50		µg/L	1	9/15/2021 04:31 PM
Benzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:31 PM
Bromobenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:31 PM
Bromodichloromethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:31 PM
Bromoform	ND	0.23	0.50		µg/L	1	9/15/2021 04:31 PM
Bromomethane	ND	0.38	1.0		µg/L	1	9/15/2021 04:31 PM
Carbon tetrachloride	ND	0.33	0.50		µg/L	1	9/15/2021 04:31 PM
Chlorobenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:31 PM
Chloroethane	ND	0.69	1.0		µg/L	1	9/15/2021 04:31 PM
Chloroform	ND	0.38	0.50		µg/L	1	9/15/2021 04:31 PM
Chloromethane	0.32	0.23	0.50	J	µg/L	1	9/15/2021 04:31 PM
cis-1,2-Dichloroethene	ND	0.11	0.50		µg/L	1	9/15/2021 04:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-002

Client Sample ID: KB-2
Collection Date: 9/10/2021 6:38:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118**				PrepDate:			Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:31 PM
Di-isopropyl ether	ND	0.15	0.50		µg/L	1	9/15/2021 04:31 PM
Dibromochloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:31 PM
Dibromomethane	ND	0.13	0.50		µg/L	1	9/15/2021 04:31 PM
Dichlorodifluoromethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:31 PM
Ethyl tert-butyl ether	ND	0.10	0.50		µg/L	1	9/15/2021 04:31 PM
Ethylbenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:31 PM
Freon-113	ND	0.28	0.50		µg/L	1	9/15/2021 04:31 PM
Hexachlorobutadiene	ND	0.30	0.50		µg/L	1	9/15/2021 04:31 PM
Isopropylbenzene	ND	0.092	0.50		µg/L	1	9/15/2021 04:31 PM
m,p-Xylene	ND	0.23	1.0		µg/L	1	9/15/2021 04:31 PM
Methylene chloride	ND	1.2	2.0		µg/L	1	9/15/2021 04:31 PM
MTBE	ND	0.44	0.50		µg/L	1	9/15/2021 04:31 PM
n-Butylbenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:31 PM
n-Propylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:31 PM
Naphthalene	ND	0.41	0.50		µg/L	1	9/15/2021 04:31 PM
o-Xylene	ND	0.087	0.50		µg/L	1	9/15/2021 04:31 PM
sec-Butylbenzene	ND	0.076	0.50		µg/L	1	9/15/2021 04:31 PM
Styrene	ND	0.41	0.50		µg/L	1	9/15/2021 04:31 PM
Tert-amyl methyl ether	ND	0.13	0.50		µg/L	1	9/15/2021 04:31 PM
Tert-Butanol	ND	2.8	5.0		µg/L	1	9/15/2021 04:31 PM
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:31 PM
Tetrachloroethene	0.52	0.25	0.50		µg/L	1	9/15/2021 04:31 PM
Toluene	ND	0.13	0.50		µg/L	1	9/15/2021 04:31 PM
trans-1,2-Dichloroethene	ND	0.27	0.50		µg/L	1	9/15/2021 04:31 PM
Trichloroethene	ND	0.26	0.50		µg/L	1	9/15/2021 04:31 PM
Trichlorofluoromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:31 PM
Vinyl chloride	ND	0.19	0.50		µg/L	1	9/15/2021 04:31 PM
Surr: 1,2-Dichloroethane-d4	120	0	72-132		%REC	1	9/15/2021 04:31 PM
Surr: 4-Bromofluorobenzene	88.0	0	80-120		%REC	1	9/15/2021 04:31 PM
Surr: Dibromofluoromethane	118	0	78-130		%REC	1	9/15/2021 04:31 PM
Surr: Toluene-d8	95.4	0	80-120		%REC	1	9/15/2021 04:31 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3510C		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914B** QC Batch: **89279**				PrepDate:	**9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-002

Client Sample ID: KB-2
Collection Date: 9/10/2021 6:38:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3510C		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210914B**	QC Batch: **89279**			PrepDate:		**9/14/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	0.20	0.20		mg/L	1	9/14/2021 10:36 PM
T/R Hydrocarbons: C23-C40	ND	0.20	0.20		mg/L	1	9/14/2021 10:36 PM
Surr: p-Terphenyl	83.2	0	54-139		%REC	1	9/14/2021 10:36 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_210914A**	QC Batch: **E21VW088**			PrepDate:			Analyst: **YG**
GRO (C6 - C12)	0.029	0.019	0.050	J	mg/L	1	9/14/2021 08:21 PM
Surr: Chlorobenzene - d5	77.2	0	66-123		%REC	1	9/14/2021 08:21 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_210915B**	QC Batch: **89300**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Mercury	ND	0.12	0.20		µg/L	1	9/15/2021 04:13 PM
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_210916A**	QC Batch: **89308**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Antimony	ND	0.0045	0.010		mg/L	1	9/16/2021 12:01 PM
Arsenic	ND	0.0077	0.010		mg/L	1	9/16/2021 12:01 PM
Barium	0.043	0.0010	0.0030		mg/L	1	9/16/2021 12:01 PM
Beryllium	ND	0.00031	0.0030		mg/L	1	9/16/2021 12:01 PM
Cadmium	ND	0.00085	0.0030		mg/L	1	9/16/2021 12:01 PM
Chromium	0.0030	0.00054	0.0030	J	mg/L	1	9/16/2021 08:11 PM
Cobalt	ND	0.0019	0.0030		mg/L	1	9/16/2021 12:01 PM
Copper	0.0076	0.0011	0.0050		mg/L	1	9/16/2021 12:01 PM
Lead	ND	0.0040	0.010		mg/L	1	9/16/2021 12:01 PM
Molybdenum	0.016	0.0026	0.0050		mg/L	1	9/16/2021 12:01 PM
Nickel	ND	0.0020	0.0050		mg/L	1	9/16/2021 12:01 PM
Selenium	ND	0.0085	0.010		mg/L	1	9/16/2021 12:01 PM
Silver	ND	0.0024	0.0030		mg/L	1	9/16/2021 12:01 PM
Thallium	0.028	0.0060	0.015		mg/L	1	9/16/2021 08:11 PM
Vanadium	0.0033	0.0012	0.0030		mg/L	1	9/16/2021 08:11 PM
Zinc	ND	0.0077	0.010		mg/L	1	9/16/2021 12:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-003

Client Sample ID: KB-3
Collection Date: 9/10/2021 8:15:00 PM
Matrix: GROUNDWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118** PrepDate: Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.25	0.50		µg/L	1	9/15/2021 04:55 PM
1,1,1-Trichloroethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:55 PM
1,1,2,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	9/15/2021 04:55 PM
1,1,2-Trichloroethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
1,1-Dichloroethane	ND	0.22	0.50		µg/L	1	9/15/2021 04:55 PM
1,1-Dichloroethene	ND	0.17	0.50		µg/L	1	9/15/2021 04:55 PM
1,1-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:55 PM
1,2,3-Trichlorobenzene	ND	0.37	0.50		µg/L	1	9/15/2021 04:55 PM
1,2,3-Trichloropropane	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
1,2,4-Trichlorobenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:55 PM
1,2,4-Trimethylbenzene	ND	0.060	0.50		µg/L	1	9/15/2021 04:55 PM
1,2-Dibromo-3-chloropropane	ND	0.32	1.0		µg/L	1	9/15/2021 04:55 PM
1,2-Dibromoethane	ND	0.19	0.50		µg/L	1	9/15/2021 04:55 PM
1,2-Dichlorobenzene	ND	0.089	0.50		µg/L	1	9/15/2021 04:55 PM
1,2-Dichloroethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:55 PM
1,2-Dichloropropane	ND	0.16	0.50		µg/L	1	9/15/2021 04:55 PM
1,3,5-Trimethylbenzene	ND	0.051	0.50		µg/L	1	9/15/2021 04:55 PM
1,3-Dichlorobenzene	ND	0.081	0.50		µg/L	1	9/15/2021 04:55 PM
1,3-Dichloropropane	ND	0.13	0.50		µg/L	1	9/15/2021 04:55 PM
1,4-Dichlorobenzene	ND	0.080	0.50		µg/L	1	9/15/2021 04:55 PM
2,2-Dichloropropane	ND	0.22	0.50		µg/L	1	9/15/2021 04:55 PM
2-Butanone	ND	4.7	5.0		µg/L	1	9/15/2021 04:55 PM
2-Chlorotoluene	ND	0.090	0.50		µg/L	1	9/15/2021 04:55 PM
4-Chlorotoluene	ND	0.065	0.50		µg/L	1	9/15/2021 04:55 PM
4-Isopropyltoluene	ND	0.085	0.50		µg/L	1	9/15/2021 04:55 PM
Benzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:55 PM
Bromobenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:55 PM
Bromodichloromethane	ND	0.20	0.50		µg/L	1	9/15/2021 04:55 PM
Bromoform	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
Bromomethane	ND	0.38	1.0		µg/L	1	9/15/2021 04:55 PM
Carbon tetrachloride	ND	0.33	0.50		µg/L	1	9/15/2021 04:55 PM
Chlorobenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:55 PM
Chloroethane	ND	0.69	1.0		µg/L	1	9/15/2021 04:55 PM
Chloroform	ND	0.38	0.50		µg/L	1	9/15/2021 04:55 PM
Chloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
cis-1,2-Dichloroethene	ND	0.11	0.50		µg/L	1	9/15/2021 04:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-003

Client Sample ID: KB-3
Collection Date: 9/10/2021 8:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118**				PrepDate:			Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 04:55 PM
Di-isopropyl ether	ND	0.15	0.50		µg/L	1	9/15/2021 04:55 PM
Dibromochloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
Dibromomethane	ND	0.13	0.50		µg/L	1	9/15/2021 04:55 PM
Dichlorodifluoromethane	ND	0.16	0.50		µg/L	1	9/15/2021 04:55 PM
Ethyl tert-butyl ether	ND	0.10	0.50		µg/L	1	9/15/2021 04:55 PM
Ethylbenzene	ND	0.11	0.50		µg/L	1	9/15/2021 04:55 PM
Freon-113	ND	0.28	0.50		µg/L	1	9/15/2021 04:55 PM
Hexachlorobutadiene	ND	0.30	0.50		µg/L	1	9/15/2021 04:55 PM
Isopropylbenzene	ND	0.092	0.50		µg/L	1	9/15/2021 04:55 PM
m,p-Xylene	ND	0.23	1.0		µg/L	1	9/15/2021 04:55 PM
Methylene chloride	ND	1.2	2.0		µg/L	1	9/15/2021 04:55 PM
MTBE	ND	0.44	0.50		µg/L	1	9/15/2021 04:55 PM
n-Butylbenzene	ND	0.093	0.50		µg/L	1	9/15/2021 04:55 PM
n-Propylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:55 PM
Naphthalene	ND	0.41	0.50		µg/L	1	9/15/2021 04:55 PM
o-Xylene	ND	0.087	0.50		µg/L	1	9/15/2021 04:55 PM
sec-Butylbenzene	ND	0.076	0.50		µg/L	1	9/15/2021 04:55 PM
Styrene	ND	0.41	0.50		µg/L	1	9/15/2021 04:55 PM
Tert-amyl methyl ether	ND	0.13	0.50		µg/L	1	9/15/2021 04:55 PM
Tert-Butanol	ND	2.8	5.0		µg/L	1	9/15/2021 04:55 PM
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 04:55 PM
Tetrachloroethene	ND	0.25	0.50		µg/L	1	9/15/2021 04:55 PM
Toluene	ND	0.13	0.50		µg/L	1	9/15/2021 04:55 PM
trans-1,2-Dichloroethene	ND	0.27	0.50		µg/L	1	9/15/2021 04:55 PM
Trichloroethene	ND	0.26	0.50		µg/L	1	9/15/2021 04:55 PM
Trichlorofluoromethane	ND	0.23	0.50		µg/L	1	9/15/2021 04:55 PM
Vinyl chloride	ND	0.19	0.50		µg/L	1	9/15/2021 04:55 PM
Surr: 1,2-Dichloroethane-d4	119	0	72-132		%REC	1	9/15/2021 04:55 PM
Surr: 4-Bromofluorobenzene	87.4	0	80-120		%REC	1	9/15/2021 04:55 PM
Surr: Dibromofluoromethane	117	0	78-130		%REC	1	9/15/2021 04:55 PM
Surr: Toluene-d8	95.0	0	80-120		%REC	1	9/15/2021 04:55 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3510C		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914B** QC Batch: **89279**				PrepDate:	**9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-003

Client Sample ID: KB-3
Collection Date: 9/10/2021 8:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3510C		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210914B**	QC Batch: **89279**			PrepDate:	**9/14/2021**		Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	0.20	0.20		mg/L	1	9/14/2021 11:06 PM
T/R Hydrocarbons: C23-C40	ND	0.20	0.20		mg/L	1	9/14/2021 11:06 PM
Surr: p-Terphenyl	88.6	0	54-139		%REC	1	9/14/2021 11:06 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_210914A**	QC Batch: **E21VW088**			PrepDate:			Analyst: **YG**
GRO (C6 - C12)	0.021	0.019	0.050	J	mg/L	1	9/14/2021 08:51 PM
Surr: Chlorobenzene - d5	95.8	0	66-123		%REC	1	9/14/2021 08:51 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_210915B**	QC Batch: **89300**			PrepDate:	**9/15/2021**		Analyst: **DJ**
Mercury	ND	0.12	0.20		µg/L	1	9/15/2021 04:30 PM
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_210916A**	QC Batch: **89308**			PrepDate:	**9/15/2021**		Analyst: **DJ**
Antimony	ND	0.0045	0.010		mg/L	1	9/16/2021 12:06 PM
Arsenic	ND	0.0077	0.010		mg/L	1	9/16/2021 12:06 PM
Barium	0.053	0.0010	0.0030		mg/L	1	9/16/2021 12:06 PM
Beryllium	ND	0.00031	0.0030		mg/L	1	9/16/2021 12:06 PM
Cadmium	ND	0.00085	0.0030		mg/L	1	9/16/2021 12:06 PM
Chromium	0.0028	0.00054	0.0030	J	mg/L	1	9/16/2021 08:15 PM
Cobalt	ND	0.0019	0.0030		mg/L	1	9/16/2021 12:06 PM
Copper	0.0074	0.0011	0.0050		mg/L	1	9/16/2021 12:06 PM
Lead	ND	0.0040	0.010		mg/L	1	9/16/2021 12:06 PM
Molybdenum	0.014	0.0026	0.0050		mg/L	1	9/16/2021 12:06 PM
Nickel	ND	0.0020	0.0050		mg/L	1	9/16/2021 12:06 PM
Selenium	ND	0.0085	0.010		mg/L	1	9/16/2021 12:06 PM
Silver	ND	0.0024	0.0030		mg/L	1	9/16/2021 12:06 PM
Thallium	0.024	0.0060	0.015		mg/L	1	9/16/2021 08:15 PM
Vanadium	0.0040	0.0012	0.0030		mg/L	1	9/16/2021 08:15 PM
Zinc	ND	0.0077	0.010		mg/L	1	9/16/2021 12:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-004

Client Sample ID: KB-4
Collection Date: 9/10/2021 7:58:00 PM
Matrix: GROUNDWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118** PrepDate: Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.25	0.50		µg/L	1	9/15/2021 05:19 PM
1,1,1-Trichloroethane	ND	0.20	0.50		µg/L	1	9/15/2021 05:19 PM
1,1,2,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	9/15/2021 05:19 PM
1,1,2-Trichloroethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
1,1-Dichloroethane	ND	0.22	0.50		µg/L	1	9/15/2021 05:19 PM
1,1-Dichloroethene	ND	0.17	0.50		µg/L	1	9/15/2021 05:19 PM
1,1-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 05:19 PM
1,2,3-Trichlorobenzene	ND	0.37	0.50		µg/L	1	9/15/2021 05:19 PM
1,2,3-Trichloropropane	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
1,2,4-Trichlorobenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:19 PM
1,2,4-Trimethylbenzene	ND	0.060	0.50		µg/L	1	9/15/2021 05:19 PM
1,2-Dibromo-3-chloropropane	ND	0.32	1.0		µg/L	1	9/15/2021 05:19 PM
1,2-Dibromoethane	ND	0.19	0.50		µg/L	1	9/15/2021 05:19 PM
1,2-Dichlorobenzene	ND	0.089	0.50		µg/L	1	9/15/2021 05:19 PM
1,2-Dichloroethane	ND	0.16	0.50		µg/L	1	9/15/2021 05:19 PM
1,2-Dichloropropane	ND	0.16	0.50		µg/L	1	9/15/2021 05:19 PM
1,3,5-Trimethylbenzene	ND	0.051	0.50		µg/L	1	9/15/2021 05:19 PM
1,3-Dichlorobenzene	ND	0.081	0.50		µg/L	1	9/15/2021 05:19 PM
1,3-Dichloropropane	ND	0.13	0.50		µg/L	1	9/15/2021 05:19 PM
1,4-Dichlorobenzene	ND	0.080	0.50		µg/L	1	9/15/2021 05:19 PM
2,2-Dichloropropane	ND	0.22	0.50		µg/L	1	9/15/2021 05:19 PM
2-Butanone	ND	4.7	5.0		µg/L	1	9/15/2021 05:19 PM
2-Chlorotoluene	ND	0.090	0.50		µg/L	1	9/15/2021 05:19 PM
4-Chlorotoluene	ND	0.065	0.50		µg/L	1	9/15/2021 05:19 PM
4-Isopropyltoluene	ND	0.085	0.50		µg/L	1	9/15/2021 05:19 PM
Benzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:19 PM
Bromobenzene	ND	0.093	0.50		µg/L	1	9/15/2021 05:19 PM
Bromodichloromethane	ND	0.20	0.50		µg/L	1	9/15/2021 05:19 PM
Bromoform	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
Bromomethane	ND	0.38	1.0		µg/L	1	9/15/2021 05:19 PM
Carbon tetrachloride	ND	0.33	0.50		µg/L	1	9/15/2021 05:19 PM
Chlorobenzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:19 PM
Chloroethane	ND	0.69	1.0		µg/L	1	9/15/2021 05:19 PM
Chloroform	0.75	0.38	0.50		µg/L	1	9/15/2021 05:19 PM
Chloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
cis-1,2-Dichloroethene	ND	0.11	0.50		µg/L	1	9/15/2021 05:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-004

Client Sample ID: KB-4
Collection Date: 9/10/2021 7:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118**				PrepDate:			Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 05:19 PM
Di-isopropyl ether	ND	0.15	0.50		µg/L	1	9/15/2021 05:19 PM
Dibromochloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
Dibromomethane	ND	0.13	0.50		µg/L	1	9/15/2021 05:19 PM
Dichlorodifluoromethane	ND	0.16	0.50		µg/L	1	9/15/2021 05:19 PM
Ethyl tert-butyl ether	ND	0.10	0.50		µg/L	1	9/15/2021 05:19 PM
Ethylbenzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:19 PM
Freon-113	ND	0.28	0.50		µg/L	1	9/15/2021 05:19 PM
Hexachlorobutadiene	ND	0.30	0.50		µg/L	1	9/15/2021 05:19 PM
Isopropylbenzene	ND	0.092	0.50		µg/L	1	9/15/2021 05:19 PM
m,p-Xylene	ND	0.23	1.0		µg/L	1	9/15/2021 05:19 PM
Methylene chloride	ND	1.2	2.0		µg/L	1	9/15/2021 05:19 PM
MTBE	ND	0.44	0.50		µg/L	1	9/15/2021 05:19 PM
n-Butylbenzene	ND	0.093	0.50		µg/L	1	9/15/2021 05:19 PM
n-Propylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:19 PM
Naphthalene	ND	0.41	0.50		µg/L	1	9/15/2021 05:19 PM
o-Xylene	ND	0.087	0.50		µg/L	1	9/15/2021 05:19 PM
sec-Butylbenzene	ND	0.076	0.50		µg/L	1	9/15/2021 05:19 PM
Styrene	ND	0.41	0.50		µg/L	1	9/15/2021 05:19 PM
Tert-amyl methyl ether	ND	0.13	0.50		µg/L	1	9/15/2021 05:19 PM
Tert-Butanol	ND	2.8	5.0		µg/L	1	9/15/2021 05:19 PM
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:19 PM
Tetrachloroethene	0.69	0.25	0.50		µg/L	1	9/15/2021 05:19 PM
Toluene	ND	0.13	0.50		µg/L	1	9/15/2021 05:19 PM
trans-1,2-Dichloroethene	ND	0.27	0.50		µg/L	1	9/15/2021 05:19 PM
Trichloroethene	ND	0.26	0.50		µg/L	1	9/15/2021 05:19 PM
Trichlorofluoromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:19 PM
Vinyl chloride	ND	0.19	0.50		µg/L	1	9/15/2021 05:19 PM
Surr: 1,2-Dichloroethane-d4	111	0	72-132		%REC	1	9/15/2021 05:19 PM
Surr: 4-Bromofluorobenzene	90.0	0	80-120		%REC	1	9/15/2021 05:19 PM
Surr: Dibromofluoromethane	110	0	78-130		%REC	1	9/15/2021 05:19 PM
Surr: Toluene-d8	97.6	0	80-120		%REC	1	9/15/2021 05:19 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3510C		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914B** QC Batch: **89279**				PrepDate:	**9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-004

Client Sample ID: KB-4
Collection Date: 9/10/2021 7:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3510C		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210914B**	QC Batch: **89279**			PrepDate:		**9/14/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	0.20	0.20		mg/L	1	9/14/2021 11:35 PM
T/R Hydrocarbons: C23-C40	ND	0.20	0.20		mg/L	1	9/14/2021 11:35 PM
Surr: p-Terphenyl	88.5	0	54-139		%REC	1	9/14/2021 11:35 PM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_210914A**	QC Batch: **E21VW088**			PrepDate:			Analyst: **YG**
GRO (C6 - C12)	0.021	0.019	0.050	J	mg/L	1	9/14/2021 09:21 PM
Surr: Chlorobenzene - d5	90.9	0	66-123		%REC	1	9/14/2021 09:21 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_210915B**	QC Batch: **89300**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Mercury	ND	0.12	0.20		µg/L	1	9/15/2021 04:40 PM
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_210916A**	QC Batch: **89308**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Antimony	ND	0.0045	0.010		mg/L	1	9/16/2021 12:33 PM
Arsenic	ND	0.0077	0.010		mg/L	1	9/16/2021 12:33 PM
Barium	0.042	0.0010	0.0030		mg/L	1	9/16/2021 12:33 PM
Beryllium	ND	0.00031	0.0030		mg/L	1	9/16/2021 12:33 PM
Cadmium	ND	0.00085	0.0030		mg/L	1	9/16/2021 12:33 PM
Chromium	0.0020	0.00054	0.0030	J	mg/L	1	9/16/2021 08:19 PM
Cobalt	ND	0.0019	0.0030		mg/L	1	9/16/2021 12:33 PM
Copper	0.0074	0.0011	0.0050		mg/L	1	9/16/2021 12:33 PM
Lead	ND	0.0040	0.010		mg/L	1	9/16/2021 12:33 PM
Molybdenum	0.017	0.0026	0.0050		mg/L	1	9/16/2021 12:33 PM
Nickel	ND	0.0020	0.0050		mg/L	1	9/16/2021 12:33 PM
Selenium	ND	0.0085	0.010		mg/L	1	9/16/2021 12:33 PM
Silver	ND	0.0024	0.0030		mg/L	1	9/16/2021 12:33 PM
Thallium	0.026	0.0060	0.015		mg/L	1	9/16/2021 08:19 PM
Vanadium	0.0035	0.0012	0.0030		mg/L	1	9/16/2021 08:19 PM
Zinc	ND	0.0077	0.010		mg/L	1	9/16/2021 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	B-1
Lab Order:	N047085	**Collection Date:**	9/13/2021 12:31:00 PM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	GROUNDWATER
Lab ID:	N047085-005		

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118** PrepDate: Analyst: **AW**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.25	0.50		µg/L	1	9/15/2021 05:43 PM
1,1,1-Trichloroethane	ND	0.20	0.50		µg/L	1	9/15/2021 05:43 PM
1,1,2,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	9/15/2021 05:43 PM
1,1,2-Trichloroethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
1,1-Dichloroethane	ND	0.22	0.50		µg/L	1	9/15/2021 05:43 PM
1,1-Dichloroethene	ND	0.17	0.50		µg/L	1	9/15/2021 05:43 PM
1,1-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 05:43 PM
1,2,3-Trichlorobenzene	ND	0.37	0.50		µg/L	1	9/15/2021 05:43 PM
1,2,3-Trichloropropane	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
1,2,4-Trichlorobenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:43 PM
1,2,4-Trimethylbenzene	ND	0.060	0.50		µg/L	1	9/15/2021 05:43 PM
1,2-Dibromo-3-chloropropane	ND	0.32	1.0		µg/L	1	9/15/2021 05:43 PM
1,2-Dibromoethane	ND	0.19	0.50		µg/L	1	9/15/2021 05:43 PM
1,2-Dichlorobenzene	ND	0.089	0.50		µg/L	1	9/15/2021 05:43 PM
1,2-Dichloroethane	ND	0.16	0.50		µg/L	1	9/15/2021 05:43 PM
1,2-Dichloropropane	ND	0.16	0.50		µg/L	1	9/15/2021 05:43 PM
1,3,5-Trimethylbenzene	ND	0.051	0.50		µg/L	1	9/15/2021 05:43 PM
1,3-Dichlorobenzene	ND	0.081	0.50		µg/L	1	9/15/2021 05:43 PM
1,3-Dichloropropane	ND	0.13	0.50		µg/L	1	9/15/2021 05:43 PM
1,4-Dichlorobenzene	ND	0.080	0.50		µg/L	1	9/15/2021 05:43 PM
2,2-Dichloropropane	ND	0.22	0.50		µg/L	1	9/15/2021 05:43 PM
2-Butanone	ND	4.7	5.0		µg/L	1	9/15/2021 05:43 PM
2-Chlorotoluene	ND	0.090	0.50		µg/L	1	9/15/2021 05:43 PM
4-Chlorotoluene	ND	0.065	0.50		µg/L	1	9/15/2021 05:43 PM
4-Isopropyltoluene	ND	0.085	0.50		µg/L	1	9/15/2021 05:43 PM
Benzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:43 PM
Bromobenzene	ND	0.093	0.50		µg/L	1	9/15/2021 05:43 PM
Bromodichloromethane	ND	0.20	0.50		µg/L	1	9/15/2021 05:43 PM
Bromoform	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
Bromomethane	ND	0.38	1.0		µg/L	1	9/15/2021 05:43 PM
Carbon tetrachloride	ND	0.33	0.50		µg/L	1	9/15/2021 05:43 PM
Chlorobenzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:43 PM
Chloroethane	ND	0.69	1.0		µg/L	1	9/15/2021 05:43 PM
Chloroform	ND	0.38	0.50		µg/L	1	9/15/2021 05:43 PM
Chloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
cis-1,2-Dichloroethene	ND	0.11	0.50		µg/L	1	9/15/2021 05:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-005

Client Sample ID: B-1
Collection Date: 9/13/2021 12:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS08_210915A** QC Batch: **R21VW118**				PrepDate:			Analyst: **AW**
cis-1,3-Dichloropropene	ND	0.16	0.50		µg/L	1	9/15/2021 05:43 PM
Di-isopropyl ether	ND	0.15	0.50		µg/L	1	9/15/2021 05:43 PM
Dibromochloromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
Dibromomethane	ND	0.13	0.50		µg/L	1	9/15/2021 05:43 PM
Dichlorodifluoromethane	ND	0.16	0.50		µg/L	1	9/15/2021 05:43 PM
Ethyl tert-butyl ether	ND	0.10	0.50		µg/L	1	9/15/2021 05:43 PM
Ethylbenzene	ND	0.11	0.50		µg/L	1	9/15/2021 05:43 PM
Freon-113	ND	0.28	0.50		µg/L	1	9/15/2021 05:43 PM
Hexachlorobutadiene	ND	0.30	0.50		µg/L	1	9/15/2021 05:43 PM
Isopropylbenzene	ND	0.092	0.50		µg/L	1	9/15/2021 05:43 PM
m,p-Xylene	ND	0.23	1.0		µg/L	1	9/15/2021 05:43 PM
Methylene chloride	ND	1.2	2.0		µg/L	1	9/15/2021 05:43 PM
MTBE	ND	0.44	0.50		µg/L	1	9/15/2021 05:43 PM
n-Butylbenzene	ND	0.093	0.50		µg/L	1	9/15/2021 05:43 PM
n-Propylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:43 PM
Naphthalene	ND	0.41	0.50		µg/L	1	9/15/2021 05:43 PM
o-Xylene	ND	0.087	0.50		µg/L	1	9/15/2021 05:43 PM
sec-Butylbenzene	ND	0.076	0.50		µg/L	1	9/15/2021 05:43 PM
Styrene	ND	0.41	0.50		µg/L	1	9/15/2021 05:43 PM
Tert-amyl methyl ether	ND	0.13	0.50		µg/L	1	9/15/2021 05:43 PM
Tert-Butanol	ND	2.8	5.0		µg/L	1	9/15/2021 05:43 PM
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	9/15/2021 05:43 PM
Tetrachloroethene	0.69	0.25	0.50		µg/L	1	9/15/2021 05:43 PM
Toluene	ND	0.13	0.50		µg/L	1	9/15/2021 05:43 PM
trans-1,2-Dichloroethene	ND	0.27	0.50		µg/L	1	9/15/2021 05:43 PM
Trichloroethene	ND	0.26	0.50		µg/L	1	9/15/2021 05:43 PM
Trichlorofluoromethane	ND	0.23	0.50		µg/L	1	9/15/2021 05:43 PM
Vinyl chloride	ND	0.19	0.50		µg/L	1	9/15/2021 05:43 PM
Surr: 1,2-Dichloroethane-d4	114	0	72-132		%REC	1	9/15/2021 05:43 PM
Surr: 4-Bromofluorobenzene	88.5	0	80-120		%REC	1	9/15/2021 05:43 PM
Surr: Dibromofluoromethane	114	0	78-130		%REC	1	9/15/2021 05:43 PM
Surr: Toluene-d8	96.4	0	80-120		%REC	1	9/15/2021 05:43 PM
HYDROCARBON CHAIN IDENTIFICATION							
			EPA 3510C		**EPA 8015B(M)**		
RunID: **NV00922-GC1_210914B** QC Batch: **89279**				PrepDate:	**9/14/2021**		Analyst: **PL**

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047085
Project: Costco Culver City, 20201678.001A
Lab ID: N047085-005

Client Sample ID: B-1
Collection Date: 9/13/2021 12:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HYDROCARBON CHAIN IDENTIFICATION							
	EPA 3510C		**EPA 8015B(M)**				
RunID: **NV00922-GC1_210914B**	QC Batch: **89279**			PrepDate:		**9/14/2021**	Analyst: **PL**
T/R Hydrocarbons: C13-C22	ND	0.20	0.20		mg/L	1	9/15/2021 12:04 AM
T/R Hydrocarbons: C23-C40	ND	0.20	0.20		mg/L	1	9/15/2021 12:04 AM
Surr: p-Terphenyl	78.4	0	54-139		%REC	1	9/15/2021 12:04 AM
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_210914A**	QC Batch: **E21VW088**			PrepDate:			Analyst: **YG**
GRO (C6 - C12)	0.022	0.019	0.050	J	mg/L	1	9/14/2021 09:52 PM
Surr: Chlorobenzene - d5	93.7	0	66-123		%REC	1	9/14/2021 09:52 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA2_210915B**	QC Batch: **89300**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Mercury	ND	0.12	0.20		µg/L	1	9/15/2021 04:43 PM
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **NV00922-ICP2_210916A**	QC Batch: **89308**			PrepDate:		**9/15/2021**	Analyst: **DJ**
Antimony	ND	0.0045	0.010		mg/L	1	9/16/2021 12:38 PM
Arsenic	ND	0.0077	0.010		mg/L	1	9/16/2021 12:38 PM
Barium	0.040	0.0010	0.0030		mg/L	1	9/16/2021 12:38 PM
Beryllium	ND	0.00031	0.0030		mg/L	1	9/16/2021 12:38 PM
Cadmium	ND	0.00085	0.0030		mg/L	1	9/16/2021 12:38 PM
Chromium	0.0039	0.00054	0.0030		mg/L	1	9/16/2021 08:23 PM
Cobalt	ND	0.0019	0.0030		mg/L	1	9/16/2021 12:38 PM
Copper	0.0071	0.0011	0.0050		mg/L	1	9/16/2021 12:38 PM
Lead	ND	0.0040	0.010		mg/L	1	9/16/2021 12:38 PM
Molybdenum	0.0083	0.0026	0.0050		mg/L	1	9/16/2021 12:38 PM
Nickel	ND	0.0020	0.0050		mg/L	1	9/16/2021 12:38 PM
Selenium	ND	0.0085	0.010		mg/L	1	9/16/2021 12:38 PM
Silver	ND	0.0024	0.0030		mg/L	1	9/16/2021 12:38 PM
Thallium	0.025	0.0060	0.015		mg/L	1	9/16/2021 08:23 PM
Vanadium	0.0035	0.0012	0.0030		mg/L	1	9/16/2021 08:23 PM
Zinc	ND	0.0077	0.010		mg/L	1	9/16/2021 12:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: **MB-89308**	SampType: **MBLK**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156702**
Client ID: **PBW**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.010									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.010									
Molybdenum	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	ND	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Sample ID: **N047085-001C-MS**	SampType: **MS**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156702**
Client ID: **ZZZZZZ**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.522	0.010	0.5000	0	104	75	125				
Arsenic	0.531	0.010	0.5000	0	106	75	125				
Barium	0.508	0.0030	0.5000	0.04394	92.7	75	125				
Beryllium	0.461	0.0030	0.5000	0	92.1	75	125				
Cadmium	0.426	0.0030	0.5000	0	85.3	75	125				
Cobalt	0.461	0.0030	0.5000	0	92.1	75	125				
Copper	0.464	0.0050	0.5000	0.008596	91.1	75	125				
Lead	0.484	0.010	0.5000	0	96.8	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: **N047085-001C-MS** SampType: **MS** TestCode: **6010_WD** Units: **mg/L** Prep Date: **9/15/2021** RunNo: **156702**
Client ID: **ZZZZZZ** Batch ID: **89308** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/16/2021** SeqNo: **4353200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	0.482	0.0050	0.5000	0.02260	92.0	75	125				
Nickel	0.449	0.0050	0.5000	0	89.8	75	125				
Selenium	0.503	0.010	0.5000	0	101	75	125				
Silver	0.700	0.0030	0.5000	0	140	75	125				S
Thallium	0.434	0.015	0.5000	0.03116	80.6	75	125				
Vanadium	0.428	0.0030	0.5000	0.002963	85.1	90	113				S
Zinc	0.494	0.010	0.5000	0	98.8	64	125				

Sample ID: **N047085-001C-MSD** SampType: **MSD** TestCode: **6010_WD** Units: **mg/L** Prep Date: **9/15/2021** RunNo: **156702**
Client ID: **ZZZZZZ** Batch ID: **89308** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **9/16/2021** SeqNo: **4353201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.534	0.010	0.5000	0	107	75	125	0.5216	2.39	20	
Arsenic	0.550	0.010	0.5000	0	110	75	125	0.5311	3.51	20	
Barium	0.525	0.0030	0.5000	0.04394	96.2	75	125	0.5077	3.38	20	
Beryllium	0.470	0.0030	0.5000	0	94.1	75	125	0.4607	2.05	20	
Cadmium	0.439	0.0030	0.5000	0	87.8	75	125	0.4263	2.99	20	
Cobalt	0.476	0.0030	0.5000	0	95.3	75	125	0.4607	3.33	20	
Copper	0.480	0.0050	0.5000	0.008596	94.3	75	125	0.4639	3.49	20	
Lead	0.501	0.010	0.5000	0	100	75	125	0.4838	3.59	20	
Molybdenum	0.499	0.0050	0.5000	0.02260	95.3	75	125	0.4824	3.43	20	
Nickel	0.464	0.0050	0.5000	0	92.8	75	125	0.4489	3.28	20	
Selenium	0.519	0.010	0.5000	0	104	75	125	0.5026	3.27	20	
Silver	0.722	0.0030	0.5000	0	144	75	125	0.7001	3.04	20	S
Thallium	0.451	0.015	0.5000	0.03116	84.0	75	125	0.4342	3.87	20	
Vanadium	0.442	0.0030	0.5000	0.002963	87.9	90	113	0.4282	3.23	20	S
Zinc	0.512	0.010	0.5000	0	102	64	125	0.4940	3.55	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: **LCS-89308**	SampType: **LCS**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156702**
Client ID: **LCSW**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.566	0.010	0.5000	0	113	85	115				
Arsenic	0.552	0.010	0.5000	0	110	85	115				
Barium	0.556	0.0030	0.5000	0	111	85	115				
Beryllium	0.500	0.0030	0.5000	0	100	85	115				
Cadmium	0.489	0.0030	0.5000	0	97.7	85	115				
Cobalt	0.518	0.0030	0.5000	0	104	85	115				
Copper	0.497	0.0050	0.5000	0	99.5	85	115				
Lead	0.556	0.010	0.5000	0	111	85	115				
Molybdenum	0.497	0.0050	0.5000	0	99.3	85	115				
Nickel	0.518	0.0050	0.5000	0	104	85	115				
Selenium	0.492	0.010	0.5000	0	98.5	85	115				
Silver	0.606	0.0030	0.5000	0	121	85	115				S
Thallium	0.470	0.015	0.5000	0	94.0	85	115				
Vanadium	0.492	0.0030	0.5000	0	98.4	85	115				
Zinc	0.540	0.010	0.5000	0	108	85	115				

Sample ID: **MB-89308**	SampType: **MBLK**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156725**
Client ID: **PBW**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.0030									

Sample ID: **LCS-89308**	SampType: **LCS**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156725**
Client ID: **LCSW**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.495	0.0030	0.5000	0	99.0	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: **N047085-001C-MS**	SampType: **MS**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156725**
Client ID: **ZZZZZZ**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.418	0.0030	0.5000	0.003563	82.9	75	125				

Sample ID: **N047085-001C-MSD**	SampType: **MSD**	TestCode: **6010_WD**	Units: **mg/L**	Prep Date: **9/15/2021**	RunNo: **156725**
Client ID: **ZZZZZZ**	Batch ID: **89308**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **9/16/2021**	SeqNo: **4353530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.428	0.0030	0.5000	0.003563	85.0	75	125	0.4183	2.37	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISS

Sample ID: **MB-89300**	SampType: **MBLK**	TestCode: **7470_W_DISS**	Units: **µg/L**	Prep Date: **9/15/2021**	RunNo: **156687**
Client ID: **PBW**	Batch ID: **89300**	TestNo: **EPA 7470A**		Analysis Date: **9/15/2021**	SeqNo: **4351533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **LCS-89300**	SampType: **LCS**	TestCode: **7470_W_DISS**	Units: **µg/L**	Prep Date: **9/15/2021**	RunNo: **156687**
Client ID: **LCSW**	Batch ID: **89300**	TestNo: **EPA 7470A**		Analysis Date: **9/15/2021**	SeqNo: **4351534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.430	0.20	5.000	0	88.6	85	115				

Sample ID: **N047085-002C-MS**	SampType: **MS**	TestCode: **7470_W_DISS**	Units: **µg/L**	Prep Date: **9/15/2021**	RunNo: **156687**
Client ID: **ZZZZZZ**	Batch ID: **89300**	TestNo: **EPA 7470A**		Analysis Date: **9/15/2021**	SeqNo: **4351539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.150	0.20	5.000	0	83.0	75	125				

Sample ID: **N047085-002C-MSD**	SampType: **MSD**	TestCode: **7470_W_DISS**	Units: **µg/L**	Prep Date: **9/15/2021**	RunNo: **156687**
Client ID: **ZZZZZZ**	Batch ID: **89300**	TestNo: **EPA 7470A**		Analysis Date: **9/15/2021**	SeqNo: **4351540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.210	0.20	5.000	0	84.2	75	125	4.150	1.44	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WC6C12

Sample ID: **E210914LCS**	SampType: **LCS**	TestCode: **8015GAS_WC**	Units: **mg/L**	Prep Date:	RunNo: **156647**
Client ID: **LCSW**	Batch ID: **E21VW088**	TestNo: **EPA 8015B**		Analysis Date: **9/14/2021**	SeqNo: **4350902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	1.074	0.050	1.000	0	107	62	140				
Surr: Chlorobenzene - d5	47.296		50.00		94.6	66	123				

Sample ID: **E210914LCSD**	SampType: **LCSD**	TestCode: **8015GAS_WC**	Units: **mg/L**	Prep Date:	RunNo: **156647**
Client ID: **LCSS02**	Batch ID: **E21VW088**	TestNo: **EPA 8015B**		Analysis Date: **9/14/2021**	SeqNo: **4350903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	1.130	0.050	1.000	0	113	62	140	1.074	5.08	30	
Surr: Chlorobenzene - d5	48.964		50.00		97.9	66	123		0		

Sample ID: **E210914MB**	SampType: **MBLK**	TestCode: **8015GAS_WC**	Units: **mg/L**	Prep Date:	RunNo: **156647**
Client ID: **PBW**	Batch ID: **E21VW088**	TestNo: **EPA 8015B**		Analysis Date: **9/14/2021**	SeqNo: **4350904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	0.021	0.050									J
Surr: Chlorobenzene - d5	49.880		50.00		99.8	66	123				

Sample ID: **E210914MB1**	SampType: **MBLK**	TestCode: **8015GAS_WC**	Units: **mg/L**	Prep Date:	RunNo: **156647**
Client ID: **PBW**	Batch ID: **E21VW088**	TestNo: **EPA 8015B**		Analysis Date: **9/14/2021**	SeqNo: **4350905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	0.021	0.050									J
Surr: Chlorobenzene - d5	48.259		50.00		96.5	66	123				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WC6C12

Sample ID: **E210914LCS** SampType: **LCS** TestCode: **8015GAS_WC** Units: **mg/L** Prep Date: RunNo: **156681**
Client ID: **LCSW** Batch ID: **E21VW089** TestNo: **EPA 8015B** Analysis Date: **9/15/2021** SeqNo: **4351482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	1.011	0.050	1.000	0	101	62	140				
Surr: Chlorobenzene - d5	40.743		50.00		81.5	66	123				

Sample ID: **E210914MB** SampType: **MBLK** TestCode: **8015GAS_WC** Units: **mg/L** Prep Date: RunNo: **156681**
Client ID: **PBW** Batch ID: **E21VW089** TestNo: **EPA 8015B** Analysis Date: **9/15/2021** SeqNo: **4351483**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	0.020	0.050									J
Surr: Chlorobenzene - d5	40.459		50.00		80.9	66	123				

Sample ID: **N047095-002AMS** SampType: **MS** TestCode: **8015GAS_WC** Units: **mg/L** Prep Date: RunNo: **156681**
Client ID: **ZZZZZZ** Batch ID: **E21VW089** TestNo: **EPA 8015B** Analysis Date: **9/15/2021** SeqNo: **4351485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	1.005	0.050	1.000	0.02100	98.4	62	140				
Surr: Chlorobenzene - d5	40.732		50.00		81.5	66	123				

Sample ID: **N047095-002AMSD** SampType: **MSD** TestCode: **8015GAS_WC** Units: **mg/L** Prep Date: RunNo: **156681**
Client ID: **ZZZZZZ** Batch ID: **E21VW089** TestNo: **EPA 8015B** Analysis Date: **9/15/2021** SeqNo: **4351486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO (C6 - C12)	1.077	0.050	1.000	0.02100	106	62	140	1.005	6.92	30	
Surr: Chlorobenzene - d5	41.528		50.00		83.1	66	123		0		

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **R210915-LCS** SampType: **LCS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **LCSW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	21.030	0.50	20.00	0	105	77	123				
1,1,1-Trichloroethane	21.260	0.50	20.00	0	106	77	124				
1,1,2,2-Tetrachloroethane	19.350	0.50	20.00	0	96.8	73	120				
1,1,2-Trichloroethane	20.340	0.50	20.00	0	102	74	120				
1,1-Dichloroethane	19.800	0.50	20.00	0	99.0	74	125				
1,1-Dichloroethene	19.580	0.50	20.00	0	97.9	70	131				
1,1-Dichloropropene	23.200	0.50	20.00	0	116	80	128				
1,2,3-Trichlorobenzene	21.940	0.50	20.00	0	110	78	122				
1,2,3-Trichloropropane	20.520	0.50	20.00	0	103	70	120				
1,2,4-Trichlorobenzene	21.260	0.50	20.00	0	106	77	121				
1,2,4-Trimethylbenzene	20.710	0.50	20.00	0	104	80	130				
1,2-Dibromo-3-chloropropane	20.270	1.0	20.00	0	101	66	131				
1,2-Dibromoethane	21.400	0.50	20.00	0	107	74	121				
1,2-Dichlorobenzene	21.500	0.50	20.00	0	108	80	120				
1,2-Dichloroethane	20.550	0.50	20.00	0	103	77	120				
1,2-Dichloropropane	19.640	0.50	20.00	0	98.2	80	120				
1,3,5-Trimethylbenzene	20.960	0.50	20.00	0	105	80	127				
1,3-Dichlorobenzene	21.990	0.50	20.00	0	110	80	120				
1,3-Dichloropropane	20.210	0.50	20.00	0	101	78	120				
1,4-Dichlorobenzene	21.080	0.50	20.00	0	105	80	120				
2,2-Dichloropropane	21.020	0.50	20.00	0	105	69	134				
2-Butanone	171.640	5.0	200.0	0	85.8	44	141				
2-Chlorotoluene	22.130	0.50	20.00	0	111	80	120				
4-Chlorotoluene	22.590	0.50	20.00	0	113	80	120				
4-Isopropyltoluene	20.380	0.50	20.00	0	102	80	129				
Benzene	21.390	0.50	20.00	0	107	80	120				
Bromobenzene	21.400	0.50	20.00	0	107	80	120				
Bromodichloromethane	20.610	0.50	20.00	0	103	79	120				
Bromoform	21.690	0.50	20.00	0	108	68	131				
Bromomethane	23.940	1.0	20.00	0	120	37	169				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **R210915-LCS** SampType: **LCS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **LCSW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	23.180	0.50	20.00	0	116	72	136				
Chlorobenzene	21.150	0.50	20.00	0	106	80	120				
Chloroethane	20.390	1.0	20.00	0	102	61	155				
Chloroform	19.740	0.50	20.00	0	98.7	77	124				
Chloromethane	18.510	0.50	20.00	0	92.6	52	147				
cis-1,2-Dichloroethene	20.510	0.50	20.00	0	103	77	120				
cis-1,3-Dichloropropene	20.930	0.50	20.00	0	105	73	123				
Di-isopropyl ether	19.690	0.50	20.00	0	98.4	66	131				
Dibromochloromethane	21.300	0.50	20.00	0	106	75	124				
Dibromomethane	19.970	0.50	20.00	0	99.8	80	120				
Dichlorodifluoromethane	17.860	0.50	20.00	0	89.3	55	150				
Ethyl tert-butyl ether	23.420	0.50	20.00	0	117	70	127				
Ethylbenzene	22.190	0.50	20.00	0	111	80	120				
Freon-113	21.060	0.50	20.00	0	105	59	139				
Hexachlorobutadiene	22.410	0.50	20.00	0	112	80	120				
Isopropylbenzene	20.140	0.50	20.00	0	101	80	126				
m,p-Xylene	42.120	1.0	40.00	0	105	80	125				
Methylene chloride	18.890	2.0	20.00	0	94.4	69	129				
MTBE	20.370	0.50	20.00	0	102	64	131				
n-Butylbenzene	19.760	0.50	20.00	0	98.8	80	127				
n-Propylbenzene	20.220	0.50	20.00	0	101	80	122				
Naphthalene	17.970	0.50	20.00	0	89.8	68	127				
o-Xylene	19.500	0.50	20.00	0	97.5	80	123				
sec-Butylbenzene	20.560	0.50	20.00	0	103	80	127				
Styrene	20.300	0.50	20.00	0	102	80	125				
Tert-amyl methyl ether	24.190	0.50	20.00	0	121	67	128				
Tert-Butanol	92.770	5.0	100.0	0	92.8	44	146				
tert-Butylbenzene	20.520	0.50	20.00	0	103	80	124				
Tetrachloroethene	22.600	0.50	20.00	0	113	80	123				
Toluene	22.440	0.50	20.00	0	112	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **R210915-LCS** SampType: **LCS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **LCSW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	20.290	0.50	20.00	0	101	70	132				
Trichloroethene	21.990	0.50	20.00	0	110	80	120				
Trichlorofluoromethane	20.780	0.50	20.00	0	104	67	151				
Vinyl chloride	18.710	0.50	20.00	0	93.6	69	137				
Surr: 1,2-Dichloroethane-d4	23.310		25.00		93.2	72	132				
Surr: 4-Bromofluorobenzene	24.480		25.00		97.9	80	120				
Surr: Dibromofluoromethane	23.660		25.00		94.6	78	130				
Surr: Toluene-d8	24.850		25.00		99.4	80	120				

Sample ID: **N047010-003A-MS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	193.800	5.0	200.0	0	96.9	80	120				
1,1,1-Trichloroethane	188.700	5.0	200.0	0	94.4	76	129				
1,1,2,2-Tetrachloroethane	182.900	5.0	200.0	0	91.5	72	125				
1,1,2-Trichloroethane	190.800	5.0	200.0	0	95.4	70	126				
1,1-Dichloroethane	180.300	5.0	200.0	4.900	87.7	73	128				
1,1-Dichloroethene	201.200	5.0	200.0	23.90	88.6	68	137				
1,1-Dichloropropene	190.100	5.0	200.0	0	95.1	80	130				
1,2,3-Trichlorobenzene	210.000	5.0	200.0	0	105	78	123				
1,2,3-Trichloropropane	197.100	5.0	200.0	0	98.6	70	124				
1,2,4-Trichlorobenzene	205.100	5.0	200.0	0	103	78	120				
1,2,4-Trimethylbenzene	185.700	5.0	200.0	0	92.8	79	135				
1,2-Dibromo-3-chloropropane	194.700	10	200.0	0	97.4	64	136				
1,2-Dibromoethane	205.300	5.0	200.0	0	103	71	126				
1,2-Dichlorobenzene	198.900	5.0	200.0	0	99.4	80	120				
1,2-Dichloroethane	197.300	5.0	200.0	0	98.6	74	125				
1,2-Dichloropropane	181.600	5.0	200.0	0	90.8	76	120				
1,3,5-Trimethylbenzene	184.700	5.0	200.0	0	92.4	73	138				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N047010-003A-MS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	199.700	5.0	200.0	0	99.8	80	120				
1,3-Dichloropropane	196.300	5.0	200.0	0	98.2	76	122				
1,4-Dichlorobenzene	195.000	5.0	200.0	0	97.5	80	120				
2,2-Dichloropropane	182.000	5.0	200.0	0	91.0	65	139				
2-Butanone	1272.600	50	2000	0	63.6	29	120				
2-Chlorotoluene	199.800	5.0	200.0	0	99.9	80	124				
4-Chlorotoluene	204.200	5.0	200.0	0	102	80	124				
4-Isopropyltoluene	177.200	5.0	200.0	0	88.6	79	135				
Benzene	191.000	5.0	200.0	0	95.5	80	121				
Bromobenzene	195.400	5.0	200.0	0	97.7	80	120				
Bromodichloromethane	190.400	5.0	200.0	0	95.2	78	121				
Bromoform	212.800	5.0	200.0	0	106	71	127				
Bromomethane	209.300	10	200.0	0	105	52	163				
Carbon tetrachloride	193.200	5.0	200.0	0	96.6	76	136				
Chlorobenzene	196.200	5.0	200.0	0	98.1	80	120				
Chloroethane	179.300	10	200.0	0	89.6	61	159				
Chloroform	189.300	5.0	200.0	0	94.6	61	140				
Chloromethane	163.800	5.0	200.0	0	81.9	45	155				
cis-1,2-Dichloroethene	194.800	5.0	200.0	0	97.4	72	124				
cis-1,3-Dichloropropene	190.200	5.0	200.0	0	95.1	71	126				
Di-isopropyl ether	187.300	5.0	200.0	0	93.6	56	137				
Dibromochloromethane	207.200	5.0	200.0	0	104	78	121				
Dibromomethane	190.200	5.0	200.0	0	95.1	76	123				
Dichlorodifluoromethane	156.100	5.0	200.0	0	78.0	53	159				
Ethyl tert-butyl ether	223.900	5.0	200.0	0	112	63	137				
Ethylbenzene	199.900	5.0	200.0	0	100	83	121				
Freon-113	185.100	5.0	200.0	0	92.6	62	144				
Hexachlorobutadiene	195.400	5.0	200.0	0	97.7	77	124				
Isopropylbenzene	172.900	5.0	200.0	0	86.5	80	132				
m,p-Xylene	371.100	10	400.0	0	92.8	80	130				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N047010-003A-MS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	181.800	20	200.0	0	90.9	63	135				
MTBE	200.300	5.0	200.0	0	100	61	132				
n-Butylbenzene	171.000	5.0	200.0	0	85.5	74	138				
n-Propylbenzene	174.300	5.0	200.0	0	87.2	80	128				
Naphthalene	176.000	5.0	200.0	0	88.0	61	136				
o-Xylene	178.300	5.0	200.0	0	89.2	76	128				
sec-Butylbenzene	178.100	5.0	200.0	0	89.0	80	133				
Styrene	188.500	5.0	200.0	0	94.2	65	134				
Tert-amyl methyl ether	223.600	5.0	200.0	0	112	62	134				
Tert-Butanol	920.800	50	1000	0	92.1	37	160				
tert-Butylbenzene	176.000	5.0	200.0	0	88.0	80	130				
Tetrachloroethene	603.000	5.0	200.0	351.1	126	74	135				
Toluene	196.300	5.0	200.0	0	98.2	80	121				
trans-1,2-Dichloroethene	181.100	5.0	200.0	0	90.6	67	135				
Trichloroethene	401.500	5.0	200.0	192.2	105	73	132				
Trichlorofluoromethane	179.500	5.0	200.0	0	89.8	62	167				
Vinyl chloride	167.600	5.0	200.0	0	83.8	53	158				
Surr: 1,2-Dichloroethane-d4	239.100		250.0		95.6	72	132				
Surr: 4-Bromofluorobenzene	247.700		250.0		99.1	80	120				
Surr: Dibromofluoromethane	242.900		250.0		97.2	78	130				
Surr: Toluene-d8	238.900		250.0		95.6	80	120				

Sample ID: **N047010-003A-MSD** SampType: **MSD** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	206.600	5.0	200.0	0	103	80	120	193.8	6.39	20	
1,1,1-Trichloroethane	210.900	5.0	200.0	0	105	76	129	188.7	11.1	20	
1,1,2,2-Tetrachloroethane	195.200	5.0	200.0	0	97.6	72	125	182.9	6.51	20	
1,1,2-Trichloroethane	197.700	5.0	200.0	0	98.8	70	126	190.8	3.55	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N047010-003A-MSD** SampType: **MSD** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	198.300	5.0	200.0	4.900	96.7	73	128	180.3	9.51	20	
1,1-Dichloroethene	213.100	5.0	200.0	23.90	94.6	68	137	201.2	5.74	20	
1,1-Dichloropropene	214.900	5.0	200.0	0	107	80	130	190.1	12.2	20	
1,2,3-Trichlorobenzene	219.300	5.0	200.0	0	110	78	123	210.0	4.33	20	
1,2,3-Trichloropropane	207.000	5.0	200.0	0	104	70	124	197.1	4.90	20	
1,2,4-Trichlorobenzene	212.500	5.0	200.0	0	106	78	120	205.1	3.54	20	
1,2,4-Trimethylbenzene	200.400	5.0	200.0	0	100	79	135	185.7	7.61	20	
1,2-Dibromo-3-chloropropane	198.100	10	200.0	0	99.0	64	136	194.7	1.73	20	
1,2-Dibromoethane	211.200	5.0	200.0	0	106	71	126	205.3	2.83	20	
1,2-Dichlorobenzene	212.800	5.0	200.0	0	106	80	120	198.9	6.75	20	
1,2-Dichloroethane	198.600	5.0	200.0	0	99.3	74	125	197.3	0.657	20	
1,2-Dichloropropane	190.300	5.0	200.0	0	95.2	76	120	181.6	4.68	20	
1,3,5-Trimethylbenzene	202.300	5.0	200.0	0	101	73	138	184.7	9.10	20	
1,3-Dichlorobenzene	213.300	5.0	200.0	0	107	80	120	199.7	6.59	20	
1,3-Dichloropropane	203.100	5.0	200.0	0	102	76	122	196.3	3.41	20	
1,4-Dichlorobenzene	205.800	5.0	200.0	0	103	80	120	195.0	5.39	20	
2,2-Dichloropropane	200.700	5.0	200.0	0	100	65	139	182.0	9.77	20	
2-Butanone	1330.000	50	2000	0	66.5	29	120	1273	4.41	20	
2-Chlorotoluene	215.100	5.0	200.0	0	108	80	124	199.8	7.38	20	
4-Chlorotoluene	220.500	5.0	200.0	0	110	80	124	204.2	7.68	20	
4-Isopropyltoluene	196.100	5.0	200.0	0	98.0	79	135	177.2	10.1	20	
Benzene	208.000	5.0	200.0	0	104	80	121	191.0	8.52	20	
Bromobenzene	208.800	5.0	200.0	0	104	80	120	195.4	6.63	20	
Bromodichloromethane	198.600	5.0	200.0	0	99.3	78	121	190.4	4.22	20	
Bromoform	217.300	5.0	200.0	0	109	71	127	212.8	2.09	20	
Bromomethane	225.600	10	200.0	0	113	52	163	209.3	7.50	20	
Carbon tetrachloride	213.000	5.0	200.0	0	106	76	136	193.2	9.75	20	
Chlorobenzene	208.400	5.0	200.0	0	104	80	120	196.2	6.03	20	
Chloroethane	203.400	10	200.0	0	102	61	159	179.3	12.6	20	
Chloroform	202.900	5.0	200.0	0	101	61	140	189.3	6.94	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N047010-003A-MSD** SampType: **MSD** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	187.200	5.0	200.0	0	93.6	45	155	163.8	13.3	20	
cis-1,2-Dichloroethene	210.600	5.0	200.0	0	105	72	124	194.8	7.79	20	
cis-1,3-Dichloropropene	205.200	5.0	200.0	0	103	71	126	190.2	7.59	20	
Di-isopropyl ether	198.700	5.0	200.0	0	99.4	56	137	187.3	5.91	20	
Dibromochloromethane	209.800	5.0	200.0	0	105	78	121	207.2	1.25	20	
Dibromomethane	193.200	5.0	200.0	0	96.6	76	123	190.2	1.56	20	
Dichlorodifluoromethane	174.100	5.0	200.0	0	87.0	53	159	156.1	10.9	20	
Ethyl tert-butyl ether	235.200	5.0	200.0	0	118	63	137	223.9	4.92	20	
Ethylbenzene	219.000	5.0	200.0	0	110	83	121	199.9	9.12	20	
Freon-113	205.500	5.0	200.0	0	103	62	144	185.1	10.4	20	
Hexachlorobutadiene	204.900	5.0	200.0	0	102	77	124	195.4	4.75	20	
Isopropylbenzene	196.800	5.0	200.0	0	98.4	80	132	172.9	12.9	20	
m,p-Xylene	404.600	10	400.0	0	101	80	130	371.1	8.64	20	
Methylene chloride	193.000	20	200.0	0	96.5	63	135	181.8	5.98	20	
MTBE	213.000	5.0	200.0	0	106	61	132	200.3	6.15	20	
n-Butylbenzene	187.200	5.0	200.0	0	93.6	74	138	171.0	9.05	20	
n-Propylbenzene	196.400	5.0	200.0	0	98.2	80	128	174.3	11.9	20	
Naphthalene	181.600	5.0	200.0	0	90.8	61	136	176.0	3.13	20	
o-Xylene	195.700	5.0	200.0	0	97.8	76	128	178.3	9.30	20	
sec-Butylbenzene	198.100	5.0	200.0	0	99.0	80	133	178.1	10.6	20	
Styrene	202.100	5.0	200.0	0	101	65	134	188.5	6.96	20	
Tert-amyl methyl ether	231.100	5.0	200.0	0	116	62	134	223.6	3.30	20	
Tert-Butanol	1010.200	50	1000	0	101	37	160	920.8	9.26	20	
tert-Butylbenzene	197.100	5.0	200.0	0	98.6	80	130	176.0	11.3	20	
Tetrachloroethene	619.800	5.0	200.0	351.1	134	74	135	603.0	2.75	20	
Toluene	215.800	5.0	200.0	0	108	80	121	196.3	9.46	20	
trans-1,2-Dichloroethene	202.100	5.0	200.0	0	101	67	135	181.1	11.0	20	
Trichloroethene	421.100	5.0	200.0	192.2	114	73	132	401.5	4.77	20	
Trichlorofluoromethane	199.000	5.0	200.0	0	99.5	62	167	179.5	10.3	20	
Vinyl chloride	182.100	5.0	200.0	0	91.1	53	158	167.6	8.29	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N047010-003A-MSD** SampType: **MSD** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **ZZZZZZ** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	243.700		250.0		97.5	72	132		0		
Surr: 4-Bromofluorobenzene	253.500		250.0		101	80	120		0		
Surr: Dibromofluoromethane	245.500		250.0		98.2	78	130		0		
Surr: Toluene-d8	243.700		250.0		97.5	80	120		0		

Sample ID: **R210915-MB4** SampType: **MBLK** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **PBW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	1.0									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									
1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **R210915-MB4** SampType: **MBLK** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **PBW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	5.0									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	1.0									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Di-isopropyl ether	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethyl tert-butyl ether	ND	0.50									
Ethylbenzene	ND	0.50									
Freon-113	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	2.0									
MTBE	ND	0.50									
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **R210915-MB4** SampType: **MBLK** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **156691**
Client ID: **PBW** Batch ID: **R21VW118** TestNo: **EPA 8260B** Analysis Date: **9/15/2021** SeqNo: **4351638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
Tert-amyl methyl ether	ND	0.50									
Tert-Butanol	ND	5.0									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	27.580		25.00		110	72	132				
Surr: 4-Bromofluorobenzene	22.270		25.00		89.1	80	120				
Surr: Dibromofluoromethane	27.840		25.00		111	78	130				
Surr: Toluene-d8	23.930		25.00		95.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047085
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: HC_W_SEMI

Sample ID: **MB-89279**	SampType: **MBLK**	TestCode: **HC_W_SEMI**	Units: **mg/L**	Prep Date: **9/14/2021**	RunNo: **156657**
Client ID: **PBW**	Batch ID: **89279**	TestNo: **EPA 8015B(M**	**EPA 3510C**	Analysis Date: **9/14/2021**	SeqNo: **4350867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C13-C22	ND	0.20									
T/R Hydrocarbons: C23-C40	ND	0.20									
Surr: p-Terphenyl	0.068		0.08000		84.7	54	139				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

N047085

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGISTS

CHAIN OF CUSTODY RECORD

Page 1 of 2

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11110 Artesia Blvd. Ste. B • Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: Kleinfelder	**Report to:** Lindsey Dandridge-Perry	**Bill to:** Same as Client	**EDD Requirement:** Excel EDD ☐ Geotracker ☐ Labspec ☐ Others ☐
Address: 2411 Ridge Point Dr. Ste225	**Company:** Kleinfelder	**Address:**	**QA/QC:** RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory ☐
Address: Laguna Hills CA 92653	**Email:** LDandridge@Kleinfelder.com	**Email to:**	**PO#:** Specify:
Phone: 949 727-9336 **Fax:**	**Address:** Esmi	**Phone:**	**Fax:** **Global ID:**
Submitted By: Lindsey Dandridge-Perry			**Specify State:**
Title: Project Professional	**Phone:** **Fax:**		**Sample Receipt Condition:** Y / N: 1. Chilled ☒ ☐; 2. Headspace ☐ ☐; 3. Container Intact ☒ ☐; 4. Seal Present ☐ ☐; 5. IR number #1; 6. Method of Cooling ICE
Signature: **Date:** 9/13/21	**Sampler's Signature and Date:** 9/13/21	**Matrix:** Ground ☒, Sediment ☐, Potable ☐, Soil ☐, NPDES ☐, Other Solid ☐, Surface ☐	**Sample Temp:** 5.6°C
I hereby authorize ASSET Labs to perform the tests indicated below:	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*		
Project Name: Costco Culver City	**Sampler's Name:** Lindsey Dandridge-Perry		**Courier:** ASSET **Tracking No.**
Project Number: 70201678.001A			

Analyses Requested: TPH(C6-C44) 8015B; VOCs+Oxy 8260B; Metals 6010B/7471A; Turn Around Time; No. of container; Container Type; PRESERVATION

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	TPH(C6-C44) 8015B	VOCs+Oxy 8260B	Metals 6010B/7471A	Remarks
1	N047085-01	KB-1	9/10/21	1755	X			X	X	X	
2	-02	KB-2	"	1838	X			X	X	X	
3	-03	KB-3	"	2015	X			X	X	X	
4	-04	KB-4	✓	1958	X			X	X	X	
5	-05	B-1	9/13/21	1231	X			X	X	X	
6											
7											
8											
9											
10											

Relinquished by (Signature and Printed Name): Lindsey Dandridge-Perry	**Date / Time:** 9/13/21 1500	**Received by (Signature and Printed Name):**	**Date / Time:** 9/13/21 1500
Relinquished by (Signature and Printed Name):	**Date / Time:** 9/13/21 1522	**Received by (Signature and Printed Name):** JHAO	**Date / Time:** 9/13/21 1522
Relinquished by (Signature and Printed Name):	**Date / Time:** 9/13/21 1800	**Received by (Signature and Printed Name):** Giselle Garcia	**Date / Time:** 9/14/21 0945

Turn Around Time (TAT)

- ☐ A = < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☒ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction: for Vegas 2.8°C ice #1 GSO# 8242

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; C = 4°C; Z = $Zn(AC)_2$; O = NaOH; T = $Na_2S_2O_3$; Others/Specify:

Container Type: T = Tube; V = VOA; P = Pint; J = Jar; B = Tedlar; G = Glass; M = Metal; P = Plastic; C = Can

White = Laboratory Copy

Yellow = Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/13/2021	Workorder:	N047085
Rep sample Temp (Deg C):	5.6	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☑	No ☐	NA ☐
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☑	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for Dissolved Metals were lab filtered and then preserved with HNO3.
Received at Las Vegas Lab 9/14/21 at 2.8°C, IR#1, GSO #8242.

For:

Checklist Completed By: TM YRJ 9/14/2021

Reviewed By: MBC 9/14/2021

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047085

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/13/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047085-001A	KB-1	9/10/2021 5:55:00 PM	9/20/2021	Groundwater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N047085-001B			9/20/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N047085-001C			9/20/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/20/2021		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/20/2021			DISSOLVED MERCURY PREP	☐	☐	☐	WW
			9/20/2021		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N047085-001D			9/20/2021		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			9/20/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WW
N047085-001E							☐	☐	☐	WW
N047085-002A	KB-2	9/10/2021 6:38:00 PM	9/20/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N047085-002B			9/20/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N047085-002C			9/20/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/20/2021		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/20/2021			DISSOLVED MERCURY PREP	☐	☐	☐	WW
			9/20/2021		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N047085-002D			9/20/2021		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			9/20/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WW
N047085-002E							☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047085

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/13/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047085-003A	KB-3	9/10/2021 8:15:00 PM	9/20/2021	Groundwater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N047085-003B			9/20/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N047085-003C			9/20/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/20/2021		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/20/2021			DISSOLVED MERCURY PREP	☐	☐	☐	WW
			9/20/2021		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N047085-003D			9/20/2021		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			9/20/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WW
N047085-003E							☐	☐	☐	WW
N047085-004A	KB-4	9/10/2021 7:58:00 PM	9/20/2021		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N047085-004B			9/20/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N047085-004C			9/20/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/20/2021		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/20/2021			DISSOLVED MERCURY PREP	☐	☐	☐	WW
			9/20/2021		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N047085-004D			9/20/2021		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			9/20/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WW
N047085-004E							☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047085

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/13/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047085-005A	B-1	9/13/2021 12:31:00 PM	9/20/2021	Groundwater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N047085-005B			9/20/2021		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N047085-005C			9/20/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			9/20/2021		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			9/20/2021			DISSOLVED MERCURY PREP	☐	☐	☐	WW
			9/20/2021		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N047085-005D			9/20/2021		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			9/20/2021		EPA 8015B(M)	HYDROCARBON CHAIN IDENTIFICATION	☐	☐	☐	WW
N047085-005E							☐	☐	☐	WW
N047085-006A	FOLDER	9/20/2021	9/20/2021		Folder	Folder	☐	☐	☐	LAB
			9/20/2021		Folder	Folder	☐	☐	☐	LAB

GLS

800-322-5555
www.gls-us.com

Ship From
ASSET LABORATORIES
THAD MALIT
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
SAMPLE CONTROL
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK UP
Signature Type: STANDARD

Tracking #: 554608242

PDS

LAS VEGAS

C89102A

49179895

LVS NV891-A 0

Print Date: 9/13/2021 4:11 PM

Package 2 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the General Logistics Systems US, Inc. (GLS) service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gls-us.com.

2.8°C LB# 1
0945

October 01, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047087

RE: Costco Culver City, 20201678.001A

Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 13, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,

Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047087

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Helium was subcontracted to Airtech Laboratories, City of Industry CA

Analytical comments for EPA TO15:

RPD for Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) is outside criteria on analytes Hexachlorobutadiene and Acetone. Analyte recovery on both met acceptance criteria.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047087
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047087-001A	KVP-4-15	Air	9/13/2021 8:33:00 AM	9/13/2021	10/1/2021
N047087-002A	KVP-4-5	Air	9/13/2021 8:56:00 AM	9/13/2021	10/1/2021
N047087-003A	KVP-3-15	Air	9/13/2021 9:40:00 AM	9/13/2021	10/1/2021
N047087-004A	KVP-3-5	Air	9/13/2021 10:03:00 AM	9/13/2021	10/1/2021
N047087-005A	KVP-2-15	Air	9/13/2021 10:31:00 AM	9/13/2021	10/1/2021
N047087-006A	KVP-2-5	Air	9/13/2021 10:48:00 AM	9/13/2021	10/1/2021
N047087-007A	KVP-1-15	Air	9/13/2021 11:19:00 AM	9/13/2021	10/1/2021
N047087-008A	KVP-1-5	Air	9/13/2021 11:35:00 AM	9/13/2021	10/1/2021
N047087-009A	KVP-5-15	Air	9/13/2021 12:02:00 PM	9/13/2021	10/1/2021
N047087-010A	KVP-5-5	Air	9/13/2021 12:20:00 PM	9/13/2021	10/1/2021

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-4-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 8:33:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	0.266	0.870		ppbv	1	9/20/2021 05:50 PM
1,1,2,2-Tetrachloroethane	ND	0.223	0.870		ppbv	1	9/20/2021 05:50 PM
1,1,2-Trichloroethane	ND	0.296	0.870		ppbv	1	9/20/2021 05:50 PM
1,1-Dichloroethane	ND	0.217	0.870		ppbv	1	9/20/2021 05:50 PM
1,1-Dichloroethene	ND	0.274	0.870		ppbv	1	9/20/2021 05:50 PM
1,2,4-Trichlorobenzene	ND	0.120	4.35		ppbv	1	9/20/2021 05:50 PM
1,2,4-Trimethylbenzene	ND	0.170	0.870		ppbv	1	9/20/2021 05:50 PM
1,2-Dibromoethane	ND	0.273	0.870		ppbv	1	9/20/2021 05:50 PM
Freon 114	ND	0.470	3.48		ppbv	1	9/20/2021 05:50 PM
1,2-Dichlorobenzene	ND	0.147	0.870		ppbv	1	9/20/2021 05:50 PM
1,2-Dichloroethane	ND	0.285	0.870		ppbv	1	9/20/2021 05:50 PM
1,2-Dichloropropane	ND	0.243	0.870		ppbv	1	9/20/2021 05:50 PM
1,3,5-Trimethylbenzene	ND	0.177	0.870		ppbv	1	9/20/2021 05:50 PM
1,3-Dichlorobenzene	ND	0.121	0.870		ppbv	1	9/20/2021 05:50 PM
1,4-Dichlorobenzene	ND	0.102	0.870		ppbv	1	9/20/2021 05:50 PM
2-Butanone	6.59	0.278	1.74		ppbv	1	9/20/2021 05:50 PM
2-Hexanone	ND	0.313	1.74		ppbv	1	9/20/2021 05:50 PM
4-ethyltoluene	ND	0.204	0.870		ppbv	1	9/20/2021 05:50 PM
4-Methyl-2-pentanone	ND	0.280	1.74		ppbv	1	9/20/2021 05:50 PM
Acetone	20.1	1.62	17.4		ppbv	5	9/23/2021 09:41 AM
Benzene	0.557	0.284	0.870	J	ppbv	1	9/20/2021 05:50 PM
Benzyl chloride	ND	0.175	1.74		ppbv	1	9/20/2021 05:50 PM
Bromodichloromethane	ND	0.251	0.870		ppbv	1	9/20/2021 05:50 PM
Bromoform	ND	0.143	0.870		ppbv	1	9/20/2021 05:50 PM
Bromomethane	ND	0.247	0.870		ppbv	1	9/20/2021 05:50 PM
Carbon disulfide	3.01	0.238	0.870		ppbv	1	9/20/2021 05:50 PM
Carbon tetrachloride	ND	0.258	0.870		ppbv	1	9/20/2021 05:50 PM
Chlorobenzene	ND	0.233	0.870		ppbv	1	9/20/2021 05:50 PM
Chloroethane	ND	0.322	0.870		ppbv	1	9/20/2021 05:50 PM
Chloroform	0.679	0.220	0.870	J	ppbv	1	9/20/2021 05:50 PM
Chloromethane	0.661	0.320	0.870	J	ppbv	1	9/20/2021 05:50 PM
cis-1,2-Dichloroethene	ND	0.252	0.870		ppbv	1	9/20/2021 05:50 PM
cis-1,3-Dichloropropene	ND	0.217	0.870		ppbv	1	9/20/2021 05:50 PM
Dibromochloromethane	ND	0.281	0.870		ppbv	1	9/20/2021 05:50 PM
Dichlorodifluoromethane	0.783	0.263	0.870	J	ppbv	1	9/20/2021 05:50 PM
Ethylbenzene	ND	0.240	0.870		ppbv	1	9/20/2021 05:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-001

Client Sample ID: KVP-4-15
Collection Date: 9/13/2021 8:33:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
Freon-113	ND	0.232	0.870		ppbv	1	9/20/2021 05:50 PM
Hexachlorobutadiene	ND	0.137	1.74		ppbv	1	9/20/2021 05:50 PM
m,p-Xylene	0.626	0.442	1.74	J	ppbv	1	9/20/2021 05:50 PM
Methylene Chloride	101	1.12	8.70		ppbv	5	9/23/2021 09:41 AM
MTBE	ND	0.306	3.48		ppbv	1	9/20/2021 05:50 PM
o-Xylene	ND	0.199	0.870		ppbv	1	9/20/2021 05:50 PM
Styrene	ND	0.275	0.870		ppbv	1	9/20/2021 05:50 PM
Tetrachloroethene	13.1	0.221	0.870		ppbv	1	9/20/2021 05:50 PM
Toluene	2.00	0.271	0.870		ppbv	1	9/20/2021 05:50 PM
trans-1,2-Dichloroethene	ND	0.183	0.870		ppbv	1	9/20/2021 05:50 PM
trans-1,3-Dichloropropene	ND	0.234	0.870		ppbv	1	9/20/2021 05:50 PM
Trichloroethene	ND	0.208	0.870		ppbv	1	9/20/2021 05:50 PM
Trichlorofluoromethane	4.72	0.178	0.870		ppbv	1	9/20/2021 05:50 PM
Vinyl acetate	2.18	0.305	1.74		ppbv	1	9/20/2021 05:50 PM
Vinyl Chloride	ND	0.272	0.870		ppbv	1	9/20/2021 05:50 PM
Surr: 4-Bromofluorobenzene	89.0	0	70-130		%REC	5	9/23/2021 09:41 AM
Surr: 4-Bromofluorobenzene	91.0	0	70-130		%REC	1	9/20/2021 05:50 PM
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.45	4.75		ug/m³	1	9/20/2021 05:50 PM
1,1,2,2-Tetrachloroethane	ND	1.53	5.97		ug/m³	1	9/20/2021 05:50 PM
1,1,2-Trichloroethane	ND	1.61	4.75		ug/m³	1	9/20/2021 05:50 PM
1,1-Dichloroethane	ND	0.880	3.51		ug/m³	1	9/20/2021 05:50 PM
1,1-Dichloroethene	ND	1.09	3.45		ug/m³	1	9/20/2021 05:50 PM
1,2,4-Trichlorobenzene	ND	0.890	32.3		ug/m³	1	9/20/2021 05:50 PM
1,2,4-Trimethylbenzene	ND	0.834	4.28		ug/m³	1	9/20/2021 05:50 PM
1,2-Dibromoethane	ND	2.10	6.68		ug/m³	1	9/20/2021 05:50 PM
Freon 114	ND	3.28	24.3		ug/m³	1	9/20/2021 05:50 PM
1,2-Dichlorobenzene	ND	0.885	5.24		ug/m³	1	9/20/2021 05:50 PM
1,2-Dichloroethane	ND	1.16	3.51		ug/m³	1	9/20/2021 05:50 PM
1,2-Dichloropropane	ND	1.12	4.02		ug/m³	1	9/20/2021 05:50 PM
1,3,5-Trimethylbenzene	ND	0.870	4.28		ug/m³	1	9/20/2021 05:50 PM
1,3-Dichlorobenzene	ND	0.728	5.24		ug/m³	1	9/20/2021 05:50 PM
1,4-Dichlorobenzene	ND	0.613	5.24		ug/m³	1	9/20/2021 05:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-001

Client Sample ID: KVP-4-15
Collection Date: 9/13/2021 8:33:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210920A** QC Batch: **R156808** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Butanone	19.4	0.821	5.13		ug/m³	1	9/20/2021 05:50 PM
2-Hexanone	ND	1.28	7.13		ug/m³	1	9/20/2021 05:50 PM
4-ethyltoluene	ND	1.00	4.28		ug/m³	1	9/20/2021 05:50 PM
4-Methyl-2-pentanone	ND	1.15	7.13		ug/m³	1	9/20/2021 05:50 PM
Acetone	47.7	3.84	41.3		ug/m³	5	9/23/2021 09:41 AM
Benzene	1.78	0.906	2.78	J	ug/m³	1	9/20/2021 05:50 PM
Benzyl chloride	ND	0.908	9.01		ug/m³	1	9/20/2021 05:50 PM
Bromodichloromethane	ND	1.68	5.83		ug/m³	1	9/20/2021 05:50 PM
Bromoform	ND	1.48	9.00		ug/m³	1	9/20/2021 05:50 PM
Bromomethane	ND	0.961	3.38		ug/m³	1	9/20/2021 05:50 PM
Carbon disulfide	9.37	0.741	2.71		ug/m³	1	9/20/2021 05:50 PM
Carbon tetrachloride	ND	1.62	5.48		ug/m³	1	9/20/2021 05:50 PM
Chlorobenzene	ND	1.07	4.00		ug/m³	1	9/20/2021 05:50 PM
Chloroethane	ND	0.848	2.30		ug/m³	1	9/20/2021 05:50 PM
Chloroform	3.31	1.08	4.25	J	ug/m³	1	9/20/2021 05:50 PM
Chloromethane	1.37	0.660	1.79	J	ug/m³	1	9/20/2021 05:50 PM
cis-1,2-Dichloroethene	ND	0.999	3.45		ug/m³	1	9/20/2021 05:50 PM
cis-1,3-Dichloropropene	ND	0.987	3.95		ug/m³	1	9/20/2021 05:50 PM
Dibromochloromethane	ND	2.40	7.41		ug/m³	1	9/20/2021 05:50 PM
Dichlorodifluoromethane	3.87	1.30	4.30	J	ug/m³	1	9/20/2021 05:50 PM
Ethylbenzene	ND	1.04	3.78		ug/m³	1	9/20/2021 05:50 PM
Freon-113	ND	1.78	6.66		ug/m³	1	9/20/2021 05:50 PM
Hexachlorobutadiene	ND	1.46	18.6		ug/m³	1	9/20/2021 05:50 PM
m,p-Xylene	2.72	1.92	7.55	J	ug/m³	1	9/20/2021 05:50 PM
Methylene Chloride	352	3.91	30.2		ug/m³	5	9/23/2021 09:41 AM
MTBE	ND	1.10	12.5		ug/m³	1	9/20/2021 05:50 PM
o-Xylene	ND	0.864	3.78		ug/m³	1	9/20/2021 05:50 PM
Styrene	ND	1.17	3.71		ug/m³	1	9/20/2021 05:50 PM
Tetrachloroethene	88.7	1.50	5.90		ug/m³	1	9/20/2021 05:50 PM
Toluene	7.54	1.02	3.27		ug/m³	1	9/20/2021 05:50 PM
trans-1,2-Dichloroethene	ND	0.727	3.45		ug/m³	1	9/20/2021 05:50 PM
trans-1,3-Dichloropropene	ND	1.06	3.95		ug/m³	1	9/20/2021 05:50 PM
Trichloroethene	ND	1.12	4.68		ug/m³	1	9/20/2021 05:50 PM
Trichlorofluoromethane	26.5	0.999	4.89		ug/m³	1	9/20/2021 05:50 PM
Vinyl acetate	7.66	1.07	6.12		ug/m³	1	9/20/2021 05:50 PM
Vinyl Chloride	ND	0.694	2.23		ug/m³	1	9/20/2021 05:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-4-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 8:33:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
Surr: 4-Bromofluorobenzene	91.0	0	70-130		%REC	1	9/20/2021 05:50 PM
Surr: 4-Bromofluorobenzene	89.0	0	70-130		%REC	5	9/23/2021 09:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-3-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 9:40:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-003		

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210920A** QC Batch: **R156808** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1-Trichloroethane	ND	0.275	0.900		ppbv	1	9/20/2021 08:48 PM
1,1,2,2-Tetrachloroethane	ND	0.231	0.900		ppbv	1	9/20/2021 08:48 PM
1,1,2-Trichloroethane	ND	0.306	0.900		ppbv	1	9/20/2021 08:48 PM
1,1-Dichloroethane	ND	0.225	0.900		ppbv	1	9/20/2021 08:48 PM
1,1-Dichloroethene	ND	0.284	0.900		ppbv	1	9/20/2021 08:48 PM
1,2,4-Trichlorobenzene	ND	0.124	4.50		ppbv	1	9/20/2021 08:48 PM
1,2,4-Trimethylbenzene	7.04	0.175	0.900		ppbv	1	9/20/2021 08:48 PM
1,2-Dibromoethane	ND	0.282	0.900		ppbv	1	9/20/2021 08:48 PM
Freon 114	ND	0.486	3.60		ppbv	1	9/20/2021 08:48 PM
1,2-Dichlorobenzene	ND	0.152	0.900		ppbv	1	9/20/2021 08:48 PM
1,2-Dichloroethane	ND	0.295	0.900		ppbv	1	9/20/2021 08:48 PM
1,2-Dichloropropane	ND	0.251	0.900		ppbv	1	9/20/2021 08:48 PM
1,3,5-Trimethylbenzene	1.55	0.183	0.900		ppbv	1	9/20/2021 08:48 PM
1,3-Dichlorobenzene	ND	0.125	0.900		ppbv	1	9/20/2021 08:48 PM
1,4-Dichlorobenzene	ND	0.105	0.900		ppbv	1	9/20/2021 08:48 PM
2-Butanone	29.6	0.288	1.80		ppbv	1	9/20/2021 08:48 PM
2-Hexanone	ND	0.324	1.80		ppbv	1	9/20/2021 08:48 PM
4-ethyltoluene	3.64	0.211	0.900		ppbv	1	9/20/2021 08:48 PM
4-Methyl-2-pentanone	ND	0.289	1.80		ppbv	1	9/20/2021 08:48 PM
Acetone	23.0	0.335	3.60		ppbv	1	9/20/2021 08:48 PM
Benzene	1.53	0.293	0.900		ppbv	1	9/20/2021 08:48 PM
Benzyl chloride	ND	0.181	1.80		ppbv	1	9/20/2021 08:48 PM
Bromodichloromethane	ND	0.260	0.900		ppbv	1	9/20/2021 08:48 PM
Bromoform	ND	0.148	0.900		ppbv	1	9/20/2021 08:48 PM
Bromomethane	ND	0.256	0.900		ppbv	1	9/20/2021 08:48 PM
Carbon disulfide	11.5	0.246	0.900		ppbv	1	9/20/2021 08:48 PM
Carbon tetrachloride	ND	0.267	0.900		ppbv	1	9/20/2021 08:48 PM
Chlorobenzene	ND	0.241	0.900		ppbv	1	9/20/2021 08:48 PM
Chloroethane	ND	0.333	0.900		ppbv	1	9/20/2021 08:48 PM
Chloroform	1.12	0.228	0.900		ppbv	1	9/20/2021 08:48 PM
Chloromethane	ND	0.331	0.900		ppbv	1	9/20/2021 08:48 PM
cis-1,2-Dichloroethene	ND	0.261	0.900		ppbv	1	9/20/2021 08:48 PM
cis-1,3-Dichloropropene	ND	0.225	0.900		ppbv	1	9/20/2021 08:48 PM
Dibromochloromethane	ND	0.291	0.900		ppbv	1	9/20/2021 08:48 PM
Dichlorodifluoromethane	ND	0.272	0.900		ppbv	1	9/20/2021 08:48 PM
Ethylbenzene	0.900	0.248	0.900		ppbv	1	9/20/2021 08:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-3-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 9:40:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210920A** QC Batch: **R156808**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.240	0.900		ppbv	1	9/20/2021 08:48 PM
Hexachlorobutadiene	ND	0.142	1.80		ppbv	1	9/20/2021 08:48 PM
m,p-Xylene	18.3	0.457	1.80		ppbv	1	9/20/2021 08:48 PM
Methylene Chloride	3.83	0.233	1.80		ppbv	1	9/20/2021 08:48 PM
MTBE	ND	0.316	3.60		ppbv	1	9/20/2021 08:48 PM
o-Xylene	7.11	0.206	0.900		ppbv	1	9/20/2021 08:48 PM
Styrene	ND	0.284	0.900		ppbv	1	9/20/2021 08:48 PM
Tetrachloroethene	27.9	0.229	0.900		ppbv	1	9/20/2021 08:48 PM
Toluene	9.02	0.281	0.900		ppbv	1	9/20/2021 08:48 PM
trans-1,2-Dichloroethene	ND	0.190	0.900		ppbv	1	9/20/2021 08:48 PM
trans-1,3-Dichloropropene	ND	0.242	0.900		ppbv	1	9/20/2021 08:48 PM
Trichloroethene	ND	0.215	0.900		ppbv	1	9/20/2021 08:48 PM
Trichlorofluoromethane	6.93	0.184	0.900		ppbv	1	9/20/2021 08:48 PM
Vinyl acetate	3.04	0.316	1.80		ppbv	1	9/20/2021 08:48 PM
Vinyl Chloride	ND	0.281	0.900		ppbv	1	9/20/2021 08:48 PM
Surr: 4-Bromofluorobenzene	92.6	0	70-130		%REC	1	9/20/2021 08:48 PM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210920A** QC Batch: **R156808**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.50	4.91		ug/m³	1	9/20/2021 08:48 PM
1,1,2,2-Tetrachloroethane	ND	1.58	6.17		ug/m³	1	9/20/2021 08:48 PM
1,1,2-Trichloroethane	ND	1.67	4.91		ug/m³	1	9/20/2021 08:48 PM
1,1-Dichloroethane	ND	0.910	3.64		ug/m³	1	9/20/2021 08:48 PM
1,1-Dichloroethene	ND	1.12	3.56		ug/m³	1	9/20/2021 08:48 PM
1,2,4-Trichlorobenzene	ND	0.921	33.4		ug/m³	1	9/20/2021 08:48 PM
1,2,4-Trimethylbenzene	34.6	0.863	4.43		ug/m³	1	9/20/2021 08:48 PM
1,2-Dibromoethane	ND	2.17	6.91		ug/m³	1	9/20/2021 08:48 PM
Freon 114	ND	3.40	25.2		ug/m³	1	9/20/2021 08:48 PM
1,2-Dichlorobenzene	ND	0.915	5.42		ug/m³	1	9/20/2021 08:48 PM
1,2-Dichloroethane	ND	1.20	3.64		ug/m³	1	9/20/2021 08:48 PM
1,2-Dichloropropane	ND	1.16	4.16		ug/m³	1	9/20/2021 08:48 PM
1,3,5-Trimethylbenzene	7.61	0.900	4.43		ug/m³	1	9/20/2021 08:48 PM
1,3-Dichlorobenzene	ND	0.753	5.42		ug/m³	1	9/20/2021 08:48 PM
1,4-Dichlorobenzene	ND	0.634	5.42		ug/m³	1	9/20/2021 08:48 PM
2-Butanone	87.3	0.849	5.31		ug/m³	1	9/20/2021 08:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-3-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 9:40:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
2-Hexanone	ND	1.33	7.38		ug/m³	1	9/20/2021 08:48 PM
4-ethyltoluene	17.9	1.04	4.43		ug/m³	1	9/20/2021 08:48 PM
4-Methyl-2-pentanone	ND	1.18	7.38		ug/m³	1	9/20/2021 08:48 PM
Acetone	54.6	0.795	8.55		ug/m³	1	9/20/2021 08:48 PM
Benzene	4.89	0.937	2.88		ug/m³	1	9/20/2021 08:48 PM
Benzyl chloride	ND	0.939	9.32		ug/m³	1	9/20/2021 08:48 PM
Bromodichloromethane	ND	1.74	6.03		ug/m³	1	9/20/2021 08:48 PM
Bromoform	ND	1.53	9.31		ug/m³	1	9/20/2021 08:48 PM
Bromomethane	ND	0.994	3.49		ug/m³	1	9/20/2021 08:48 PM
Carbon disulfide	35.7	0.767	2.81		ug/m³	1	9/20/2021 08:48 PM
Carbon tetrachloride	ND	1.68	5.67		ug/m³	1	9/20/2021 08:48 PM
Chlorobenzene	ND	1.11	4.14		ug/m³	1	9/20/2021 08:48 PM
Chloroethane	ND	0.878	2.38		ug/m³	1	9/20/2021 08:48 PM
Chloroform	5.45	1.11	4.39		ug/m³	1	9/20/2021 08:48 PM
Chloromethane	ND	0.683	1.85		ug/m³	1	9/20/2021 08:48 PM
cis-1,2-Dichloroethene	ND	1.03	3.56		ug/m³	1	9/20/2021 08:48 PM
cis-1,3-Dichloropropene	ND	1.02	4.09		ug/m³	1	9/20/2021 08:48 PM
Dibromochloromethane	ND	2.48	7.67		ug/m³	1	9/20/2021 08:48 PM
Dichlorodifluoromethane	ND	1.35	4.45		ug/m³	1	9/20/2021 08:48 PM
Ethylbenzene	3.91	1.08	3.91		ug/m³	1	9/20/2021 08:48 PM
Freon-113	ND	1.84	6.89		ug/m³	1	9/20/2021 08:48 PM
Hexachlorobutadiene	ND	1.51	19.2		ug/m³	1	9/20/2021 08:48 PM
m,p-Xylene	79.4	1.98	7.81		ug/m³	1	9/20/2021 08:48 PM
Methylene Chloride	13.3	0.808	6.25		ug/m³	1	9/20/2021 08:48 PM
MTBE	ND	1.14	13.0		ug/m³	1	9/20/2021 08:48 PM
o-Xylene	30.9	0.894	3.91		ug/m³	1	9/20/2021 08:48 PM
Styrene	ND	1.21	3.83		ug/m³	1	9/20/2021 08:48 PM
Tetrachloroethene	189	1.55	6.10		ug/m³	1	9/20/2021 08:48 PM
Toluene	34.0	1.06	3.38		ug/m³	1	9/20/2021 08:48 PM
trans-1,2-Dichloroethene	ND	0.752	3.56		ug/m³	1	9/20/2021 08:48 PM
trans-1,3-Dichloropropene	ND	1.10	4.09		ug/m³	1	9/20/2021 08:48 PM
Trichloroethene	ND	1.16	4.84		ug/m³	1	9/20/2021 08:48 PM
Trichlorofluoromethane	38.9	1.03	5.06		ug/m³	1	9/20/2021 08:48 PM
Vinyl acetate	10.7	1.11	6.34		ug/m³	1	9/20/2021 08:48 PM
Vinyl Chloride	ND	0.718	2.30		ug/m³	1	9/20/2021 08:48 PM
Surr: 4-Bromofluorobenzene	92.6	0	70-130		%REC	1	9/20/2021 08:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-3-5
Lab Order:	N047087	**Collection Date:**	9/13/2021 10:03:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-004		

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210920A** QC Batch: **R156808** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1-Trichloroethane	ND	0.257	0.840		ppbv	1	9/20/2021 09:32 PM
1,1,2,2-Tetrachloroethane	ND	0.215	0.840		ppbv	1	9/20/2021 09:32 PM
1,1,2-Trichloroethane	ND	0.286	0.840		ppbv	1	9/20/2021 09:32 PM
1,1-Dichloroethane	ND	0.210	0.840		ppbv	1	9/20/2021 09:32 PM
1,1-Dichloroethene	ND	0.265	0.840		ppbv	1	9/20/2021 09:32 PM
1,2,4-Trichlorobenzene	ND	0.116	4.20		ppbv	1	9/20/2021 09:32 PM
1,2,4-Trimethylbenzene	0.991	0.164	0.840		ppbv	1	9/20/2021 09:32 PM
1,2-Dibromoethane	ND	0.264	0.840		ppbv	1	9/20/2021 09:32 PM
Freon 114	ND	0.454	3.36		ppbv	1	9/20/2021 09:32 PM
1,2-Dichlorobenzene	ND	0.142	0.840		ppbv	1	9/20/2021 09:32 PM
1,2-Dichloroethane	ND	0.276	0.840		ppbv	1	9/20/2021 09:32 PM
1,2-Dichloropropane	ND	0.234	0.840		ppbv	1	9/20/2021 09:32 PM
1,3,5-Trimethylbenzene	ND	0.171	0.840		ppbv	1	9/20/2021 09:32 PM
1,3-Dichlorobenzene	ND	0.117	0.840		ppbv	1	9/20/2021 09:32 PM
1,4-Dichlorobenzene	ND	0.0984	0.840		ppbv	1	9/20/2021 09:32 PM
2-Butanone	8.85	0.269	1.68		ppbv	1	9/20/2021 09:32 PM
2-Hexanone	ND	0.302	1.68		ppbv	1	9/20/2021 09:32 PM
4-ethyltoluene	ND	0.197	0.840		ppbv	1	9/20/2021 09:32 PM
4-Methyl-2-pentanone	1.61	0.270	1.68	J	ppbv	1	9/20/2021 09:32 PM
Acetone	33.3	0.312	3.36		ppbv	1	9/20/2021 09:32 PM
Benzene	5.46	0.274	0.840		ppbv	1	9/20/2021 09:32 PM
Benzyl chloride	ND	0.169	1.68		ppbv	1	9/20/2021 09:32 PM
Bromodichloromethane	ND	0.243	0.840		ppbv	1	9/20/2021 09:32 PM
Bromoform	ND	0.138	0.840		ppbv	1	9/20/2021 09:32 PM
Bromomethane	ND	0.239	0.840		ppbv	1	9/20/2021 09:32 PM
Carbon disulfide	16.4	0.230	0.840		ppbv	1	9/20/2021 09:32 PM
Carbon tetrachloride	ND	0.249	0.840		ppbv	1	9/20/2021 09:32 PM
Chlorobenzene	ND	0.225	0.840		ppbv	1	9/20/2021 09:32 PM
Chloroethane	ND	0.310	0.840		ppbv	1	9/20/2021 09:32 PM
Chloroform	0.773	0.213	0.840	J	ppbv	1	9/20/2021 09:32 PM
Chloromethane	ND	0.309	0.840		ppbv	1	9/20/2021 09:32 PM
cis-1,2-Dichloroethene	ND	0.243	0.840		ppbv	1	9/20/2021 09:32 PM
cis-1,3-Dichloropropene	ND	0.210	0.840		ppbv	1	9/20/2021 09:32 PM
Dibromochloromethane	ND	0.272	0.840		ppbv	1	9/20/2021 09:32 PM
Dichlorodifluoromethane	ND	0.254	0.840		ppbv	1	9/20/2021 09:32 PM
Ethylbenzene	0.924	0.232	0.840		ppbv	1	9/20/2021 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-004

Client Sample ID: KVP-3-5
Collection Date: 9/13/2021 10:03:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210920A** QC Batch: **R156808**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.224	0.840		ppbv	1	9/20/2021 09:32 PM
Hexachlorobutadiene	ND	0.132	1.68		ppbv	1	9/20/2021 09:32 PM
m,p-Xylene	2.32	0.427	1.68		ppbv	1	9/20/2021 09:32 PM
Methylene Chloride	42.8	2.17	16.8		ppbv	10	9/22/2021 09:49 PM
MTBE	ND	0.295	3.36		ppbv	1	9/20/2021 09:32 PM
o-Xylene	0.991	0.192	0.840		ppbv	1	9/20/2021 09:32 PM
Styrene	ND	0.265	0.840		ppbv	1	9/20/2021 09:32 PM
Tetrachloroethene	2.15	0.213	0.840		ppbv	1	9/20/2021 09:32 PM
Toluene	13.1	0.262	0.840		ppbv	1	9/20/2021 09:32 PM
trans-1,2-Dichloroethene	ND	0.177	0.840		ppbv	1	9/20/2021 09:32 PM
trans-1,3-Dichloropropene	ND	0.225	0.840		ppbv	1	9/20/2021 09:32 PM
Trichloroethene	ND	0.201	0.840		ppbv	1	9/20/2021 09:32 PM
Trichlorofluoromethane	ND	0.172	0.840		ppbv	1	9/20/2021 09:32 PM
Vinyl acetate	9.09	0.295	1.68		ppbv	1	9/20/2021 09:32 PM
Vinyl Chloride	ND	0.262	0.840		ppbv	1	9/20/2021 09:32 PM
Surr: 4-Bromofluorobenzene	93.8	0	70-130		%REC	10	9/22/2021 09:49 PM
Surr: 4-Bromofluorobenzene	95.2	0	70-130		%REC	1	9/20/2021 09:32 PM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210920A** QC Batch: **R156808**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.40	4.59		ug/m³	1	9/20/2021 09:32 PM
1,1,2,2-Tetrachloroethane	ND	1.48	5.76		ug/m³	1	9/20/2021 09:32 PM
1,1,2-Trichloroethane	ND	1.56	4.59		ug/m³	1	9/20/2021 09:32 PM
1,1-Dichloroethane	ND	0.850	3.39		ug/m³	1	9/20/2021 09:32 PM
1,1-Dichloroethene	ND	1.05	3.33		ug/m³	1	9/20/2021 09:32 PM
1,2,4-Trichlorobenzene	ND	0.859	31.1		ug/m³	1	9/20/2021 09:32 PM
1,2,4-Trimethylbenzene	4.87	0.805	4.13		ug/m³	1	9/20/2021 09:32 PM
1,2-Dibromoethane	ND	2.02	6.45		ug/m³	1	9/20/2021 09:32 PM
Freon 114	ND	3.17	23.5		ug/m³	1	9/20/2021 09:32 PM
1,2-Dichlorobenzene	ND	0.854	5.06		ug/m³	1	9/20/2021 09:32 PM
1,2-Dichloroethane	ND	1.12	3.39		ug/m³	1	9/20/2021 09:32 PM
1,2-Dichloropropane	ND	1.08	3.88		ug/m³	1	9/20/2021 09:32 PM
1,3,5-Trimethylbenzene	ND	0.840	4.13		ug/m³	1	9/20/2021 09:32 PM
1,3-Dichlorobenzene	ND	0.703	5.06		ug/m³	1	9/20/2021 09:32 PM
1,4-Dichlorobenzene	ND	0.592	5.06		ug/m³	1	9/20/2021 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-004

Client Sample ID: KVP-3-5
Collection Date: 9/13/2021 10:03:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210920A** QC Batch: **R156808** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Butanone	26.1	0.793	4.96		ug/m³	1	9/20/2021 09:32 PM
2-Hexanone	ND	1.24	6.89		ug/m³	1	9/20/2021 09:32 PM
4-ethyltoluene	ND	0.970	4.13		ug/m³	1	9/20/2021 09:32 PM
4-Methyl-2-pentanone	6.61	1.11	6.89	J	ug/m³	1	9/20/2021 09:32 PM
Acetone	79.1	0.742	7.98		ug/m³	1	9/20/2021 09:32 PM
Benzene	17.4	0.875	2.69		ug/m³	1	9/20/2021 09:32 PM
Benzyl chloride	ND	0.877	8.70		ug/m³	1	9/20/2021 09:32 PM
Bromodichloromethane	ND	1.63	5.63		ug/m³	1	9/20/2021 09:32 PM
Bromoform	ND	1.42	8.69		ug/m³	1	9/20/2021 09:32 PM
Bromomethane	ND	0.928	3.26		ug/m³	1	9/20/2021 09:32 PM
Carbon disulfide	51.2	0.716	2.62		ug/m³	1	9/20/2021 09:32 PM
Carbon tetrachloride	ND	1.57	5.29		ug/m³	1	9/20/2021 09:32 PM
Chlorobenzene	ND	1.04	3.86		ug/m³	1	9/20/2021 09:32 PM
Chloroethane	ND	0.819	2.22		ug/m³	1	9/20/2021 09:32 PM
Chloroform	3.77	1.04	4.10	J	ug/m³	1	9/20/2021 09:32 PM
Chloromethane	ND	0.637	1.73		ug/m³	1	9/20/2021 09:32 PM
cis-1,2-Dichloroethene	ND	0.965	3.33		ug/m³	1	9/20/2021 09:32 PM
cis-1,3-Dichloropropene	ND	0.953	3.81		ug/m³	1	9/20/2021 09:32 PM
Dibromochloromethane	ND	2.31	7.16		ug/m³	1	9/20/2021 09:32 PM
Dichlorodifluoromethane	ND	1.26	4.15		ug/m³	1	9/20/2021 09:32 PM
Ethylbenzene	4.01	1.01	3.65		ug/m³	1	9/20/2021 09:32 PM
Freon-113	ND	1.71	6.43		ug/m³	1	9/20/2021 09:32 PM
Hexachlorobutadiene	ND	1.41	17.9		ug/m³	1	9/20/2021 09:32 PM
m,p-Xylene	10.1	1.85	7.29		ug/m³	1	9/20/2021 09:32 PM
Methylene Chloride	149	7.54	58.4		ug/m³	10	9/22/2021 09:49 PM
MTBE	ND	1.06	12.1		ug/m³	1	9/20/2021 09:32 PM
o-Xylene	4.30	0.834	3.65		ug/m³	1	9/20/2021 09:32 PM
Styrene	ND	1.13	3.58		ug/m³	1	9/20/2021 09:32 PM
Tetrachloroethene	14.6	1.45	5.70		ug/m³	1	9/20/2021 09:32 PM
Toluene	49.5	0.987	3.16		ug/m³	1	9/20/2021 09:32 PM
trans-1,2-Dichloroethene	ND	0.702	3.33		ug/m³	1	9/20/2021 09:32 PM
trans-1,3-Dichloropropene	ND	1.02	3.81		ug/m³	1	9/20/2021 09:32 PM
Trichloroethene	ND	1.08	4.52		ug/m³	1	9/20/2021 09:32 PM
Trichlorofluoromethane	ND	0.965	4.72		ug/m³	1	9/20/2021 09:32 PM
Vinyl acetate	32.0	1.04	5.91		ug/m³	1	9/20/2021 09:32 PM
Vinyl Chloride	ND	0.670	2.15		ug/m³	1	9/20/2021 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-3-5
Lab Order:	N047087	**Collection Date:**	9/13/2021 10:03:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
Surr: 4-Bromofluorobenzene	93.8	0	70-130		%REC	10	9/22/2021 09:49 PM
Surr: 4-Bromofluorobenzene	95.2	0	70-130		%REC	1	9/20/2021 09:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-2-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 10:31:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	0.261	0.855		ppbv	1	9/20/2021 10:17 PM
1,1,2,2-Tetrachloroethane	ND	0.219	0.855		ppbv	1	9/20/2021 10:17 PM
1,1,2-Trichloroethane	ND	0.291	0.855		ppbv	1	9/20/2021 10:17 PM
1,1-Dichloroethane	ND	0.214	0.855		ppbv	1	9/20/2021 10:17 PM
1,1-Dichloroethene	ND	0.269	0.855		ppbv	1	9/20/2021 10:17 PM
1,2,4-Trichlorobenzene	ND	0.118	4.28		ppbv	1	9/20/2021 10:17 PM
1,2,4-Trimethylbenzene	ND	0.167	0.855		ppbv	1	9/20/2021 10:17 PM
1,2-Dibromoethane	ND	0.268	0.855		ppbv	1	9/20/2021 10:17 PM
Freon 114	ND	0.462	3.42		ppbv	1	9/20/2021 10:17 PM
1,2-Dichlorobenzene	ND	0.145	0.855		ppbv	1	9/20/2021 10:17 PM
1,2-Dichloroethane	ND	0.280	0.855		ppbv	1	9/20/2021 10:17 PM
1,2-Dichloropropane	ND	0.238	0.855		ppbv	1	9/20/2021 10:17 PM
1,3,5-Trimethylbenzene	ND	0.174	0.855		ppbv	1	9/20/2021 10:17 PM
1,3-Dichlorobenzene	ND	0.119	0.855		ppbv	1	9/20/2021 10:17 PM
1,4-Dichlorobenzene	ND	0.100	0.855		ppbv	1	9/20/2021 10:17 PM
2-Butanone	19.3	0.274	1.71		ppbv	1	9/20/2021 10:17 PM
2-Hexanone	ND	0.308	1.71		ppbv	1	9/20/2021 10:17 PM
4-ethyltoluene	ND	0.201	0.855		ppbv	1	9/20/2021 10:17 PM
4-Methyl-2-pentanone	ND	0.275	1.71		ppbv	1	9/20/2021 10:17 PM
Acetone	18.0	0.318	3.42		ppbv	1	9/20/2021 10:17 PM
Benzene	0.752	0.279	0.855	J	ppbv	1	9/20/2021 10:17 PM
Benzyl chloride	ND	0.172	1.71		ppbv	1	9/20/2021 10:17 PM
Bromodichloromethane	ND	0.247	0.855		ppbv	1	9/20/2021 10:17 PM
Bromoform	ND	0.140	0.855		ppbv	1	9/20/2021 10:17 PM
Bromomethane	ND	0.243	0.855		ppbv	1	9/20/2021 10:17 PM
Carbon disulfide	11.3	0.234	0.855		ppbv	1	9/20/2021 10:17 PM
Carbon tetrachloride	ND	0.253	0.855		ppbv	1	9/20/2021 10:17 PM
Chlorobenzene	ND	0.229	0.855		ppbv	1	9/20/2021 10:17 PM
Chloroethane	ND	0.316	0.855		ppbv	1	9/20/2021 10:17 PM
Chloroform	0.718	0.217	0.855	J	ppbv	1	9/20/2021 10:17 PM
Chloromethane	ND	0.314	0.855		ppbv	1	9/20/2021 10:17 PM
cis-1,2-Dichloroethene	ND	0.248	0.855		ppbv	1	9/20/2021 10:17 PM
cis-1,3-Dichloropropene	ND	0.214	0.855		ppbv	1	9/20/2021 10:17 PM
Dibromochloromethane	ND	0.277	0.855		ppbv	1	9/20/2021 10:17 PM
Dichlorodifluoromethane	ND	0.259	0.855		ppbv	1	9/20/2021 10:17 PM
Ethylbenzene	ND	0.236	0.855		ppbv	1	9/20/2021 10:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-005

Client Sample ID: KVP-2-15
Collection Date: 9/13/2021 10:31:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
Freon-113	ND	0.228	0.855		ppbv	1	9/20/2021 10:17 PM
Hexachlorobutadiene	ND	0.135	1.71		ppbv	1	9/20/2021 10:17 PM
m,p-Xylene	0.547	0.434	1.71	J	ppbv	1	9/20/2021 10:17 PM
Methylene Chloride	26.7	0.221	1.71		ppbv	1	9/20/2021 10:17 PM
MTBE	ND	0.300	3.42		ppbv	1	9/20/2021 10:17 PM
o-Xylene	ND	0.196	0.855		ppbv	1	9/20/2021 10:17 PM
Styrene	ND	0.270	0.855		ppbv	1	9/20/2021 10:17 PM
Tetrachloroethene	42.7	1.09	4.28		ppbv	5	9/22/2021 10:31 PM
Toluene	1.40	0.267	0.855		ppbv	1	9/20/2021 10:17 PM
trans-1,2-Dichloroethene	ND	0.180	0.855		ppbv	1	9/20/2021 10:17 PM
trans-1,3-Dichloropropene	ND	0.230	0.855		ppbv	1	9/20/2021 10:17 PM
Trichloroethene	ND	0.204	0.855		ppbv	1	9/20/2021 10:17 PM
Trichlorofluoromethane	6.87	0.175	0.855		ppbv	1	9/20/2021 10:17 PM
Vinyl acetate	1.93	0.300	1.71		ppbv	1	9/20/2021 10:17 PM
Vinyl Chloride	ND	0.267	0.855		ppbv	1	9/20/2021 10:17 PM
Surr: 4-Bromofluorobenzene	86.4	0	70-130		%REC	5	9/22/2021 10:31 PM
Surr: 4-Bromofluorobenzene	93.0	0	70-130		%REC	1	9/20/2021 10:17 PM
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.43	4.67		ug/m³	1	9/20/2021 10:17 PM
1,1,2,2-Tetrachloroethane	ND	1.50	5.87		ug/m³	1	9/20/2021 10:17 PM
1,1,2-Trichloroethane	ND	1.59	4.67		ug/m³	1	9/20/2021 10:17 PM
1,1-Dichloroethane	ND	0.865	3.45		ug/m³	1	9/20/2021 10:17 PM
1,1-Dichloroethene	ND	1.07	3.39		ug/m³	1	9/20/2021 10:17 PM
1,2,4-Trichlorobenzene	ND	0.875	31.7		ug/m³	1	9/20/2021 10:17 PM
1,2,4-Trimethylbenzene	ND	0.819	4.21		ug/m³	1	9/20/2021 10:17 PM
1,2-Dibromoethane	ND	2.06	6.57		ug/m³	1	9/20/2021 10:17 PM
Freon 114	ND	3.23	23.9		ug/m³	1	9/20/2021 10:17 PM
1,2-Dichlorobenzene	ND	0.869	5.15		ug/m³	1	9/20/2021 10:17 PM
1,2-Dichloroethane	ND	1.14	3.45		ug/m³	1	9/20/2021 10:17 PM
1,2-Dichloropropane	ND	1.10	3.95		ug/m³	1	9/20/2021 10:17 PM
1,3,5-Trimethylbenzene	ND	0.855	4.21		ug/m³	1	9/20/2021 10:17 PM
1,3-Dichlorobenzene	ND	0.716	5.15		ug/m³	1	9/20/2021 10:17 PM
1,4-Dichlorobenzene	ND	0.602	5.15		ug/m³	1	9/20/2021 10:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-005

Client Sample ID: KVP-2-15
Collection Date: 9/13/2021 10:31:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210920A** QC Batch: **R156808** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Butanone	56.8	0.807	5.04		ug/m³	1	9/20/2021 10:17 PM
2-Hexanone	ND	1.26	7.01		ug/m³	1	9/20/2021 10:17 PM
4-ethyltoluene	ND	0.987	4.21		ug/m³	1	9/20/2021 10:17 PM
4-Methyl-2-pentanone	ND	1.13	7.01		ug/m³	1	9/20/2021 10:17 PM
Acetone	42.8	0.755	8.12		ug/m³	1	9/20/2021 10:17 PM
Benzene	2.40	0.891	2.74	J	ug/m³	1	9/20/2021 10:17 PM
Benzyl chloride	ND	0.892	8.86		ug/m³	1	9/20/2021 10:17 PM
Bromodichloromethane	ND	1.66	5.73		ug/m³	1	9/20/2021 10:17 PM
Bromoform	ND	1.45	8.84		ug/m³	1	9/20/2021 10:17 PM
Bromomethane	ND	0.944	3.32		ug/m³	1	9/20/2021 10:17 PM
Carbon disulfide	35.1	0.729	2.67		ug/m³	1	9/20/2021 10:17 PM
Carbon tetrachloride	ND	1.59	5.39		ug/m³	1	9/20/2021 10:17 PM
Chlorobenzene	ND	1.05	3.93		ug/m³	1	9/20/2021 10:17 PM
Chloroethane	ND	0.834	2.26		ug/m³	1	9/20/2021 10:17 PM
Chloroform	3.51	1.06	4.17	J	ug/m³	1	9/20/2021 10:17 PM
Chloromethane	ND	0.649	1.76		ug/m³	1	9/20/2021 10:17 PM
cis-1,2-Dichloroethene	ND	0.982	3.39		ug/m³	1	9/20/2021 10:17 PM
cis-1,3-Dichloropropene	ND	0.970	3.88		ug/m³	1	9/20/2021 10:17 PM
Dibromochloromethane	ND	2.36	7.28		ug/m³	1	9/20/2021 10:17 PM
Dichlorodifluoromethane	ND	1.28	4.22		ug/m³	1	9/20/2021 10:17 PM
Ethylbenzene	ND	1.02	3.71		ug/m³	1	9/20/2021 10:17 PM
Freon-113	ND	1.75	6.55		ug/m³	1	9/20/2021 10:17 PM
Hexachlorobutadiene	ND	1.44	18.2		ug/m³	1	9/20/2021 10:17 PM
m,p-Xylene	2.38	1.89	7.42	J	ug/m³	1	9/20/2021 10:17 PM
Methylene Chloride	92.9	0.768	5.94		ug/m³	1	9/20/2021 10:17 PM
MTBE	ND	1.08	12.3		ug/m³	1	9/20/2021 10:17 PM
o-Xylene	ND	0.849	3.71		ug/m³	1	9/20/2021 10:17 PM
Styrene	ND	1.15	3.64		ug/m³	1	9/20/2021 10:17 PM
Tetrachloroethene	289	7.37	29.0		ug/m³	5	9/22/2021 10:31 PM
Toluene	5.28	1.00	3.21		ug/m³	1	9/20/2021 10:17 PM
trans-1,2-Dichloroethene	ND	0.714	3.39		ug/m³	1	9/20/2021 10:17 PM
trans-1,3-Dichloropropene	ND	1.04	3.88		ug/m³	1	9/20/2021 10:17 PM
Trichloroethene	ND	1.10	4.60		ug/m³	1	9/20/2021 10:17 PM
Trichlorofluoromethane	38.6	0.982	4.81		ug/m³	1	9/20/2021 10:17 PM
Vinyl acetate	6.80	1.06	6.02		ug/m³	1	9/20/2021 10:17 PM
Vinyl Chloride	ND	0.682	2.19		ug/m³	1	9/20/2021 10:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-2-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 10:31:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210920A**	QC Batch: **R156808**			PrepDate:			Analyst: **AG**
Surr: 4-Bromofluorobenzene	86.4	0	70-130		%REC	5	9/22/2021 10:31 PM
Surr: 4-Bromofluorobenzene	93.0	0	70-130		%REC	1	9/20/2021 10:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-006

Client Sample ID: KVP-2-5
Collection Date: 9/13/2021 10:48:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1-Trichloroethane	ND	1.28	4.20		ppbv	5	9/22/2021 11:13 PM
1,1,2,2-Tetrachloroethane	ND	1.08	4.20		ppbv	5	9/22/2021 11:13 PM
1,1,2-Trichloroethane	ND	1.43	4.20		ppbv	5	9/22/2021 11:13 PM
1,1-Dichloroethane	ND	1.05	4.20		ppbv	5	9/22/2021 11:13 PM
1,1-Dichloroethene	ND	1.32	4.20		ppbv	5	9/22/2021 11:13 PM
1,2,4-Trichlorobenzene	ND	0.579	21.0		ppbv	5	9/22/2021 11:13 PM
1,2,4-Trimethylbenzene	8.99	0.819	4.20		ppbv	5	9/22/2021 11:13 PM
1,2-Dibromoethane	ND	1.32	4.20		ppbv	5	9/22/2021 11:13 PM
Freon 114	ND	2.27	16.8		ppbv	5	9/22/2021 11:13 PM
1,2-Dichlorobenzene	ND	0.710	4.20		ppbv	5	9/22/2021 11:13 PM
1,2-Dichloroethane	ND	1.38	4.20		ppbv	5	9/22/2021 11:13 PM
1,2-Dichloropropane	ND	1.17	4.20		ppbv	5	9/22/2021 11:13 PM
1,3,5-Trimethylbenzene	ND	0.855	4.20		ppbv	5	9/22/2021 11:13 PM
1,3-Dichlorobenzene	ND	0.585	4.20		ppbv	5	9/22/2021 11:13 PM
1,4-Dichlorobenzene	ND	0.492	4.20		ppbv	5	9/22/2021 11:13 PM
2-Butanone	8.90	1.34	8.40		ppbv	5	9/22/2021 11:13 PM
2-Hexanone	ND	1.51	8.40		ppbv	5	9/22/2021 11:13 PM
4-ethyltoluene	5.12	0.986	4.20		ppbv	5	9/22/2021 11:13 PM
4-Methyl-2-pentanone	2.86	1.35	8.40	J	ppbv	5	9/22/2021 11:13 PM
Acetone	56.7	1.56	16.8		ppbv	5	9/22/2021 11:13 PM
Benzene	9.24	1.37	4.20		ppbv	5	9/22/2021 11:13 PM
Benzyl chloride	ND	0.847	8.40		ppbv	5	9/22/2021 11:13 PM
Bromodichloromethane	ND	1.21	4.20		ppbv	5	9/22/2021 11:13 PM
Bromoform	ND	0.689	4.20		ppbv	5	9/22/2021 11:13 PM
Bromomethane	ND	1.19	4.20		ppbv	5	9/22/2021 11:13 PM
Carbon disulfide	16.8	1.15	4.20		ppbv	5	9/22/2021 11:13 PM
Carbon tetrachloride	ND	1.25	4.20		ppbv	5	9/22/2021 11:13 PM
Chlorobenzene	ND	1.12	4.20		ppbv	5	9/22/2021 11:13 PM
Chloroethane	ND	1.55	4.20		ppbv	5	9/22/2021 11:13 PM
Chloroform	ND	1.06	4.20		ppbv	5	9/22/2021 11:13 PM
Chloromethane	ND	1.54	4.20		ppbv	5	9/22/2021 11:13 PM
cis-1,2-Dichloroethene	ND	1.22	4.20		ppbv	5	9/22/2021 11:13 PM
cis-1,3-Dichloropropene	ND	1.05	4.20		ppbv	5	9/22/2021 11:13 PM
Dibromochloromethane	ND	1.36	4.20		ppbv	5	9/22/2021 11:13 PM
Dichlorodifluoromethane	ND	1.27	4.20		ppbv	5	9/22/2021 11:13 PM
Ethylbenzene	ND	1.16	4.20		ppbv	5	9/22/2021 11:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-006

Client Sample ID: KVP-2-5
Collection Date: 9/13/2021 10:48:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
Freon-113	ND	1.12	4.20		ppbv	5	9/22/2021 11:13 PM
Hexachlorobutadiene	ND	0.662	8.40		ppbv	5	9/22/2021 11:13 PM
m,p-Xylene	5.46	2.13	8.40	J	ppbv	5	9/22/2021 11:13 PM
Methylene Chloride	45.8	1.09	8.40		ppbv	5	9/22/2021 11:13 PM
MTBE	ND	1.48	16.8		ppbv	5	9/22/2021 11:13 PM
o-Xylene	4.37	0.961	4.20		ppbv	5	9/22/2021 11:13 PM
Styrene	ND	1.33	4.20		ppbv	5	9/22/2021 11:13 PM
Tetrachloroethene	ND	1.07	4.20		ppbv	5	9/22/2021 11:13 PM
Toluene	9.66	1.31	4.20		ppbv	5	9/22/2021 11:13 PM
trans-1,2-Dichloroethene	ND	0.885	4.20		ppbv	5	9/22/2021 11:13 PM
trans-1,3-Dichloropropene	ND	1.13	4.20		ppbv	5	9/22/2021 11:13 PM
Trichloroethene	ND	1.00	4.20		ppbv	5	9/22/2021 11:13 PM
Trichlorofluoromethane	ND	0.858	4.20		ppbv	5	9/22/2021 11:13 PM
Vinyl acetate	5.63	1.47	8.40	J	ppbv	5	9/22/2021 11:13 PM
Vinyl Chloride	ND	1.31	4.20		ppbv	5	9/22/2021 11:13 PM
Surr: 4-Bromofluorobenzene	113	0	70-130		%REC	5	9/22/2021 11:13 PM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	7.01	22.9		ug/m³	5	9/22/2021 11:13 PM
1,1,2,2-Tetrachloroethane	ND	7.39	28.8		ug/m³	5	9/22/2021 11:13 PM
1,1,2-Trichloroethane	ND	7.79	22.9		ug/m³	5	9/22/2021 11:13 PM
1,1-Dichloroethane	ND	4.25	17.0		ug/m³	5	9/22/2021 11:13 PM
1,1-Dichloroethene	ND	5.25	16.6		ug/m³	5	9/22/2021 11:13 PM
1,2,4-Trichlorobenzene	ND	4.30	156		ug/m³	5	9/22/2021 11:13 PM
1,2,4-Trimethylbenzene	44.2	4.03	20.7		ug/m³	5	9/22/2021 11:13 PM
1,2-Dibromoethane	ND	10.1	32.3		ug/m³	5	9/22/2021 11:13 PM
Freon 114	ND	15.9	117		ug/m³	5	9/22/2021 11:13 PM
1,2-Dichlorobenzene	ND	4.27	25.3		ug/m³	5	9/22/2021 11:13 PM
1,2-Dichloroethane	ND	5.58	17.0		ug/m³	5	9/22/2021 11:13 PM
1,2-Dichloropropane	ND	5.41	19.4		ug/m³	5	9/22/2021 11:13 PM
1,3,5-Trimethylbenzene	ND	4.20	20.7		ug/m³	5	9/22/2021 11:13 PM
1,3-Dichlorobenzene	ND	3.52	25.3		ug/m³	5	9/22/2021 11:13 PM
1,4-Dichlorobenzene	ND	2.96	25.3		ug/m³	5	9/22/2021 11:13 PM
2-Butanone	26.3	3.96	24.8		ug/m³	5	9/22/2021 11:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-006

Client Sample ID: KVP-2-5
Collection Date: 9/13/2021 10:48:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Hexanone	ND	6.19	34.4		ug/m³	5	9/22/2021 11:13 PM
4-ethyltoluene	25.2	4.85	20.7		ug/m³	5	9/22/2021 11:13 PM
4-Methyl-2-pentanone	11.7	5.53	34.4	J	ug/m³	5	9/22/2021 11:13 PM
Acetone	135	3.71	39.9		ug/m³	5	9/22/2021 11:13 PM
Benzene	29.5	4.37	13.4		ug/m³	5	9/22/2021 11:13 PM
Benzyl chloride	ND	4.38	43.5		ug/m³	5	9/22/2021 11:13 PM
Bromodichloromethane	ND	8.13	28.1		ug/m³	5	9/22/2021 11:13 PM
Bromoform	ND	7.12	43.4		ug/m³	5	9/22/2021 11:13 PM
Bromomethane	ND	4.64	16.3		ug/m³	5	9/22/2021 11:13 PM
Carbon disulfide	52.3	3.58	13.1		ug/m³	5	9/22/2021 11:13 PM
Carbon tetrachloride	ND	7.83	26.5		ug/m³	5	9/22/2021 11:13 PM
Chlorobenzene	ND	5.18	19.3		ug/m³	5	9/22/2021 11:13 PM
Chloroethane	ND	4.10	11.1		ug/m³	5	9/22/2021 11:13 PM
Chloroform	ND	5.19	20.5		ug/m³	5	9/22/2021 11:13 PM
Chloromethane	ND	3.19	8.65		ug/m³	5	9/22/2021 11:13 PM
cis-1,2-Dichloroethene	ND	4.82	16.6		ug/m³	5	9/22/2021 11:13 PM
cis-1,3-Dichloropropene	ND	4.76	19.1		ug/m³	5	9/22/2021 11:13 PM
Dibromochloromethane	ND	11.6	35.8		ug/m³	5	9/22/2021 11:13 PM
Dichlorodifluoromethane	ND	6.28	20.7		ug/m³	5	9/22/2021 11:13 PM
Ethylbenzene	ND	5.03	18.2		ug/m³	5	9/22/2021 11:13 PM
Freon-113	ND	8.57	32.2		ug/m³	5	9/22/2021 11:13 PM
Hexachlorobutadiene	ND	7.06	89.6		ug/m³	5	9/22/2021 11:13 PM
m,p-Xylene	23.7	9.26	36.5	J	ug/m³	5	9/22/2021 11:13 PM
Methylene Chloride	159	3.77	29.2		ug/m³	5	9/22/2021 11:13 PM
MTBE	ND	5.32	60.6		ug/m³	5	9/22/2021 11:13 PM
o-Xylene	19.0	4.17	18.2		ug/m³	5	9/22/2021 11:13 PM
Styrene	ND	5.65	17.9		ug/m³	5	9/22/2021 11:13 PM
Tetrachloroethene	ND	7.24	28.5		ug/m³	5	9/22/2021 11:13 PM
Toluene	36.4	4.94	15.8		ug/m³	5	9/22/2021 11:13 PM
trans-1,2-Dichloroethene	ND	3.51	16.6		ug/m³	5	9/22/2021 11:13 PM
trans-1,3-Dichloropropene	ND	5.12	19.1		ug/m³	5	9/22/2021 11:13 PM
Trichloroethene	ND	5.40	22.6		ug/m³	5	9/22/2021 11:13 PM
Trichlorofluoromethane	ND	4.82	23.6		ug/m³	5	9/22/2021 11:13 PM
Vinyl acetate	19.8	5.19	29.6	J	ug/m³	5	9/22/2021 11:13 PM
Vinyl Chloride	ND	3.35	10.8		ug/m³	5	9/22/2021 11:13 PM
Surr: 4-Bromofluorobenzene	113	0	70-130		%REC	5	9/22/2021 11:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-1-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 11:19:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210922A**	QC Batch: **R156868**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	0.465	1.52		ppbv	2	9/23/2021 08:59 AM
1,1,2,2-Tetrachloroethane	ND	0.390	1.52		ppbv	2	9/23/2021 08:59 AM
1,1,2-Trichloroethane	ND	0.517	1.52		ppbv	2	9/23/2021 08:59 AM
1,1-Dichloroethane	ND	0.380	1.52		ppbv	2	9/23/2021 08:59 AM
1,1-Dichloroethene	ND	0.479	1.52		ppbv	2	9/23/2021 08:59 AM
1,2,4-Trichlorobenzene	ND	0.210	7.60		ppbv	2	9/23/2021 08:59 AM
1,2,4-Trimethylbenzene	1.09	0.296	1.52	J	ppbv	2	9/23/2021 08:59 AM
1,2-Dibromoethane	ND	0.477	1.52		ppbv	2	9/23/2021 08:59 AM
Freon 114	ND	0.821	6.08		ppbv	2	9/23/2021 08:59 AM
1,2-Dichlorobenzene	ND	0.257	1.52		ppbv	2	9/23/2021 08:59 AM
1,2-Dichloroethane	ND	0.499	1.52		ppbv	2	9/23/2021 08:59 AM
1,2-Dichloropropane	ND	0.424	1.52		ppbv	2	9/23/2021 08:59 AM
1,3,5-Trimethylbenzene	ND	0.309	1.52		ppbv	2	9/23/2021 08:59 AM
1,3-Dichlorobenzene	ND	0.212	1.52		ppbv	2	9/23/2021 08:59 AM
1,4-Dichlorobenzene	ND	0.178	1.52		ppbv	2	9/23/2021 08:59 AM
2-Butanone	19.6	0.486	3.04		ppbv	2	9/23/2021 08:59 AM
2-Hexanone	ND	0.547	3.04		ppbv	2	9/23/2021 08:59 AM
4-ethyltoluene	ND	0.357	1.52		ppbv	2	9/23/2021 08:59 AM
4-Methyl-2-pentanone	ND	0.489	3.04		ppbv	2	9/23/2021 08:59 AM
Acetone	25.7	0.565	6.08		ppbv	2	9/23/2021 08:59 AM
Benzene	ND	0.496	1.52		ppbv	2	9/23/2021 08:59 AM
Benzyl chloride	ND	0.306	3.04		ppbv	2	9/23/2021 08:59 AM
Bromodichloromethane	ND	0.439	1.52		ppbv	2	9/23/2021 08:59 AM
Bromoform	ND	0.249	1.52		ppbv	2	9/23/2021 08:59 AM
Bromomethane	ND	0.432	1.52		ppbv	2	9/23/2021 08:59 AM
Carbon disulfide	6.63	0.416	1.52		ppbv	2	9/23/2021 08:59 AM
Carbon tetrachloride	ND	0.451	1.52		ppbv	2	9/23/2021 08:59 AM
Chlorobenzene	ND	0.407	1.52		ppbv	2	9/23/2021 08:59 AM
Chloroethane	ND	0.562	1.52		ppbv	2	9/23/2021 08:59 AM
Chloroform	ND	0.385	1.52		ppbv	2	9/23/2021 08:59 AM
Chloromethane	ND	0.558	1.52		ppbv	2	9/23/2021 08:59 AM
cis-1,2-Dichloroethene	ND	0.440	1.52		ppbv	2	9/23/2021 08:59 AM
cis-1,3-Dichloropropene	ND	0.380	1.52		ppbv	2	9/23/2021 08:59 AM
Dibromochloromethane	ND	0.492	1.52		ppbv	2	9/23/2021 08:59 AM
Dichlorodifluoromethane	ND	0.460	1.52		ppbv	2	9/23/2021 08:59 AM
Ethylbenzene	ND	0.419	1.52		ppbv	2	9/23/2021 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-007

Client Sample ID: KVP-1-15
Collection Date: 9/13/2021 11:19:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.405	1.52		ppbv	2	9/23/2021 08:59 AM
Hexachlorobutadiene	ND	0.240	3.04		ppbv	2	9/23/2021 08:59 AM
m,p-Xylene	1.64	0.772	3.04	J	ppbv	2	9/23/2021 08:59 AM
Methylene Chloride	31.8	0.393	3.04		ppbv	2	9/23/2021 08:59 AM
MTBE	ND	0.534	6.08		ppbv	2	9/23/2021 08:59 AM
o-Xylene	0.973	0.348	1.52	J	ppbv	2	9/23/2021 08:59 AM
Styrene	ND	0.480	1.52		ppbv	2	9/23/2021 08:59 AM
Tetrachloroethene	68.2	1.93	7.60		ppbv	10	9/22/2021 11:55 PM
Toluene	2.34	0.474	1.52		ppbv	2	9/23/2021 08:59 AM
trans-1,2-Dichloroethene	ND	0.320	1.52		ppbv	2	9/23/2021 08:59 AM
trans-1,3-Dichloropropene	ND	0.408	1.52		ppbv	2	9/23/2021 08:59 AM
Trichloroethene	ND	0.364	1.52		ppbv	2	9/23/2021 08:59 AM
Trichlorofluoromethane	9.67	0.311	1.52		ppbv	2	9/23/2021 08:59 AM
Vinyl acetate	2.46	0.533	3.04	J	ppbv	2	9/23/2021 08:59 AM
Vinyl Chloride	ND	0.475	1.52		ppbv	2	9/23/2021 08:59 AM
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%REC	2	9/23/2021 08:59 AM
Surr: 4-Bromofluorobenzene	94.6	0	70-130		%REC	10	9/22/2021 11:55 PM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	2.54	8.30		ug/m³	2	9/23/2021 08:59 AM
1,1,2,2-Tetrachloroethane	ND	2.67	10.4		ug/m³	2	9/23/2021 08:59 AM
1,1,2-Trichloroethane	ND	2.82	8.30		ug/m³	2	9/23/2021 08:59 AM
1,1-Dichloroethane	ND	1.54	6.14		ug/m³	2	9/23/2021 08:59 AM
1,1-Dichloroethene	ND	1.90	6.02		ug/m³	2	9/23/2021 08:59 AM
1,2,4-Trichlorobenzene	ND	1.56	56.4		ug/m³	2	9/23/2021 08:59 AM
1,2,4-Trimethylbenzene	5.38	1.46	7.48	J	ug/m³	2	9/23/2021 08:59 AM
1,2-Dibromoethane	ND	3.66	11.7		ug/m³	2	9/23/2021 08:59 AM
Freon 114	ND	5.74	42.5		ug/m³	2	9/23/2021 08:59 AM
1,2-Dichlorobenzene	ND	1.55	9.15		ug/m³	2	9/23/2021 08:59 AM
1,2-Dichloroethane	ND	2.02	6.14		ug/m³	2	9/23/2021 08:59 AM
1,2-Dichloropropane	ND	1.96	7.02		ug/m³	2	9/23/2021 08:59 AM
1,3,5-Trimethylbenzene	ND	1.52	7.48		ug/m³	2	9/23/2021 08:59 AM
1,3-Dichlorobenzene	ND	1.27	9.15		ug/m³	2	9/23/2021 08:59 AM
1,4-Dichlorobenzene	ND	1.07	9.15		ug/m³	2	9/23/2021 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-007

Client Sample ID: KVP-1-15
Collection Date: 9/13/2021 11:19:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Butanone	57.8	1.43	8.97		ug/m³	2	9/23/2021 08:59 AM
2-Hexanone	ND	2.24	12.5		ug/m³	2	9/23/2021 08:59 AM
4-ethyltoluene	ND	1.75	7.48		ug/m³	2	9/23/2021 08:59 AM
4-Methyl-2-pentanone	ND	2.00	12.5		ug/m³	2	9/23/2021 08:59 AM
Acetone	60.9	1.34	14.4		ug/m³	2	9/23/2021 08:59 AM
Benzene	ND	1.58	4.86		ug/m³	2	9/23/2021 08:59 AM
Benzyl chloride	ND	1.59	15.7		ug/m³	2	9/23/2021 08:59 AM
Bromodichloromethane	ND	2.94	10.2		ug/m³	2	9/23/2021 08:59 AM
Bromoform	ND	2.58	15.7		ug/m³	2	9/23/2021 08:59 AM
Bromomethane	ND	1.68	5.90		ug/m³	2	9/23/2021 08:59 AM
Carbon disulfide	20.6	1.30	4.74		ug/m³	2	9/23/2021 08:59 AM
Carbon tetrachloride	ND	2.83	9.58		ug/m³	2	9/23/2021 08:59 AM
Chlorobenzene	ND	1.87	6.99		ug/m³	2	9/23/2021 08:59 AM
Chloroethane	ND	1.48	4.01		ug/m³	2	9/23/2021 08:59 AM
Chloroform	ND	1.88	7.42		ug/m³	2	9/23/2021 08:59 AM
Chloromethane	ND	1.15	3.13		ug/m³	2	9/23/2021 08:59 AM
cis-1,2-Dichloroethene	ND	1.75	6.02		ug/m³	2	9/23/2021 08:59 AM
cis-1,3-Dichloropropene	ND	1.72	6.90		ug/m³	2	9/23/2021 08:59 AM
Dibromochloromethane	ND	4.19	13.0		ug/m³	2	9/23/2021 08:59 AM
Dichlorodifluoromethane	ND	2.27	7.51		ug/m³	2	9/23/2021 08:59 AM
Ethylbenzene	ND	1.82	6.60		ug/m³	2	9/23/2021 08:59 AM
Freon-113	ND	3.10	11.6		ug/m³	2	9/23/2021 08:59 AM
Hexachlorobutadiene	ND	2.55	32.4		ug/m³	2	9/23/2021 08:59 AM
m,p-Xylene	7.13	3.35	13.2	J	ug/m³	2	9/23/2021 08:59 AM
Methylene Chloride	110	1.36	10.6		ug/m³	2	9/23/2021 08:59 AM
MTBE	ND	1.93	21.9		ug/m³	2	9/23/2021 08:59 AM
o-Xylene	4.22	1.51	6.60	J	ug/m³	2	9/23/2021 08:59 AM
Styrene	ND	2.04	6.48		ug/m³	2	9/23/2021 08:59 AM
Tetrachloroethene	463	13.1	51.5		ug/m³	10	9/22/2021 11:55 PM
Toluene	8.82	1.79	5.72		ug/m³	2	9/23/2021 08:59 AM
trans-1,2-Dichloroethene	ND	1.27	6.02		ug/m³	2	9/23/2021 08:59 AM
trans-1,3-Dichloropropene	ND	1.85	6.90		ug/m³	2	9/23/2021 08:59 AM
Trichloroethene	ND	1.95	8.18		ug/m³	2	9/23/2021 08:59 AM
Trichlorofluoromethane	54.3	1.75	8.54		ug/m³	2	9/23/2021 08:59 AM
Vinyl acetate	8.67	1.88	10.7	J	ug/m³	2	9/23/2021 08:59 AM
Vinyl Chloride	ND	1.21	3.89		ug/m³	2	9/23/2021 08:59 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-1-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 11:19:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A**	QC Batch: **R156868**			PrepDate:			Analyst: **AG**
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%REC	2	9/23/2021 08:59 AM
Surr: 4-Bromofluorobenzene	94.6	0	70-130		%REC	10	9/22/2021 11:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-1-5
Lab Order:	N047087	**Collection Date:**	9/13/2021 11:35:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-008		

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1-Trichloroethane	ND	0.292	0.955		ppbv	1	9/23/2021 12:39 AM
1,1,2,2-Tetrachloroethane	ND	0.245	0.955		ppbv	1	9/23/2021 12:39 AM
1,1,2-Trichloroethane	ND	0.325	0.955		ppbv	1	9/23/2021 12:39 AM
1,1-Dichloroethane	ND	0.239	0.955		ppbv	1	9/23/2021 12:39 AM
1,1-Dichloroethene	ND	0.301	0.955		ppbv	1	9/23/2021 12:39 AM
1,2,4-Trichlorobenzene	ND	0.132	4.78		ppbv	1	9/23/2021 12:39 AM
1,2,4-Trimethylbenzene	23.0	0.186	0.955		ppbv	1	9/23/2021 12:39 AM
1,2-Dibromoethane	ND	0.300	0.955		ppbv	1	9/23/2021 12:39 AM
Freon 114	ND	0.516	3.82		ppbv	1	9/23/2021 12:39 AM
1,2-Dichlorobenzene	ND	0.162	0.955		ppbv	1	9/23/2021 12:39 AM
1,2-Dichloroethane	ND	0.313	0.955		ppbv	1	9/23/2021 12:39 AM
1,2-Dichloropropane	ND	0.266	0.955		ppbv	1	9/23/2021 12:39 AM
1,3,5-Trimethylbenzene	6.05	0.194	0.955		ppbv	1	9/23/2021 12:39 AM
1,3-Dichlorobenzene	ND	0.133	0.955		ppbv	1	9/23/2021 12:39 AM
1,4-Dichlorobenzene	ND	0.112	0.955		ppbv	1	9/23/2021 12:39 AM
2-Butanone	5.42	0.306	1.91		ppbv	1	9/23/2021 12:39 AM
2-Hexanone	ND	0.344	1.91		ppbv	1	9/23/2021 12:39 AM
4-ethyltoluene	11.4	0.224	0.955		ppbv	1	9/23/2021 12:39 AM
4-Methyl-2-pentanone	ND	0.307	1.91		ppbv	1	9/23/2021 12:39 AM
Acetone	29.4	0.355	3.82		ppbv	1	9/23/2021 12:39 AM
Benzene	8.08	0.311	0.955		ppbv	1	9/23/2021 12:39 AM
Benzyl chloride	ND	0.193	1.91		ppbv	1	9/23/2021 12:39 AM
Bromodichloromethane	ND	0.276	0.955		ppbv	1	9/23/2021 12:39 AM
Bromoform	ND	0.157	0.955		ppbv	1	9/23/2021 12:39 AM
Bromomethane	ND	0.272	0.955		ppbv	1	9/23/2021 12:39 AM
Carbon disulfide	17.6	0.261	0.955		ppbv	1	9/23/2021 12:39 AM
Carbon tetrachloride	ND	0.283	0.955		ppbv	1	9/23/2021 12:39 AM
Chlorobenzene	ND	0.256	0.955		ppbv	1	9/23/2021 12:39 AM
Chloroethane	ND	0.353	0.955		ppbv	1	9/23/2021 12:39 AM
Chloroform	ND	0.242	0.955		ppbv	1	9/23/2021 12:39 AM
Chloromethane	0.860	0.351	0.955	J	ppbv	1	9/23/2021 12:39 AM
cis-1,2-Dichloroethene	3.69	0.277	0.955		ppbv	1	9/23/2021 12:39 AM
cis-1,3-Dichloropropene	ND	0.239	0.955		ppbv	1	9/23/2021 12:39 AM
Dibromochloromethane	ND	0.309	0.955		ppbv	1	9/23/2021 12:39 AM
Dichlorodifluoromethane	0.726	0.289	0.955	J	ppbv	1	9/23/2021 12:39 AM
Ethylbenzene	1.43	0.263	0.955		ppbv	1	9/23/2021 12:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-008

Client Sample ID: KVP-1-5
Collection Date: 9/13/2021 11:35:00 AM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.254	0.955		ppbv	1	9/23/2021 12:39 AM
Hexachlorobutadiene	ND	0.151	1.91		ppbv	1	9/23/2021 12:39 AM
m,p-Xylene	8.44	0.485	1.91		ppbv	1	9/23/2021 12:39 AM
Methylene Chloride	1.97	0.247	1.91		ppbv	1	9/23/2021 12:39 AM
MTBE	ND	0.336	3.82		ppbv	1	9/23/2021 12:39 AM
o-Xylene	4.53	0.218	0.955		ppbv	1	9/23/2021 12:39 AM
Styrene	ND	0.302	0.955		ppbv	1	9/23/2021 12:39 AM
Tetrachloroethene	1.38	0.243	0.955		ppbv	1	9/23/2021 12:39 AM
Toluene	5.04	0.298	0.955		ppbv	1	9/23/2021 12:39 AM
trans-1,2-Dichloroethene	ND	0.201	0.955		ppbv	1	9/23/2021 12:39 AM
trans-1,3-Dichloropropene	ND	0.256	0.955		ppbv	1	9/23/2021 12:39 AM
Trichloroethene	ND	0.228	0.955		ppbv	1	9/23/2021 12:39 AM
Trichlorofluoromethane	ND	0.195	0.955		ppbv	1	9/23/2021 12:39 AM
Vinyl acetate	6.86	0.335	1.91		ppbv	1	9/23/2021 12:39 AM
Vinyl Chloride	0.955	0.298	0.955		ppbv	1	9/23/2021 12:39 AM
Surr: 4-Bromofluorobenzene	102	0	70-130		%REC	1	9/23/2021 12:39 AM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.59	5.21		ug/m³	1	9/23/2021 12:39 AM
1,1,2,2-Tetrachloroethane	ND	1.68	6.55		ug/m³	1	9/23/2021 12:39 AM
1,1,2-Trichloroethane	ND	1.77	5.21		ug/m³	1	9/23/2021 12:39 AM
1,1-Dichloroethane	ND	0.966	3.86		ug/m³	1	9/23/2021 12:39 AM
1,1-Dichloroethene	ND	1.19	3.78		ug/m³	1	9/23/2021 12:39 AM
1,2,4-Trichlorobenzene	ND	0.977	35.4		ug/m³	1	9/23/2021 12:39 AM
1,2,4-Trimethylbenzene	113	0.915	4.70		ug/m³	1	9/23/2021 12:39 AM
1,2-Dibromoethane	ND	2.30	7.33		ug/m³	1	9/23/2021 12:39 AM
Freon 114	ND	3.61	26.7		ug/m³	1	9/23/2021 12:39 AM
1,2-Dichlorobenzene	ND	0.971	5.75		ug/m³	1	9/23/2021 12:39 AM
1,2-Dichloroethane	ND	1.27	3.86		ug/m³	1	9/23/2021 12:39 AM
1,2-Dichloropropane	ND	1.23	4.41		ug/m³	1	9/23/2021 12:39 AM
1,3,5-Trimethylbenzene	29.8	0.955	4.70		ug/m³	1	9/23/2021 12:39 AM
1,3-Dichlorobenzene	ND	0.799	5.75		ug/m³	1	9/23/2021 12:39 AM
1,4-Dichlorobenzene	ND	0.673	5.75		ug/m³	1	9/23/2021 12:39 AM
2-Butanone	16.0	0.901	5.63		ug/m³	1	9/23/2021 12:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-008

Client Sample ID: KVP-1-5
Collection Date: 9/13/2021 11:35:00 AM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Hexanone	ND	1.41	7.83		ug/m³	1	9/23/2021 12:39 AM
4-ethyltoluene	56.1	1.10	4.70		ug/m³	1	9/23/2021 12:39 AM
4-Methyl-2-pentanone	ND	1.26	7.83		ug/m³	1	9/23/2021 12:39 AM
Acetone	69.8	0.844	9.07		ug/m³	1	9/23/2021 12:39 AM
Benzene	25.8	0.995	3.06		ug/m³	1	9/23/2021 12:39 AM
Benzyl chloride	ND	0.997	9.89		ug/m³	1	9/23/2021 12:39 AM
Bromodichloromethane	ND	1.85	6.40		ug/m³	1	9/23/2021 12:39 AM
Bromoform	ND	1.62	9.87		ug/m³	1	9/23/2021 12:39 AM
Bromomethane	ND	1.05	3.71		ug/m³	1	9/23/2021 12:39 AM
Carbon disulfide	54.8	0.814	2.98		ug/m³	1	9/23/2021 12:39 AM
Carbon tetrachloride	ND	1.78	6.02		ug/m³	1	9/23/2021 12:39 AM
Chlorobenzene	ND	1.18	4.39		ug/m³	1	9/23/2021 12:39 AM
Chloroethane	ND	0.931	2.52		ug/m³	1	9/23/2021 12:39 AM
Chloroform	ND	1.18	4.66		ug/m³	1	9/23/2021 12:39 AM
Chloromethane	1.77	0.724	1.97	J	ug/m³	1	9/23/2021 12:39 AM
cis-1,2-Dichloroethene	14.6	1.10	3.78		ug/m³	1	9/23/2021 12:39 AM
cis-1,3-Dichloropropene	ND	1.08	4.34		ug/m³	1	9/23/2021 12:39 AM
Dibromochloromethane	ND	2.63	8.14		ug/m³	1	9/23/2021 12:39 AM
Dichlorodifluoromethane	3.59	1.43	4.72	J	ug/m³	1	9/23/2021 12:39 AM
Ethylbenzene	6.22	1.14	4.14		ug/m³	1	9/23/2021 12:39 AM
Freon-113	ND	1.95	7.32		ug/m³	1	9/23/2021 12:39 AM
Hexachlorobutadiene	ND	1.61	20.4		ug/m³	1	9/23/2021 12:39 AM
m,p-Xylene	36.7	2.11	8.29		ug/m³	1	9/23/2021 12:39 AM
Methylene Chloride	6.83	0.857	6.64		ug/m³	1	9/23/2021 12:39 AM
MTBE	ND	1.21	13.8		ug/m³	1	9/23/2021 12:39 AM
o-Xylene	19.7	0.948	4.14		ug/m³	1	9/23/2021 12:39 AM
Styrene	ND	1.28	4.07		ug/m³	1	9/23/2021 12:39 AM
Tetrachloroethene	9.33	1.65	6.47		ug/m³	1	9/23/2021 12:39 AM
Toluene	19.0	1.12	3.59		ug/m³	1	9/23/2021 12:39 AM
trans-1,2-Dichloroethene	ND	0.798	3.78		ug/m³	1	9/23/2021 12:39 AM
trans-1,3-Dichloropropene	ND	1.16	4.34		ug/m³	1	9/23/2021 12:39 AM
Trichloroethene	ND	1.23	5.14		ug/m³	1	9/23/2021 12:39 AM
Trichlorofluoromethane	ND	1.10	5.37		ug/m³	1	9/23/2021 12:39 AM
Vinyl acetate	24.1	1.18	6.72		ug/m³	1	9/23/2021 12:39 AM
Vinyl Chloride	2.44	0.762	2.44	J	ug/m³	1	9/23/2021 12:39 AM
Surr: 4-Bromofluorobenzene	102	0	70-130		%REC	1	9/23/2021 12:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-5-15
Lab Order:	N047087	**Collection Date:**	9/13/2021 12:02:00 PM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210922A**	QC Batch: **R156868**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	0.281	0.920		ppbv	1	9/23/2021 01:25 AM
1,1,2,2-Tetrachloroethane	ND	0.236	0.920		ppbv	1	9/23/2021 01:25 AM
1,1,2-Trichloroethane	ND	0.313	0.920		ppbv	1	9/23/2021 01:25 AM
1,1-Dichloroethane	ND	0.230	0.920		ppbv	1	9/23/2021 01:25 AM
1,1-Dichloroethene	ND	0.290	0.920		ppbv	1	9/23/2021 01:25 AM
1,2,4-Trichlorobenzene	ND	0.127	4.60		ppbv	1	9/23/2021 01:25 AM
1,2,4-Trimethylbenzene	ND	0.179	0.920		ppbv	1	9/23/2021 01:25 AM
1,2-Dibromoethane	ND	0.289	0.920		ppbv	1	9/23/2021 01:25 AM
Freon 114	ND	0.497	3.68		ppbv	1	9/23/2021 01:25 AM
1,2-Dichlorobenzene	ND	0.156	0.920		ppbv	1	9/23/2021 01:25 AM
1,2-Dichloroethane	ND	0.302	0.920		ppbv	1	9/23/2021 01:25 AM
1,2-Dichloropropane	ND	0.256	0.920		ppbv	1	9/23/2021 01:25 AM
1,3,5-Trimethylbenzene	ND	0.187	0.920		ppbv	1	9/23/2021 01:25 AM
1,3-Dichlorobenzene	ND	0.128	0.920		ppbv	1	9/23/2021 01:25 AM
1,4-Dichlorobenzene	ND	0.108	0.920		ppbv	1	9/23/2021 01:25 AM
2-Butanone	5.04	0.294	1.84		ppbv	1	9/23/2021 01:25 AM
2-Hexanone	ND	0.331	1.84		ppbv	1	9/23/2021 01:25 AM
4-ethyltoluene	ND	0.216	0.920		ppbv	1	9/23/2021 01:25 AM
4-Methyl-2-pentanone	ND	0.296	1.84		ppbv	1	9/23/2021 01:25 AM
Acetone	13.2	0.342	3.68		ppbv	1	9/23/2021 01:25 AM
Benzene	ND	0.300	0.920		ppbv	1	9/23/2021 01:25 AM
Benzyl chloride	ND	0.185	1.84		ppbv	1	9/23/2021 01:25 AM
Bromodichloromethane	ND	0.266	0.920		ppbv	1	9/23/2021 01:25 AM
Bromoform	ND	0.151	0.920		ppbv	1	9/23/2021 01:25 AM
Bromomethane	ND	0.262	0.920		ppbv	1	9/23/2021 01:25 AM
Carbon disulfide	1.91	0.252	0.920		ppbv	1	9/23/2021 01:25 AM
Carbon tetrachloride	ND	0.273	0.920		ppbv	1	9/23/2021 01:25 AM
Chlorobenzene	ND	0.246	0.920		ppbv	1	9/23/2021 01:25 AM
Chloroethane	ND	0.340	0.920		ppbv	1	9/23/2021 01:25 AM
Chloroform	ND	0.233	0.920		ppbv	1	9/23/2021 01:25 AM
Chloromethane	ND	0.338	0.920		ppbv	1	9/23/2021 01:25 AM
cis-1,2-Dichloroethene	ND	0.267	0.920		ppbv	1	9/23/2021 01:25 AM
cis-1,3-Dichloropropene	ND	0.230	0.920		ppbv	1	9/23/2021 01:25 AM
Dibromochloromethane	ND	0.298	0.920		ppbv	1	9/23/2021 01:25 AM
Dichlorodifluoromethane	ND	0.278	0.920		ppbv	1	9/23/2021 01:25 AM
Ethylbenzene	ND	0.254	0.920		ppbv	1	9/23/2021 01:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-009

Client Sample ID: KVP-5-15
Collection Date: 9/13/2021 12:02:00 PM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.245	0.920		ppbv	1	9/23/2021 01:25 AM
Hexachlorobutadiene	ND	0.145	1.84		ppbv	1	9/23/2021 01:25 AM
m,p-Xylene	ND	0.467	1.84		ppbv	1	9/23/2021 01:25 AM
Methylene Chloride	1.93	0.238	1.84		ppbv	1	9/23/2021 01:25 AM
MTBE	ND	0.323	3.68		ppbv	1	9/23/2021 01:25 AM
o-Xylene	ND	0.210	0.920		ppbv	1	9/23/2021 01:25 AM
Styrene	ND	0.291	0.920		ppbv	1	9/23/2021 01:25 AM
Tetrachloroethene	1.66	0.234	0.920		ppbv	1	9/23/2021 01:25 AM
Toluene	ND	0.287	0.920		ppbv	1	9/23/2021 01:25 AM
trans-1,2-Dichloroethene	ND	0.194	0.920		ppbv	1	9/23/2021 01:25 AM
trans-1,3-Dichloropropene	ND	0.247	0.920		ppbv	1	9/23/2021 01:25 AM
Trichloroethene	ND	0.220	0.920		ppbv	1	9/23/2021 01:25 AM
Trichlorofluoromethane	7.25	0.188	0.920		ppbv	1	9/23/2021 01:25 AM
Vinyl acetate	7.43	0.323	1.84		ppbv	1	9/23/2021 01:25 AM
Vinyl Chloride	ND	0.287	0.920		ppbv	1	9/23/2021 01:25 AM
Surr: 4-Bromofluorobenzene	90.4	0	70-130		%REC	1	9/23/2021 01:25 AM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.53	5.02		ug/m³	1	9/23/2021 01:25 AM
1,1,2,2-Tetrachloroethane	ND	1.62	6.31		ug/m³	1	9/23/2021 01:25 AM
1,1,2-Trichloroethane	ND	1.71	5.02		ug/m³	1	9/23/2021 01:25 AM
1,1-Dichloroethane	ND	0.931	3.72		ug/m³	1	9/23/2021 01:25 AM
1,1-Dichloroethene	ND	1.15	3.64		ug/m³	1	9/23/2021 01:25 AM
1,2,4-Trichlorobenzene	ND	0.941	34.1		ug/m³	1	9/23/2021 01:25 AM
1,2,4-Trimethylbenzene	ND	0.882	4.53		ug/m³	1	9/23/2021 01:25 AM
1,2-Dibromoethane	ND	2.22	7.07		ug/m³	1	9/23/2021 01:25 AM
Freon 114	ND	3.47	25.7		ug/m³	1	9/23/2021 01:25 AM
1,2-Dichlorobenzene	ND	0.935	5.54		ug/m³	1	9/23/2021 01:25 AM
1,2-Dichloroethane	ND	1.22	3.72		ug/m³	1	9/23/2021 01:25 AM
1,2-Dichloropropane	ND	1.19	4.25		ug/m³	1	9/23/2021 01:25 AM
1,3,5-Trimethylbenzene	ND	0.920	4.53		ug/m³	1	9/23/2021 01:25 AM
1,3-Dichlorobenzene	ND	0.770	5.54		ug/m³	1	9/23/2021 01:25 AM
1,4-Dichlorobenzene	ND	0.648	5.54		ug/m³	1	9/23/2021 01:25 AM
2-Butanone	14.9	0.868	5.43		ug/m³	1	9/23/2021 01:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-009

Client Sample ID: KVP-5-15
Collection Date: 9/13/2021 12:02:00 PM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Hexanone	ND	1.36	7.54		ug/m³	1	9/23/2021 01:25 AM
4-ethyltoluene	ND	1.06	4.53		ug/m³	1	9/23/2021 01:25 AM
4-Methyl-2-pentanone	ND	1.21	7.54		ug/m³	1	9/23/2021 01:25 AM
Acetone	31.5	0.813	8.74		ug/m³	1	9/23/2021 01:25 AM
Benzene	ND	0.958	2.94		ug/m³	1	9/23/2021 01:25 AM
Benzyl chloride	ND	0.960	9.53		ug/m³	1	9/23/2021 01:25 AM
Bromodichloromethane	ND	1.78	6.16		ug/m³	1	9/23/2021 01:25 AM
Bromoform	ND	1.56	9.51		ug/m³	1	9/23/2021 01:25 AM
Bromomethane	ND	1.02	3.57		ug/m³	1	9/23/2021 01:25 AM
Carbon disulfide	5.96	0.784	2.87		ug/m³	1	9/23/2021 01:25 AM
Carbon tetrachloride	ND	1.72	5.80		ug/m³	1	9/23/2021 01:25 AM
Chlorobenzene	ND	1.13	4.23		ug/m³	1	9/23/2021 01:25 AM
Chloroethane	ND	0.897	2.43		ug/m³	1	9/23/2021 01:25 AM
Chloroform	ND	1.14	4.49		ug/m³	1	9/23/2021 01:25 AM
Chloromethane	ND	0.698	1.90		ug/m³	1	9/23/2021 01:25 AM
cis-1,2-Dichloroethene	ND	1.06	3.64		ug/m³	1	9/23/2021 01:25 AM
cis-1,3-Dichloropropene	ND	1.04	4.18		ug/m³	1	9/23/2021 01:25 AM
Dibromochloromethane	ND	2.53	7.84		ug/m³	1	9/23/2021 01:25 AM
Dichlorodifluoromethane	ND	1.38	4.54		ug/m³	1	9/23/2021 01:25 AM
Ethylbenzene	ND	1.10	3.99		ug/m³	1	9/23/2021 01:25 AM
Freon-113	ND	1.88	7.05		ug/m³	1	9/23/2021 01:25 AM
Hexachlorobutadiene	ND	1.55	19.6		ug/m³	1	9/23/2021 01:25 AM
m,p-Xylene	ND	2.03	7.99		ug/m³	1	9/23/2021 01:25 AM
Methylene Chloride	6.71	0.826	6.39		ug/m³	1	9/23/2021 01:25 AM
MTBE	ND	1.17	13.3		ug/m³	1	9/23/2021 01:25 AM
o-Xylene	ND	0.914	3.99		ug/m³	1	9/23/2021 01:25 AM
Styrene	ND	1.24	3.92		ug/m³	1	9/23/2021 01:25 AM
Tetrachloroethene	11.2	1.59	6.24		ug/m³	1	9/23/2021 01:25 AM
Toluene	ND	1.08	3.46		ug/m³	1	9/23/2021 01:25 AM
trans-1,2-Dichloroethene	ND	0.769	3.64		ug/m³	1	9/23/2021 01:25 AM
trans-1,3-Dichloropropene	ND	1.12	4.18		ug/m³	1	9/23/2021 01:25 AM
Trichloroethene	ND	1.18	4.95		ug/m³	1	9/23/2021 01:25 AM
Trichlorofluoromethane	40.7	1.06	5.17		ug/m³	1	9/23/2021 01:25 AM
Vinyl acetate	26.2	1.14	6.48		ug/m³	1	9/23/2021 01:25 AM
Vinyl Chloride	ND	0.734	2.36		ug/m³	1	9/23/2021 01:25 AM
Surr: 4-Bromofluorobenzene	90.4	0	70-130		%REC	1	9/23/2021 01:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT:	Kleinfelder	**Client Sample ID:**	KVP-5-5
Lab Order:	N047087	**Collection Date:**	9/13/2021 12:20:00 PM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	AIR
Lab ID:	N047087-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
			EPA TO15				
RunID: **NV00922-MS6_210922A**	QC Batch: **R156868**			PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	0.281	0.920		ppbv	1	9/23/2021 02:11 AM
1,1,2,2-Tetrachloroethane	ND	0.236	0.920		ppbv	1	9/23/2021 02:11 AM
1,1,2-Trichloroethane	ND	0.313	0.920		ppbv	1	9/23/2021 02:11 AM
1,1-Dichloroethane	ND	0.230	0.920		ppbv	1	9/23/2021 02:11 AM
1,1-Dichloroethene	ND	0.290	0.920		ppbv	1	9/23/2021 02:11 AM
1,2,4-Trichlorobenzene	ND	0.127	4.60		ppbv	1	9/23/2021 02:11 AM
1,2,4-Trimethylbenzene	0.662	0.179	0.920	J	ppbv	1	9/23/2021 02:11 AM
1,2-Dibromoethane	ND	0.289	0.920		ppbv	1	9/23/2021 02:11 AM
Freon 114	ND	0.497	3.68		ppbv	1	9/23/2021 02:11 AM
1,2-Dichlorobenzene	ND	0.156	0.920		ppbv	1	9/23/2021 02:11 AM
1,2-Dichloroethane	ND	0.302	0.920		ppbv	1	9/23/2021 02:11 AM
1,2-Dichloropropane	ND	0.256	0.920		ppbv	1	9/23/2021 02:11 AM
1,3,5-Trimethylbenzene	ND	0.187	0.920		ppbv	1	9/23/2021 02:11 AM
1,3-Dichlorobenzene	ND	0.128	0.920		ppbv	1	9/23/2021 02:11 AM
1,4-Dichlorobenzene	ND	0.108	0.920		ppbv	1	9/23/2021 02:11 AM
2-Butanone	3.48	0.294	1.84		ppbv	1	9/23/2021 02:11 AM
2-Hexanone	ND	0.331	1.84		ppbv	1	9/23/2021 02:11 AM
4-ethyltoluene	ND	0.216	0.920		ppbv	1	9/23/2021 02:11 AM
4-Methyl-2-pentanone	ND	0.296	1.84		ppbv	1	9/23/2021 02:11 AM
Acetone	11.1	0.342	3.68		ppbv	1	9/23/2021 02:11 AM
Benzene	0.736	0.300	0.920	J	ppbv	1	9/23/2021 02:11 AM
Benzyl chloride	ND	0.185	1.84		ppbv	1	9/23/2021 02:11 AM
Bromodichloromethane	ND	0.266	0.920		ppbv	1	9/23/2021 02:11 AM
Bromoform	ND	0.151	0.920		ppbv	1	9/23/2021 02:11 AM
Bromomethane	ND	0.262	0.920		ppbv	1	9/23/2021 02:11 AM
Carbon disulfide	5.19	0.252	0.920		ppbv	1	9/23/2021 02:11 AM
Carbon tetrachloride	ND	0.273	0.920		ppbv	1	9/23/2021 02:11 AM
Chlorobenzene	ND	0.246	0.920		ppbv	1	9/23/2021 02:11 AM
Chloroethane	ND	0.340	0.920		ppbv	1	9/23/2021 02:11 AM
Chloroform	1.97	0.233	0.920		ppbv	1	9/23/2021 02:11 AM
Chloromethane	ND	0.338	0.920		ppbv	1	9/23/2021 02:11 AM
cis-1,2-Dichloroethene	ND	0.267	0.920		ppbv	1	9/23/2021 02:11 AM
cis-1,3-Dichloropropene	ND	0.230	0.920		ppbv	1	9/23/2021 02:11 AM
Dibromochloromethane	ND	0.298	0.920		ppbv	1	9/23/2021 02:11 AM
Dichlorodifluoromethane	ND	0.278	0.920		ppbv	1	9/23/2021 02:11 AM
Ethylbenzene	ND	0.254	0.920		ppbv	1	9/23/2021 02:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-010

Client Sample ID: KVP-5-5
Collection Date: 9/13/2021 12:20:00 PM
Matrix: AIR

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
Freon-113	ND	0.245	0.920		ppbv	1	9/23/2021 02:11 AM
Hexachlorobutadiene	ND	0.145	1.84		ppbv	1	9/23/2021 02:11 AM
m,p-Xylene	1.07	0.467	1.84	J	ppbv	1	9/23/2021 02:11 AM
Methylene Chloride	18.4	0.238	1.84		ppbv	1	9/23/2021 02:11 AM
MTBE	ND	0.323	3.68		ppbv	1	9/23/2021 02:11 AM
o-Xylene	0.626	0.210	0.920	J	ppbv	1	9/23/2021 02:11 AM
Styrene	ND	0.291	0.920		ppbv	1	9/23/2021 02:11 AM
Tetrachloroethene	3.33	0.234	0.920		ppbv	1	9/23/2021 02:11 AM
Toluene	3.39	0.287	0.920		ppbv	1	9/23/2021 02:11 AM
trans-1,2-Dichloroethene	ND	0.194	0.920		ppbv	1	9/23/2021 02:11 AM
trans-1,3-Dichloropropene	ND	0.247	0.920		ppbv	1	9/23/2021 02:11 AM
Trichloroethene	ND	0.220	0.920		ppbv	1	9/23/2021 02:11 AM
Trichlorofluoromethane	0.773	0.188	0.920	J	ppbv	1	9/23/2021 02:11 AM
Vinyl acetate	1.09	0.323	1.84	J	ppbv	1	9/23/2021 02:11 AM
Vinyl Chloride	ND	0.287	0.920		ppbv	1	9/23/2021 02:11 AM
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	9/23/2021 02:11 AM
VOCS IN AIR BY GCMS							
EPA TO15							
RunID: **NV00922-MS6_210922A** QC Batch: **R156868**				PrepDate:			Analyst: **AG**
1,1,1-Trichloroethane	ND	1.53	5.02		ug/m³	1	9/23/2021 02:11 AM
1,1,2,2-Tetrachloroethane	ND	1.62	6.31		ug/m³	1	9/23/2021 02:11 AM
1,1,2-Trichloroethane	ND	1.71	5.02		ug/m³	1	9/23/2021 02:11 AM
1,1-Dichloroethane	ND	0.931	3.72		ug/m³	1	9/23/2021 02:11 AM
1,1-Dichloroethene	ND	1.15	3.64		ug/m³	1	9/23/2021 02:11 AM
1,2,4-Trichlorobenzene	ND	0.941	34.1		ug/m³	1	9/23/2021 02:11 AM
1,2,4-Trimethylbenzene	3.26	0.882	4.53	J	ug/m³	1	9/23/2021 02:11 AM
1,2-Dibromoethane	ND	2.22	7.07		ug/m³	1	9/23/2021 02:11 AM
Freon 114	ND	3.47	25.7		ug/m³	1	9/23/2021 02:11 AM
1,2-Dichlorobenzene	ND	0.935	5.54		ug/m³	1	9/23/2021 02:11 AM
1,2-Dichloroethane	ND	1.22	3.72		ug/m³	1	9/23/2021 02:11 AM
1,2-Dichloropropane	ND	1.19	4.25		ug/m³	1	9/23/2021 02:11 AM
1,3,5-Trimethylbenzene	ND	0.920	4.53		ug/m³	1	9/23/2021 02:11 AM
1,3-Dichlorobenzene	ND	0.770	5.54		ug/m³	1	9/23/2021 02:11 AM
1,4-Dichlorobenzene	ND	0.648	5.54		ug/m³	1	9/23/2021 02:11 AM
2-Butanone	10.3	0.868	5.43		ug/m³	1	9/23/2021 02:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Lab Order: N047087
Project: Costco Culver City, 20201678.001A
Lab ID: N047087-010

Client Sample ID: KVP-5-5
Collection Date: 9/13/2021 12:20:00 PM
Matrix: AIR

VOCS IN AIR BY GCMS

EPA TO15

RunID: **NV00922-MS6_210922A** QC Batch: **R156868** PrepDate: Analyst: **AG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2-Hexanone	ND	1.36	7.54		ug/m³	1	9/23/2021 02:11 AM
4-ethyltoluene	ND	1.06	4.53		ug/m³	1	9/23/2021 02:11 AM
4-Methyl-2-pentanone	ND	1.21	7.54		ug/m³	1	9/23/2021 02:11 AM
Acetone	26.4	0.813	8.74		ug/m³	1	9/23/2021 02:11 AM
Benzene	2.35	0.958	2.94	J	ug/m³	1	9/23/2021 02:11 AM
Benzyl chloride	ND	0.960	9.53		ug/m³	1	9/23/2021 02:11 AM
Bromodichloromethane	ND	1.78	6.16		ug/m³	1	9/23/2021 02:11 AM
Bromoform	ND	1.56	9.51		ug/m³	1	9/23/2021 02:11 AM
Bromomethane	ND	1.02	3.57		ug/m³	1	9/23/2021 02:11 AM
Carbon disulfide	16.2	0.784	2.87		ug/m³	1	9/23/2021 02:11 AM
Carbon tetrachloride	ND	1.72	5.80		ug/m³	1	9/23/2021 02:11 AM
Chlorobenzene	ND	1.13	4.23		ug/m³	1	9/23/2021 02:11 AM
Chloroethane	ND	0.897	2.43		ug/m³	1	9/23/2021 02:11 AM
Chloroform	9.61	1.14	4.49		ug/m³	1	9/23/2021 02:11 AM
Chloromethane	ND	0.698	1.90		ug/m³	1	9/23/2021 02:11 AM
cis-1,2-Dichloroethene	ND	1.06	3.64		ug/m³	1	9/23/2021 02:11 AM
cis-1,3-Dichloropropene	ND	1.04	4.18		ug/m³	1	9/23/2021 02:11 AM
Dibromochloromethane	ND	2.53	7.84		ug/m³	1	9/23/2021 02:11 AM
Dichlorodifluoromethane	ND	1.38	4.54		ug/m³	1	9/23/2021 02:11 AM
Ethylbenzene	ND	1.10	3.99		ug/m³	1	9/23/2021 02:11 AM
Freon-113	ND	1.88	7.05		ug/m³	1	9/23/2021 02:11 AM
Hexachlorobutadiene	ND	1.55	19.6		ug/m³	1	9/23/2021 02:11 AM
m,p-Xylene	4.63	2.03	7.99	J	ug/m³	1	9/23/2021 02:11 AM
Methylene Chloride	64.0	0.826	6.39		ug/m³	1	9/23/2021 02:11 AM
MTBE	ND	1.17	13.3		ug/m³	1	9/23/2021 02:11 AM
o-Xylene	2.72	0.914	3.99	J	ug/m³	1	9/23/2021 02:11 AM
Styrene	ND	1.24	3.92		ug/m³	1	9/23/2021 02:11 AM
Tetrachloroethene	22.6	1.59	6.24		ug/m³	1	9/23/2021 02:11 AM
Toluene	12.8	1.08	3.46		ug/m³	1	9/23/2021 02:11 AM
trans-1,2-Dichloroethene	ND	0.769	3.64		ug/m³	1	9/23/2021 02:11 AM
trans-1,3-Dichloropropene	ND	1.12	4.18		ug/m³	1	9/23/2021 02:11 AM
Trichloroethene	ND	1.18	4.95		ug/m³	1	9/23/2021 02:11 AM
Trichlorofluoromethane	4.34	1.06	5.17	J	ug/m³	1	9/23/2021 02:11 AM
Vinyl acetate	3.82	1.14	6.48	J	ug/m³	1	9/23/2021 02:11 AM
Vinyl Chloride	ND	0.734	2.36		ug/m³	1	9/23/2021 02:11 AM
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	9/23/2021 02:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	4.730	0.500	5.000	0	94.6	70	130				
1,1,2,2-Tetrachloroethane	4.980	0.500	5.000	0	99.6	70	130				
1,1,2-Trichloroethane	4.810	0.500	5.000	0	96.2	70	130				
1,1-Dichloroethane	4.300	0.500	5.000	0	86.0	70	130				
1,1-Dichloroethene	3.940	0.500	5.000	0	78.8	70	130				
1,2,4-Trichlorobenzene	4.640	2.50	5.000	0	92.8	70	130				
1,2,4-Trimethylbenzene	4.990	0.500	5.000	0	99.8	70	130				
1,2-Dibromoethane	4.870	0.500	5.000	0	97.4	70	130				
Freon 114	4.300	2.00	5.000	0	86.0	70	130				
1,2-Dichlorobenzene	4.870	0.500	5.000	0	97.4	70	130				
1,2-Dichloroethane	4.840	0.500	5.000	0	96.8	70	130				
1,2-Dichloropropane	4.760	0.500	5.000	0	95.2	70	130				
1,3,5-Trimethylbenzene	4.870	0.500	5.000	0	97.4	70	130				
1,3-Dichlorobenzene	4.960	0.500	5.000	0	99.2	70	130				
1,4-Dichlorobenzene	4.840	0.500	5.000	0	96.8	70	130				
2-Butanone	4.450	1.00	5.000	0	89.0	70	130				
2-Hexanone	4.690	1.00	5.000	0	93.8	70	130				
4-ethyltoluene	5.010	0.500	5.000	0	100	70	130				
4-Methyl-2-pentanone	4.780	1.00	5.000	0	95.6	70	130				
Acetone	4.750	2.00	5.000	0	95.0	70	130				
Benzene	4.690	0.500	5.000	0	93.8	70	130				
Benzyl chloride	4.990	1.00	5.000	0	99.8	70	130				
Bromodichloromethane	4.910	0.500	5.000	0	98.2	70	130				
Bromoform	4.840	0.500	5.000	0	96.8	70	130				
Bromomethane	4.150	0.500	5.000	0	83.0	70	130				
Carbon disulfide	4.320	0.500	5.000	0	86.4	70	130				
Carbon tetrachloride	4.680	0.500	5.000	0	93.6	70	130				
Chlorobenzene	4.910	0.500	5.000	0	98.2	70	130				
Chloroethane	4.200	0.500	5.000	0	84.0	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroform	4.680	0.500	5.000	0	93.6	70	130				
Chloromethane	4.340	0.500	5.000	0	86.8	70	130				
cis-1,2-Dichloroethene	4.240	0.500	5.000	0	84.8	70	130				
cis-1,3-Dichloropropene	4.990	0.500	5.000	0	99.8	70	130				
Dibromochloromethane	5.000	0.500	5.000	0	100	70	130				
Dichlorodifluoromethane	4.310	0.500	5.000	0	86.2	70	130				
Ethylbenzene	5.070	0.500	5.000	0	101	70	130				
Freon-113	4.250	0.500	5.000	0	85.0	70	130				
Hexachlorobutadiene	4.830	1.00	5.000	0	96.6	70	130				
m,p-Xylene	10.270	1.00	10.00	0	103	70	130				
Methylene Chloride	4.270	1.00	5.000	0	85.4	70	130				
MTBE	4.290	2.00	5.000	0	85.8	70	130				
o-Xylene	5.010	0.500	5.000	0	100	70	130				
Styrene	4.940	0.500	5.000	0	98.8	70	130				
Tetrachloroethene	4.820	0.500	5.000	0	96.4	70	130				
Toluene	4.910	0.500	5.000	0	98.2	70	130				
trans-1,2-Dichloroethene	3.970	0.500	5.000	0	79.4	70	130				
trans-1,3-Dichloropropene	4.530	0.500	5.000	0	90.6	70	130				
Trichloroethene	4.770	0.500	5.000	0	95.4	70	130				
Trichlorofluoromethane	4.460	0.500	5.000	0	89.2	70	130				
Vinyl acetate	4.540	1.00	5.000	0	90.8	70	130				
Vinyl Chloride	4.170	0.500	5.000	0	83.4	70	130				
Surr: 4-Bromofluorobenzene	5.010		5.000		100	70	130				

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	4.620	0.500	5.000	0	92.4	70	130	4.730	2.35	25	
1,1,2,2-Tetrachloroethane	4.650	0.500	5.000	0	93.0	70	130	4.980	6.85	25	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	4.580	0.500	5.000	0	91.6	70	130	4.810	4.90	25	
1,1-Dichloroethane	4.660	0.500	5.000	0	93.2	70	130	4.300	8.04	25	
1,1-Dichloroethene	4.600	0.500	5.000	0	92.0	70	130	3.940	15.5	25	
1,2,4-Trichlorobenzene	4.840	2.50	5.000	0	96.8	70	130	4.640	4.22	25	
1,2,4-Trimethylbenzene	4.750	0.500	5.000	0	95.0	70	130	4.990	4.93	25	
1,2-Dibromoethane	4.730	0.500	5.000	0	94.6	70	130	4.870	2.92	25	
Freon 114	4.740	2.00	5.000	0	94.8	70	130	4.300	9.73	25	
1,2-Dichlorobenzene	4.630	0.500	5.000	0	92.6	70	130	4.870	5.05	25	
1,2-Dichloroethane	4.680	0.500	5.000	0	93.6	70	130	4.840	3.36	25	
1,2-Dichloropropane	4.580	0.500	5.000	0	91.6	70	130	4.760	3.85	25	
1,3,5-Trimethylbenzene	4.740	0.500	5.000	0	94.8	70	130	4.870	2.71	25	
1,3-Dichlorobenzene	4.620	0.500	5.000	0	92.4	70	130	4.960	7.10	25	
1,4-Dichlorobenzene	4.710	0.500	5.000	0	94.2	70	130	4.840	2.72	25	
2-Butanone	4.780	1.00	5.000	0	95.6	70	130	4.450	7.15	25	
2-Hexanone	4.930	1.00	5.000	0	98.6	70	130	4.690	4.99	25	
4-ethyltoluene	4.710	0.500	5.000	0	94.2	70	130	5.010	6.17	25	
4-Methyl-2-pentanone	4.810	1.00	5.000	0	96.2	70	130	4.780	0.626	25	
Acetone	5.220	2.00	5.000	0	104	70	130	4.750	9.43	25	
Benzene	4.580	0.500	5.000	0	91.6	70	130	4.690	2.37	25	
Benzyl chloride	4.780	1.00	5.000	0	95.6	70	130	4.990	4.30	25	
Bromodichloromethane	4.670	0.500	5.000	0	93.4	70	130	4.910	5.01	25	
Bromoform	4.580	0.500	5.000	0	91.6	70	130	4.840	5.52	25	
Bromomethane	4.770	0.500	5.000	0	95.4	70	130	4.150	13.9	25	
Carbon disulfide	5.090	0.500	5.000	0	102	70	130	4.320	16.4	25	
Carbon tetrachloride	4.500	0.500	5.000	0	90.0	70	130	4.680	3.92	25	
Chlorobenzene	4.640	0.500	5.000	0	92.8	70	130	4.910	5.65	25	
Chloroethane	4.470	0.500	5.000	0	89.4	70	130	4.200	6.23	25	
Chloroform	4.510	0.500	5.000	0	90.2	70	130	4.680	3.70	25	
Chloromethane	4.690	0.500	5.000	0	93.8	70	130	4.340	7.75	25	
cis-1,2-Dichloroethene	4.620	0.500	5.000	0	92.4	70	130	4.240	8.58	25	

Qualifiers:

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- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
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- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	4.720	0.500	5.000	0	94.4	70	130	4.990	5.56	25	
Dibromochloromethane	4.810	0.500	5.000	0	96.2	70	130	5.000	3.87	25	
Dichlorodifluoromethane	4.660	0.500	5.000	0	93.2	70	130	4.310	7.80	25	
Ethylbenzene	4.820	0.500	5.000	0	96.4	70	130	5.070	5.06	25	
Freon-113	4.600	0.500	5.000	0	92.0	70	130	4.250	7.91	25	
Hexachlorobutadiene	4.710	1.00	5.000	0	94.2	70	130	4.830	2.52	25	
m,p-Xylene	9.820	1.00	10.00	0	98.2	70	130	10.27	4.48	25	
Methylene Chloride	4.560	1.00	5.000	0	91.2	70	130	4.270	6.57	25	
MTBE	4.730	2.00	5.000	0	94.6	70	130	4.290	9.76	25	
o-Xylene	4.830	0.500	5.000	0	96.6	70	130	5.010	3.66	25	
Styrene	4.810	0.500	5.000	0	96.2	70	130	4.940	2.67	25	
Tetrachloroethene	4.620	0.500	5.000	0	92.4	70	130	4.820	4.24	25	
Toluene	4.690	0.500	5.000	0	93.8	70	130	4.910	4.58	25	
trans-1,2-Dichloroethene	4.590	0.500	5.000	0	91.8	70	130	3.970	14.5	25	
trans-1,3-Dichloropropene	4.450	0.500	5.000	0	89.0	70	130	4.530	1.78	25	
Trichloroethene	4.480	0.500	5.000	0	89.6	70	130	4.770	6.27	25	
Trichlorofluoromethane	4.910	0.500	5.000	0	98.2	70	130	4.460	9.61	25	
Vinyl acetate	4.960	1.00	5.000	0	99.2	70	130	4.540	8.84	25	
Vinyl Chloride	4.710	0.500	5.000	0	94.2	70	130	4.170	12.2	25	
Surr: 4-Bromofluorobenzene	4.900		5.000		98.0	70	130		0	25	

Sample ID: **MB-R156722** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	0.500									
1,1,2,2-Tetrachloroethane	ND	0.500									
1,1,2-Trichloroethane	ND	0.500									
1,1-Dichloroethane	ND	0.500									
1,1-Dichloroethene	ND	0.500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156722** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	2.50									
1,2,4-Trimethylbenzene	ND	0.500									
1,2-Dibromoethane	ND	0.500									
Freon 114	ND	2.00									
1,2-Dichlorobenzene	ND	0.500									
1,2-Dichloroethane	ND	0.500									
1,2-Dichloropropane	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.500									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
2-Butanone	ND	1.00									
2-Hexanone	ND	1.00									
4-ethyltoluene	ND	0.500									
4-Methyl-2-pentanone	ND	1.00									
Acetone	ND	2.00									
Benzene	ND	0.500									
Benzyl chloride	ND	1.00									
Bromodichloromethane	ND	0.500									
Bromoform	ND	0.500									
Bromomethane	ND	0.500									
Carbon disulfide	ND	0.500									
Carbon tetrachloride	ND	0.500									
Chlorobenzene	ND	0.500									
Chloroethane	ND	0.500									
Chloroform	ND	0.500									
Chloromethane	ND	0.500									
cis-1,2-Dichloroethene	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									
Dibromochloromethane	ND	0.500									
Dichlorodifluoromethane	ND	0.500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156722** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156722**
Client ID: **ZZZZZZ** Batch ID: **R156722** TestNo: **EPA TO15** Analysis Date: **9/16/2021** SeqNo: **4353846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	0.500									
Freon-113	ND	0.500									
Hexachlorobutadiene	ND	1.00									
m,p-Xylene	ND	1.00									
Methylene Chloride	ND	1.00									
MTBE	ND	2.00									
o-Xylene	ND	0.500									
Styrene	ND	0.500									
Tetrachloroethene	ND	0.500									
Toluene	ND	0.500									
trans-1,2-Dichloroethene	ND	0.500									
trans-1,3-Dichloropropene	ND	0.500									
Trichloroethene	ND	0.500									
Trichlorofluoromethane	ND	0.500									
Vinyl acetate	ND	1.00									
Vinyl Chloride	ND	0.500									
Surr: 4-Bromofluorobenzene	4.580		5.000		91.6	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	4.480	0.500	5.000	0	89.6	70	130				
1,1,2,2-Tetrachloroethane	4.550	0.500	5.000	0	91.0	70	130				
1,1,2-Trichloroethane	4.450	0.500	5.000	0	89.0	70	130				
1,1-Dichloroethane	4.550	0.500	5.000	0	91.0	70	130				
1,1-Dichloroethene	4.530	0.500	5.000	0	90.6	70	130				
1,2,4-Trichlorobenzene	4.480	2.50	5.000	0	89.6	70	130				
1,2,4-Trimethylbenzene	4.710	0.500	5.000	0	94.2	70	130				
1,2-Dibromoethane	4.400	0.500	5.000	0	88.0	70	130				
Freon 114	4.550	2.00	5.000	0	91.0	70	130				
1,2-Dichlorobenzene	4.510	0.500	5.000	0	90.2	70	130				
1,2-Dichloroethane	4.510	0.500	5.000	0	90.2	70	130				
1,2-Dichloropropane	4.400	0.500	5.000	0	88.0	70	130				
1,3,5-Trimethylbenzene	4.520	0.500	5.000	0	90.4	70	130				
1,3-Dichlorobenzene	4.740	0.500	5.000	0	94.8	70	130				
1,4-Dichlorobenzene	4.520	0.500	5.000	0	90.4	70	130				
2-Butanone	4.640	1.00	5.000	0	92.8	70	130				
2-Hexanone	4.340	1.00	5.000	0	86.8	70	130				
4-ethyltoluene	4.710	0.500	5.000	0	94.2	70	130				
4-Methyl-2-pentanone	4.440	1.00	5.000	0	88.8	70	130				
Acetone	5.140	2.00	5.000	0	103	70	130				
Benzene	4.340	0.500	5.000	0	86.8	70	130				
Benzyl chloride	4.630	1.00	5.000	0	92.6	70	130				
Bromodichloromethane	4.470	0.500	5.000	0	89.4	70	130				
Bromoform	4.480	0.500	5.000	0	89.6	70	130				
Bromomethane	4.300	0.500	5.000	0	86.0	70	130				
Carbon disulfide	4.500	0.500	5.000	0	90.0	70	130				
Carbon tetrachloride	4.530	0.500	5.000	0	90.6	70	130				
Chlorobenzene	4.570	0.500	5.000	0	91.4	70	130				
Chloroethane	4.240	0.500	5.000	0	84.8	70	130				
Chloroform	4.280	0.500	5.000	0	85.6	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	4.330	0.500	5.000	0	86.6	70	130				
cis-1,2-Dichloroethene	4.440	0.500	5.000	0	88.8	70	130				
cis-1,3-Dichloropropene	4.600	0.500	5.000	0	92.0	70	130				
Dibromochloromethane	4.610	0.500	5.000	0	92.2	70	130				
Dichlorodifluoromethane	4.580	0.500	5.000	0	91.6	70	130				
Ethylbenzene	4.700	0.500	5.000	0	94.0	70	130				
Freon-113	4.500	0.500	5.000	0	90.0	70	130				
Hexachlorobutadiene	4.740	1.00	5.000	0	94.8	70	130				
m,p-Xylene	9.500	1.00	10.00	0	95.0	70	130				
Methylene Chloride	4.440	1.00	5.000	0	88.8	70	130				
MTBE	4.670	2.00	5.000	0	93.4	70	130				
o-Xylene	4.720	0.500	5.000	0	94.4	70	130				
Styrene	4.650	0.500	5.000	0	93.0	70	130				
Tetrachloroethene	4.590	0.500	5.000	0	91.8	70	130				
Toluene	4.550	0.500	5.000	0	91.0	70	130				
trans-1,2-Dichloroethene	4.480	0.500	5.000	0	89.6	70	130				
trans-1,3-Dichloropropene	4.260	0.500	5.000	0	85.2	70	130				
Trichloroethene	4.460	0.500	5.000	0	89.2	70	130				
Trichlorofluoromethane	4.870	0.500	5.000	0	97.4	70	130				
Vinyl acetate	4.810	1.00	5.000	0	96.2	70	130				
Vinyl Chloride	4.370	0.500	5.000	0	87.4	70	130				
Surr: 4-Bromofluorobenzene	5.150		5.000		103	70	130				

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	4.640	0.500	5.000	0	92.8	70	130	4.480	3.51	25	
1,1,2,2-Tetrachloroethane	4.540	0.500	5.000	0	90.8	70	130	4.550	0.220	25	
1,1,2-Trichloroethane	4.520	0.500	5.000	0	90.4	70	130	4.450	1.56	25	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	4.420	0.500	5.000	0	88.4	70	130	4.550	2.90	25	
1,1-Dichloroethene	4.190	0.500	5.000	0	83.8	70	130	4.530	7.80	25	
1,2,4-Trichlorobenzene	4.600	2.50	5.000	0	92.0	70	130	4.480	2.64	25	
1,2,4-Trimethylbenzene	4.840	0.500	5.000	0	96.8	70	130	4.710	2.72	25	
1,2-Dibromoethane	4.730	0.500	5.000	0	94.6	70	130	4.400	7.23	25	
Freon 114	4.450	2.00	5.000	0	89.0	70	130	4.550	2.22	25	
1,2-Dichlorobenzene	4.690	0.500	5.000	0	93.8	70	130	4.510	3.91	25	
1,2-Dichloroethane	4.540	0.500	5.000	0	90.8	70	130	4.510	0.663	25	
1,2-Dichloropropane	4.330	0.500	5.000	0	86.6	70	130	4.400	1.60	25	
1,3,5-Trimethylbenzene	4.660	0.500	5.000	0	93.2	70	130	4.520	3.05	25	
1,3-Dichlorobenzene	4.810	0.500	5.000	0	96.2	70	130	4.740	1.47	25	
1,4-Dichlorobenzene	4.600	0.500	5.000	0	92.0	70	130	4.520	1.75	25	
2-Butanone	4.640	1.00	5.000	0	92.8	70	130	4.640	0	25	
2-Hexanone	4.520	1.00	5.000	0	90.4	70	130	4.340	4.06	25	
4-ethyltoluene	4.770	0.500	5.000	0	95.4	70	130	4.710	1.27	25	
4-Methyl-2-pentanone	4.480	1.00	5.000	0	89.6	70	130	4.440	0.897	25	
Acetone	5.020	2.00	5.000	0	100	70	130	5.140	2.36	25	
Benzene	4.470	0.500	5.000	0	89.4	70	130	4.340	2.95	25	
Benzyl chloride	4.660	1.00	5.000	0	93.2	70	130	4.630	0.646	25	
Bromodichloromethane	4.690	0.500	5.000	0	93.8	70	130	4.470	4.80	25	
Bromoform	4.640	0.500	5.000	0	92.8	70	130	4.480	3.51	25	
Bromomethane	4.270	0.500	5.000	0	85.4	70	130	4.300	0.700	25	
Carbon disulfide	4.500	0.500	5.000	0	90.0	70	130	4.500	0	25	
Carbon tetrachloride	4.540	0.500	5.000	0	90.8	70	130	4.530	0.221	25	
Chlorobenzene	4.670	0.500	5.000	0	93.4	70	130	4.570	2.16	25	
Chloroethane	4.280	0.500	5.000	0	85.6	70	130	4.240	0.939	25	
Chloroform	4.500	0.500	5.000	0	90.0	70	130	4.280	5.01	25	
Chloromethane	4.290	0.500	5.000	0	85.8	70	130	4.330	0.928	25	
cis-1,2-Dichloroethene	4.470	0.500	5.000	0	89.4	70	130	4.440	0.673	25	
cis-1,3-Dichloropropene	4.650	0.500	5.000	0	93.0	70	130	4.600	1.08	25	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	4.780	0.500	5.000	0	95.6	70	130	4.610	3.62	25	
Dichlorodifluoromethane	4.680	0.500	5.000	0	93.6	70	130	4.580	2.16	25	
Ethylbenzene	4.770	0.500	5.000	0	95.4	70	130	4.700	1.48	25	
Freon-113	4.430	0.500	5.000	0	88.6	70	130	4.500	1.57	25	
Hexachlorobutadiene	4.640	1.00	5.000	0	92.8	70	130	4.740	2.13	25	
m,p-Xylene	9.700	1.00	10.00	0	97.0	70	130	9.500	2.08	25	
Methylene Chloride	4.620	1.00	5.000	0	92.4	70	130	4.440	3.97	25	
MTBE	4.700	2.00	5.000	0	94.0	70	130	4.670	0.640	25	
o-Xylene	4.780	0.500	5.000	0	95.6	70	130	4.720	1.26	25	
Styrene	4.720	0.500	5.000	0	94.4	70	130	4.650	1.49	25	
Tetrachloroethene	4.700	0.500	5.000	0	94.0	70	130	4.590	2.37	25	
Toluene	4.660	0.500	5.000	0	93.2	70	130	4.550	2.39	25	
trans-1,2-Dichloroethene	4.240	0.500	5.000	0	84.8	70	130	4.480	5.50	25	
trans-1,3-Dichloropropene	4.450	0.500	5.000	0	89.0	70	130	4.260	4.36	25	
Trichloroethene	4.550	0.500	5.000	0	91.0	70	130	4.460	2.00	25	
Trichlorofluoromethane	4.710	0.500	5.000	0	94.2	70	130	4.870	3.34	25	
Vinyl acetate	4.920	1.00	5.000	0	98.4	70	130	4.810	2.26	25	
Vinyl Chloride	4.270	0.500	5.000	0	85.4	70	130	4.370	2.31	25	
Surr: 4-Bromofluorobenzene	5.110		5.000		102	70	130		0	25	

Sample ID: **MB-R156808** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	0.500									
1,1,2,2-Tetrachloroethane	ND	0.500									
1,1,2-Trichloroethane	ND	0.500									
1,1-Dichloroethane	ND	0.500									
1,1-Dichloroethene	ND	0.500									
1,2,4-Trichlorobenzene	ND	2.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156808** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.500									
1,2-Dibromoethane	ND	0.500									
Freon 114	ND	2.00									
1,2-Dichlorobenzene	ND	0.500									
1,2-Dichloroethane	ND	0.500									
1,2-Dichloropropane	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.500									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
2-Butanone	ND	1.00									
2-Hexanone	ND	1.00									
4-ethyltoluene	ND	0.500									
4-Methyl-2-pentanone	ND	1.00									
Acetone	ND	2.00									
Benzene	ND	0.500									
Benzyl chloride	ND	1.00									
Bromodichloromethane	ND	0.500									
Bromoform	ND	0.500									
Bromomethane	ND	0.500									
Carbon disulfide	ND	0.500									
Carbon tetrachloride	ND	0.500									
Chlorobenzene	ND	0.500									
Chloroethane	ND	0.500									
Chloroform	ND	0.500									
Chloromethane	ND	0.500									
cis-1,2-Dichloroethene	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									
Dibromochloromethane	ND	0.500									
Dichlorodifluoromethane	ND	0.500									
Ethylbenzene	ND	0.500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156808** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156808**
Client ID: **ZZZZZZ** Batch ID: **R156808** TestNo: **EPA TO15** Analysis Date: **9/20/2021** SeqNo: **4359584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon-113	ND	0.500									
Hexachlorobutadiene	ND	1.00									
m,p-Xylene	ND	1.00									
Methylene Chloride	ND	1.00									
MTBE	ND	2.00									
o-Xylene	ND	0.500									
Styrene	ND	0.500									
Tetrachloroethene	ND	0.500									
Toluene	ND	0.500									
trans-1,2-Dichloroethene	ND	0.500									
trans-1,3-Dichloropropene	ND	0.500									
Trichloroethene	ND	0.500									
Trichlorofluoromethane	ND	0.500									
Vinyl acetate	ND	1.00									
Vinyl Chloride	ND	0.500									
Surr: 4-Bromofluorobenzene	4.570		5.000		91.4	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	4.860	0.500	5.000	0	97.2	70	130				
1,1,2,2-Tetrachloroethane	4.660	0.500	5.000	0	93.2	70	130				
1,1,2-Trichloroethane	4.510	0.500	5.000	0	90.2	70	130				
1,1-Dichloroethane	4.600	0.500	5.000	0	92.0	70	130				
1,1-Dichloroethene	4.420	0.500	5.000	0	88.4	70	130				
1,2,4-Trichlorobenzene	4.800	2.50	5.000	0	96.0	70	130				
1,2,4-Trimethylbenzene	4.760	0.500	5.000	0	95.2	70	130				
1,2-Dibromoethane	4.870	0.500	5.000	0	97.4	70	130				
Freon 114	4.500	2.00	5.000	0	90.0	70	130				
1,2-Dichlorobenzene	4.830	0.500	5.000	0	96.6	70	130				
1,2-Dichloroethane	4.940	0.500	5.000	0	98.8	70	130				
1,2-Dichloropropane	4.700	0.500	5.000	0	94.0	70	130				
1,3,5-Trimethylbenzene	4.690	0.500	5.000	0	93.8	70	130				
1,3-Dichlorobenzene	4.740	0.500	5.000	0	94.8	70	130				
1,4-Dichlorobenzene	4.610	0.500	5.000	0	92.2	70	130				
2-Butanone	4.660	1.00	5.000	0	93.2	70	130				
2-Hexanone	4.650	1.00	5.000	0	93.0	70	130				
4-ethyltoluene	4.860	0.500	5.000	0	97.2	70	130				
4-Methyl-2-pentanone	4.740	1.00	5.000	0	94.8	70	130				
Acetone	5.150	2.00	5.000	0	103	70	130				
Benzene	4.720	0.500	5.000	0	94.4	70	130				
Benzyl chloride	4.740	1.00	5.000	0	94.8	70	130				
Bromodichloromethane	4.910	0.500	5.000	0	98.2	70	130				
Bromoform	4.770	0.500	5.000	0	95.4	70	130				
Bromomethane	4.270	0.500	5.000	0	85.4	70	130				
Carbon disulfide	4.550	0.500	5.000	0	91.0	70	130				
Carbon tetrachloride	4.850	0.500	5.000	0	97.0	70	130				
Chlorobenzene	4.620	0.500	5.000	0	92.4	70	130				
Chloroethane	4.280	0.500	5.000	0	85.6	70	130				
Chloroform	4.620	0.500	5.000	0	92.4	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCS-5000PPTV/5.00** SampType: **LCS** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	4.270	0.500	5.000	0	85.4	70	130				
cis-1,2-Dichloroethene	4.730	0.500	5.000	0	94.6	70	130				
cis-1,3-Dichloropropene	4.880	0.500	5.000	0	97.6	70	130				
Dibromochloromethane	4.820	0.500	5.000	0	96.4	70	130				
Dichlorodifluoromethane	4.760	0.500	5.000	0	95.2	70	130				
Ethylbenzene	4.840	0.500	5.000	0	96.8	70	130				
Freon-113	4.550	0.500	5.000	0	91.0	70	130				
Hexachlorobutadiene	4.440	1.00	5.000	0	88.8	70	130				
m,p-Xylene	9.820	1.00	10.00	0	98.2	70	130				
Methylene Chloride	4.510	1.00	5.000	0	90.2	70	130				
MTBE	4.930	2.00	5.000	0	98.6	70	130				
o-Xylene	4.840	0.500	5.000	0	96.8	70	130				
Styrene	4.790	0.500	5.000	0	95.8	70	130				
Tetrachloroethene	4.780	0.500	5.000	0	95.6	70	130				
Toluene	4.940	0.500	5.000	0	98.8	70	130				
trans-1,2-Dichloroethene	4.700	0.500	5.000	0	94.0	70	130				
trans-1,3-Dichloropropene	4.670	0.500	5.000	0	93.4	70	130				
Trichloroethene	4.500	0.500	5.000	0	90.0	70	130				
Trichlorofluoromethane	4.820	0.500	5.000	0	96.4	70	130				
Vinyl acetate	4.910	1.00	5.000	0	98.2	70	130				
Vinyl Chloride	4.460	0.500	5.000	0	89.2	70	130				
Surr: 4-Bromofluorobenzene	4.960		5.000		99.2	70	130				

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	5.140	0.500	5.000	0	103	70	130	4.860	5.60	25	
1,1,2,2-Tetrachloroethane	5.170	0.500	5.000	0	103	70	130	4.660	10.4	25	
1,1,2-Trichloroethane	4.990	0.500	5.000	0	99.8	70	130	4.510	10.1	25	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	4.930	0.500	5.000	0	98.6	70	130	4.600	6.93	25	
1,1-Dichloroethene	4.820	0.500	5.000	0	96.4	70	130	4.420	8.66	25	
1,2,4-Trichlorobenzene	5.940	2.50	5.000	0	119	70	130	4.800	21.2	25	
1,2,4-Trimethylbenzene	5.410	0.500	5.000	0	108	70	130	4.760	12.8	25	
1,2-Dibromoethane	5.210	0.500	5.000	0	104	70	130	4.870	6.75	25	
Freon 114	5.040	2.00	5.000	0	101	70	130	4.500	11.3	25	
1,2-Dichlorobenzene	5.160	0.500	5.000	0	103	70	130	4.830	6.61	25	
1,2-Dichloroethane	5.110	0.500	5.000	0	102	70	130	4.940	3.38	25	
1,2-Dichloropropane	4.800	0.500	5.000	0	96.0	70	130	4.700	2.11	25	
1,3,5-Trimethylbenzene	5.240	0.500	5.000	0	105	70	130	4.690	11.1	25	
1,3-Dichlorobenzene	4.870	0.500	5.000	0	97.4	70	130	4.740	2.71	25	
1,4-Dichlorobenzene	5.030	0.500	5.000	0	101	70	130	4.610	8.71	25	
2-Butanone	5.150	1.00	5.000	0	103	70	130	4.660	9.99	25	
2-Hexanone	5.630	1.00	5.000	0	113	70	130	4.650	19.1	25	
4-ethyltoluene	4.970	0.500	5.000	0	99.4	70	130	4.860	2.24	25	
4-Methyl-2-pentanone	5.240	1.00	5.000	0	105	70	130	4.740	10.0	25	
Acetone	3.890	2.00	5.000	0	77.8	70	130	5.150	27.9	25	R
Benzene	4.880	0.500	5.000	0	97.6	70	130	4.720	3.33	25	
Benzyl chloride	5.330	1.00	5.000	0	107	70	130	4.740	11.7	25	
Bromodichloromethane	4.840	0.500	5.000	0	96.8	70	130	4.910	1.44	25	
Bromoform	4.820	0.500	5.000	0	96.4	70	130	4.770	1.04	25	
Bromomethane	5.420	0.500	5.000	0	108	70	130	4.270	23.7	25	
Carbon disulfide	4.610	0.500	5.000	0	92.2	70	130	4.550	1.31	25	
Carbon tetrachloride	5.270	0.500	5.000	0	105	70	130	4.850	8.30	25	
Chlorobenzene	4.900	0.500	5.000	0	98.0	70	130	4.620	5.88	25	
Chloroethane	4.570	0.500	5.000	0	91.4	70	130	4.280	6.55	25	
Chloroform	4.920	0.500	5.000	0	98.4	70	130	4.620	6.29	25	
Chloromethane	4.410	0.500	5.000	0	88.2	70	130	4.270	3.23	25	
cis-1,2-Dichloroethene	4.830	0.500	5.000	0	96.6	70	130	4.730	2.09	25	
cis-1,3-Dichloropropene	5.710	0.500	5.000	0	114	70	130	4.880	15.7	25	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **LCSD-5000PPTV/5.0** SampType: **LCSD** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	4.910	0.500	5.000	0	98.2	70	130	4.820	1.85	25	
Dichlorodifluoromethane	5.180	0.500	5.000	0	104	70	130	4.760	8.45	25	
Ethylbenzene	5.100	0.500	5.000	0	102	70	130	4.840	5.23	25	
Freon-113	4.620	0.500	5.000	0	92.4	70	130	4.550	1.53	25	
Hexachlorobutadiene	5.720	1.00	5.000	0	114	70	130	4.440	25.2	25	R
m,p-Xylene	10.390	1.00	10.00	0	104	70	130	9.820	5.64	25	
Methylene Chloride	4.680	1.00	5.000	0	93.6	70	130	4.510	3.70	25	
MTBE	5.250	2.00	5.000	0	105	70	130	4.930	6.29	25	
o-Xylene	5.090	0.500	5.000	0	102	70	130	4.840	5.04	25	
Styrene	4.620	0.500	5.000	0	92.4	70	130	4.790	3.61	25	
Tetrachloroethene	4.770	0.500	5.000	0	95.4	70	130	4.780	0.209	25	
Toluene	5.060	0.500	5.000	0	101	70	130	4.940	2.40	25	
trans-1,2-Dichloroethene	4.550	0.500	5.000	0	91.0	70	130	4.700	3.24	25	
trans-1,3-Dichloropropene	5.520	0.500	5.000	0	110	70	130	4.670	16.7	25	
Trichloroethene	4.750	0.500	5.000	0	95.0	70	130	4.500	5.41	25	
Trichlorofluoromethane	5.450	0.500	5.000	0	109	70	130	4.820	12.3	25	
Vinyl acetate	5.920	1.00	5.000	0	118	70	130	4.910	18.7	25	
Vinyl Chloride	4.970	0.500	5.000	0	99.4	70	130	4.460	10.8	25	
Surr: 4-Bromofluorobenzene	4.860		5.000		97.2	70	130		0	25	

Sample ID: **MB-R156868** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	ND	0.500									
1,1,2,2-Tetrachloroethane	ND	0.500									
1,1,2-Trichloroethane	ND	0.500									
1,1-Dichloroethane	ND	0.500									
1,1-Dichloroethene	ND	0.500									
1,2,4-Trichlorobenzene	ND	2.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156868** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.500									
1,2-Dibromoethane	ND	0.500									
Freon 114	ND	2.00									
1,2-Dichlorobenzene	ND	0.500									
1,2-Dichloroethane	ND	0.500									
1,2-Dichloropropane	ND	0.500									
1,3,5-Trimethylbenzene	ND	0.500									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
2-Butanone	ND	1.00									
2-Hexanone	ND	1.00									
4-ethyltoluene	ND	0.500									
4-Methyl-2-pentanone	ND	1.00									
Acetone	ND	2.00									
Benzene	ND	0.500									
Benzyl chloride	ND	1.00									
Bromodichloromethane	ND	0.500									
Bromoform	ND	0.500									
Bromomethane	ND	0.500									
Carbon disulfide	ND	0.500									
Carbon tetrachloride	ND	0.500									
Chlorobenzene	ND	0.500									
Chloroethane	ND	0.500									
Chloroform	ND	0.500									
Chloromethane	ND	0.500									
cis-1,2-Dichloroethene	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									
Dibromochloromethane	ND	0.500									
Dichlorodifluoromethane	ND	0.500									
Ethylbenzene	ND	0.500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047087
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: TO15_FULL

Sample ID: **MB-R156868** SampType: **MBLK** TestCode: **TO15_FULL** Units: **ppbv** Prep Date: RunNo: **156868**
Client ID: **ZZZZZZ** Batch ID: **R156868** TestNo: **EPA TO15** Analysis Date: **9/22/2021** SeqNo: **4361752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Freon-113	ND	0.500									
Hexachlorobutadiene	ND	1.00									
m,p-Xylene	ND	1.00									
Methylene Chloride	ND	1.00									
MTBE	ND	2.00									
o-Xylene	ND	0.500									
Styrene	ND	0.500									
Tetrachloroethene	ND	0.500									
Toluene	ND	0.500									
trans-1,2-Dichloroethene	ND	0.500									
trans-1,3-Dichloropropene	ND	0.500									
Trichloroethene	ND	0.500									
Trichlorofluoromethane	ND	0.500									
Vinyl acetate	ND	1.00									
Vinyl Chloride	ND	0.500									
Surr: 4-Bromofluorobenzene	4.600		5.000		92.0	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

KLEFE02 C: 9/22/2021 12:00 AM
FOLDER R: 9/13/2021
N047087-011A 1 of 1

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 2 of 2

Client: Kleinfelder	Report to: Client folder	Bill to: Same as Client	EDD Requirement: Excel EDD ☐ Geotracker ☐ Labspec ☐ Others ☐
Address: 2144 11 Ridge Route Dr, Ste 225	Company: Lindsey Dandridge-Perry	Address:	QA/QC: RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory ☐
Address: Laguna Hills CA 92653	Email: LDandridge@Kleinfelder.com		Sampe Receipt Condition: Y N 1. Chilled ☑ 2. Headspace ☐ 3. Container Intact ☑ 4. Seal Present ☐ 5. IR number — 6. Method of Cooling —
Phone: (949) 727-4466 Fax:	Address: same	Email to: PO#	Specify:
Submitted By: Lindsey Dandridge-Perry		Phone: Fax:	Global ID:
Title: Project Professional	Phone: Fax:		Specify State:
Signature: Date: 9/13/21	Sampler's Signature and Date: 9/13/21		Sample Temp: NA
I hereby authorize ASSET Labs to perform the tests indicated below:	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Courier: ASSET Tracking No.
Project Name: Costco Culver City	Sampler's Name: ANDREW MEADOW		
Project Number: 20201678.001A			

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐ Air

Analyses Requested: TO-15-VOCs full list; Helium - ASTM D1946

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	N047087-01	KUP-4-15	9/13/21	0833			Air					A10351
2	-02	KUP-4-5		0856			Air					N3144
3	-03	KUP-3-15		0940			AIR					A10653
4	-04	KUP-3-5		1003			AIR					C10988
5	-05	KUP-2-15		1031			AIR					N3139
6	-06	KUP-2-5		1048			AIR					N2270
7	-07	KUP-1-15		1119			AIR					N3138
8	-08	KUP-1-5		1135			AIR					A10285
9	-09	KUP-5-15		1202			AIR					A1030A
10	-10	KUP-5-5		1220			AIR					N2279

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
Lindsey Dandridge-Perry	9/13/21 1500		9/13/21 1600
	9/13/21 1522	TEAM	9/13/21 1522
	9/13/21 1800	Giselle Garcia Alonso	9/14/21 0945

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☒ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:
Las Vegas ~~2.0 ec 1041~~ 9/14/21
GSO# ~~8242~~ 8978/8241 9/14/21

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H = HCl; N = HNO3; S = H2SO4; C = 4°C; Z = Zn(AC)2; O = NaOH; T = Na2S2O3; Others/Specify:

Container Type: T = Tube; V = VOA; P = Pint; J = Jar; B = Tedlar; G = Glass; M = Metal; P = Plastic; C = Can

White = Laboratory Copy Yellow = Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/13/2021	Workorder:	N047087
Rep sample Temp (Deg C):	NA	IR Gun ID:	NA
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	Carton
Cooling process:	☐ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☑ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☐	No ☐	NA ☑
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Received at Las Vegas Lab 9/14/21, GSO #8978/8241.

For:

Checklist Completed By: TM GGarcia 9/14/2021

Reviewed By: MBC 9/14/2021

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047087

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/13/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047087-001A	KVP-4-15	9/13/2021 8:33:00 AM	9/22/2021	Air	ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-002A	KVP-4-5	9/13/2021 8:56:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-003A	KVP-3-15	9/13/2021 9:40:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-004A	KVP-3-5	9/13/2021 10:03:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-005A	KVP-2-15	9/13/2021 10:31:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-006A	KVP-2-5	9/13/2021 10:48:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-007A	KVP-1-15	9/13/2021 11:19:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-008A	KVP-1-5	9/13/2021 11:35:00 AM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR

ASSET Laboratories

WORK ORDER Summary

14-Sep-21

WorkOrder: N047087

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/13/2021

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047087-008A	KVP-1-5	9/13/2021 11:35:00 AM	9/22/2021	Air	EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-009A	KVP-5-15	9/13/2021 12:02:00 PM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-010A	KVP-5-5	9/13/2021 12:20:00 PM	9/22/2021		ASTM D1946	VOCs by GCMS	☐	☐	☑	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
			9/22/2021		EPA TO15	VOCs in Air by GCMS	☐	☐	☐	AIR
N047087-011A	FOLDER	9/22/2021	9/22/2021		Folder	Folder	☐	☐	☐	LAB
			9/22/2021		Folder	Folder	☐	☐	☐	LAB

GLS

800-322-5555
www.gls-us.com

Ship From
ASSET LABORATORIES
THAD MALIT
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
SAMPLE CONTROL
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK UP
Signature Type: STANDARD

Tracking #: 554608978

PDS

LAS VEGAS

C89102A

49182952

LVS NV891-A 0

Print Date: 9/13/2021 4:37 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the General Logistics Systems US, Inc. (GLS) service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gls-us.com.

0945

GLS

800-322-5555
www.gls-us.com

Ship From
ASSET LABORATORIES
THAD MALIT
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
SAMPLE CONTROL
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK UP
Signature Type: STANDARD

Tracking #: 554608241

PDS

LAS VEGAS

C89102A

49179894

LVS NV891-A 0

Print Date: 9/13/2021 4:11 PM

Package 1 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the General Logistics Systems US, Inc. (GLS) service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gls-us.com.

Air TECHNOLOGY
Laboratories, Inc.

October 8, 2021

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

Asset Laboratories
ATTN: Marlon Cartin
3151-3153 W. Post Rd.
Las Vegas, NV 89118

LABORATORY TEST RESULTS

Project Reference: N047087
Lab Number: M100105-01/09

Enclosed are results for sample(s) received 10/01/21 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Note: The cover letter is an integral part of this analytical report.

M100105-01/09

CHAIN-OF-CUSTODY RECORD

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

QC Level: RTNE

Subcontractor:

ATL Air Labs
18501 E. Gale Ave, Suite 130
City of Industry, CA 91748

TEL: (626) 964-4032
FAX: (626) 964-5832
Acct #:

Field Sampler: SIGNED

30-Sep-21

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: ASTM D1946		
N047087-001A / KVP-4-15	Air	9/13/2021 8:33:00 AM	CANISTER1	1		
N047087-003A / KVP-3-15	Air	9/13/2021 9:40:00 AM	CANISTER1	1		
N047087-004A / KVP-3-5	Air	9/13/2021 10:03:00 AM	CANISTER1	1		
N047087-005A / KVP-2-15	Air	9/13/2021 10:31:00 AM	CANISTER1	1		
N047087-006A / KVP-2-5	Air	9/13/2021 10:48:00 AM	CANISTER1	1		
N047087-007A / KVP-1-15	Air	9/13/2021 11:19:00 AM	CANISTER1	1		
N047087-008A / KVP-1-5	Air	9/13/2021 11:35:00 AM	CANISTER1	1		
N047087-009A / KVP-5-15	Air	9/13/2021 12:02:00 PM	CANISTER1	1		
N047087-010A / KVP-5-5	Air	9/13/2021 12:20:00 PM	CANISTER1	1		

Pressurization factor indicated on labels

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

PO#:N47087A Please email invoices & statements to elvira@assetlaboratories.com. For questions, call Thad Malit at (562)-219-7435.
RESULTS NEEDED: _STD TAT. EMAIL RESULTS TO: reports@assetlaboratories.com, sonny.lorenzo@assetlaboratories.com.

Please analyzze for Helium by ASTM1946. UNITS: ug/m3 per A. DaSilva 10/5/21 13:02 GD

	Date/Time		Date/Time
Relinquished by: Yoandra Rodriguez	9/30/21	Received by: ROMEO ALCANTARA	9/30/21 1625
Relinquished by: ROMEO ALCANTARA	2105 9/30/21	Received by:	9/30/21 2102
	10/1/21 1311		10/1/21

Client: Asset Laboratories
Attn: Marlon Cartin
Project Name: NA
Project No.: N047087
Date Received: 10/01/21
Matrix: Air
Reporting Units: ug/m3

ASTM D1946

Lab No.:	M100105-01		M100105-02		M100105-03		M100105-04	
Client Sample I.D.:	N047087-001A / KVP-4-15		N047087-003A / KVP-3-15		N047087-004A / KVP-3-5		N047087-005A / KVP-2-15	
Date/Time Sampled:	9/13/21 8:33		9/13/21 9:40		9/13/21 10:03		9/13/21 10:31	
Date/Time Analyzed:	10/8/21 8:17		10/8/21 8:22		10/8/21 8:27		10/8/21 8:32	
QC Batch No.:	211008GC8A1		211008GC8A1		211008GC8A1		211008GC8A1	
Analyst Initials:	CM		CM		CM		CM	
Dilution Factor:	1.8		2.1		1.8		1.8	
ANALYTE	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3
Helium	ND	290,000	ND	340,000	ND	300,000	ND	300,000

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10-8-21
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Asset Laboratories
Attn: Marlon Cartin
Project Name: NA
Project No.: N047087
Date Received: 10/01/21
Matrix: Air
Reporting Units: ug/m3

ASTM D1946

Lab No.:	M100105-05		M100105-06		M100105-07		M100105-08	
Client Sample I.D.:	N047087-006A / KVP-2-5		N047087-007A / KVP-1-15		N047087-008A / KVP-1-5		N047087-009A / KVP-5-15	
Date/Time Sampled:	9/13/21 10:48		9/13/21 11:19		9/13/21 11:35		9/13/21 12:02	
Date/Time Analyzed:	10/8/21 8:36		10/8/21 8:41		10/8/21 8:46		10/8/21 8:51	
QC Batch No.:	211008GC8A1		211008GC8A1		211008GC8A1		211008GC8A1	
Analyst Initials:	CM		CM		CM		CM	
Dilution Factor:	1.8		1.7		1.8		2.7	
ANALYTE	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3	Result ug/m3	RL ug/m3
Helium	ND	300,000	ND	290,000	ND	300,000	ND	440,000

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10-8-21
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client:	Asset Laboratories
Attn:	Marlon Cartin
Project Name:	NA
Project No.:	N047087
Date Received:	10/01/21
Matrix:	Air
Reporting Units:	ug/m3

ASTM D1946

Lab No.:	M100105-09							
Client Sample I.D.:	N047087-010A / KVP-5-5							
Date/Time Sampled:	9/13/21 12:20							
Date/Time Analyzed:	10/8/21 8:56							
QC Batch No.:	211008GC8A1							
Analyst Initials:	CM							
Dilution Factor:	1.8							
ANALYTE	Result ug/m3	RL ug/m3						
Helium	ND	300,000						

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10-8-21

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 211008GC8A1
Matrix: Air
Reporting Units: ug/m3

ASTM D1946 Low Level Hydrogen
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	10/8/21 8:12			10/8/21 7:51		10/8/21 7:56					
Analyst Initials:	CM			CM		CM					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result ug/m3	RL ug/m3	SPIKE AMT. ug/m3	Result ug/m3	% Rec.	Result ug/m3	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Helium	ND	160,000	1,600,000	1,420,000	87	1,430,000	87	1.0	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10-8-21
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

September 27, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047176

RE: Costco Culver City, 20201678.001A

Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 20, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,

Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047176

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

This is an addendum for workorder N047070.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical Comments for EPA 6010B_STLC:

Dilution was necessary due to matrix.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047176
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047176-001A	KB-3-5	Soil	9/9/2021 8:18:00 AM	9/20/2021	9/27/2021

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-3-5
Lab Order:	N047176	**Collection Date:**	9/9/2021 8:18:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047176-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC							
EPA 3010A			**WET/ EPA 6010B**				
RunID: **NV00922-ICP2_210923F**	QC Batch: **89417**			PrepDate:		**9/23/2021**	Analyst: **DJ**
Chromium	0.21	0.0027	0.25	J	mg/L	5	9/23/2021 10:30 PM
ICP METALS BY TCLP EXTRACTION							
EPA 3010A			**EPA 1311/ 6010B**				
RunID: **NV00922-ICP2_210921D**	QC Batch: **89391**			PrepDate:		**9/21/2021**	Analyst: **DJ**
Chromium	0.011	0.00054	0.050	J	mg/L	1	9/21/2021 09:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047176
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-89391**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **PBS**	Batch ID: **89391**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/21/2021**	SeqNo: **4360635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									

Sample ID: **MB-89363 STLC**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **PBS**	Batch ID: **89391**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/21/2021**	SeqNo: **4360638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.25									

Sample ID: **LCS-89391**	SampType: **LCS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **LCSS**	Batch ID: **89391**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/21/2021**	SeqNo: **4360639**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.513	0.050	0.5000	0	103	85	115				

Sample ID: **N047153-001A-MS**	SampType: **MS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **ZZZZZZ**	Batch ID: **89391**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/21/2021**	SeqNo: **4360643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.449	0.050	0.5000	0.001470	89.5	75	125				

Sample ID: **N047153-001A-MSD**	SampType: **MSD**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **ZZZZZZ**	Batch ID: **89391**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/21/2021**	SeqNo: **4360646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.472	0.050	0.5000	0.001470	94.1	75	125	0.4492	4.89	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047176
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-89417**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **PBS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									

Sample ID: **MB-89380 STLC**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **PBS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.007	0.25									J

Sample ID: **LCS-89417**	SampType: **LCS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **LCSS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.514	0.050	0.5000	0	103	85	115				

Sample ID: **N047190-001F-MS**	SampType: **MS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **ZZZZZZ**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.405	0.050	0.5000	0.002670	80.5	75	125				

Sample ID: **N047190-001F-MSD**	SampType: **MSD**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **ZZZZZZ**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.403	0.050	0.5000	0.002670	80.1	75	125	0.4050	0.461	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047176
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID: **MB-89391**	SampType: **MBLK**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **PBS**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									

Sample ID: **MB-89364 TCLP**	SampType: **MBLK**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **PBS**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									

Sample ID: **MB-89373 TCLP**	SampType: **MBLK**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **PBS**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									

Sample ID: **LCS-89391**	SampType: **LCS**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **LCSS**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.513	0.050	0.5000	0	103	85	115				

Sample ID: **N047153-001A-MS**	SampType: **MS**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **ZZZZZZ**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.449	0.050	0.5000	0.001470	89.5	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: Kleinfelder
Work Order: N047176
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID: **N047153-001A-MSD**	SampType: **MSD**	TestCode: **6010_TC**	Units: **mg/L**	Prep Date: **9/21/2021**	RunNo: **156826**
Client ID: **ZZZZZZ**	Batch ID: **89391**	TestNo: **EPA 1311/ 601 EPA 3010A**		Analysis Date: **9/21/2021**	SeqNo: **4360583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.472	0.050	0.5000	0.001470	94.1	75	125	0.4492	4.89	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: tmalit@assetlaboratories.com
Sent: Monday, September 20, 2021 10:58 AM
To: 'Lindsey Dandridge-Perry'
Cc: 'Paolo Dizon'; 'Herbert Vogler'; 'Yoandra Rodriguez'; 'Mary Ann'; rustico.aquino@assetlaboratoriesph.com; 'Sonny Lorenzo'; 'Ashley Marie DaSilva'; 'Giselle G'
Subject: RE: Costco Culver City, 20201678.001A (Asset Labs No. N047070)

Hi Lindsey,

Noted, we will perform the additional analysis below. Please confirm the TAT to be applied.

Regards
Thad

From: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Sent: Monday, September 20, 2021 10:51 AM
To: Thad Malit <tmalit@assetlaboratories.com>
Cc: Paolo Dizon <PDizon@kleinfelder.com>; Herbert Vogler <HVogler@kleinfelder.com>
Subject: RE: Costco Culver City, 20201678.001A (Asset Labs No. N047070)

Please analyze sample KB-3-5 for chromium STLC and TCLP.

From: Reports CA <reports@assetlaboratories.com>
Sent: Friday, September 17, 2021 1:59 PM
To: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Cc: Thad Malit <tmalit@assetlaboratories.com>
Subject: Costco Culver City, 20201678.001A (Asset Labs No. N047070)

External Email

Enclosed is the final report for the above project.

Thanks,

Fern Rivera

Nevada: 3151 W. Post Road, Las Vegas, NV 89118 **|** **P:** 702.307.2659 **|** **F:** 702.307.2691
California: 11110 Artesia Blvd., Ste. A, Cerritos, CA 90703 **|** **P:** 562.219.7435 **|** **F:** 562.219.7436
www.assetlaboratories.com

ASSET Laboratories

Please review the checklist below. Any NO and/or NA signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Change Order Checklist

Client Name: **KLEFE02**

Date / Time Created: **9/20/2021 11:47:37 AM**

Work Order Number: **N047176**

Created by: **GGJ**

Checklist completed by:	GGarcia	9/20/2021	Reviewed by:	MBC	9/21/2021
	Signature	Date		Initials	Date

1. All samples within holding time?	Yes ☑	No ☐
2. Refrigerator temperature in compliance?	Yes ☑	No ☐
3. Change Order documents present?	Yes ☑	No ☐

Comments:

ASSET Laboratories

WORK ORDER Summary

21-Sep-21

WorkOrder: N047176

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/20/2021

Comments: Addendum WO for N047070

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047176-001A	KB-3-5	9/9/2021 8:18:00 AM	9/27/2021	Soil	EPA 1311	TCLP Sample Prep (Metals)	☐	☐	☐	WS
			9/27/2021		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WS
			9/27/2021		WET/ EPA 6010B	ICP METALS by STLC	☐	☐	☐	WS
			9/27/2021		EPA 1311/ 6010B	ICP METALS by TCLP Extraction	☐	☐	☐	WS
			9/27/2021		WET	STLC Sample Prep (Metals)	☐	☐	☐	WS
N047176-002A	FOLDER	9/27/2021	9/27/2021		Folder	Folder	☐	☐	☐	LAB

September 27, 2021

Lindsey Dandridge-Perry
Kleinfelder
24411 Ridge Route Dr. #225
Laguna Hills, CA 92653

TEL: (949) 585-3133
FAX:

Workorder No.: N047177

RE: Costco Culver City, 20201678.001A

Attention: Lindsey Dandridge-Perry

Enclosed are the results for sample(s) received on September 20, 2021 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562) 219-7435 if I can be of further assistance to your company.

Sincerely,

for

Andrew Garaniel
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - California.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047177

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

This is an addendum for workorder N047044.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Analytical Comments for EPA 6010B_STLC:

Dilution was necessary due to matrix.

CLIENT: Kleinfelder
Project: Costco Culver City, 20201678.001A
Lab Order: N047177
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N047177-001A	KB-2-2.5	Soil	9/9/2021 10:27:00 AM	9/20/2021	9/27/2021

CLIENT:	Kleinfelder	**Client Sample ID:**	KB-2-2.5
Lab Order:	N047177	**Collection Date:**	9/9/2021 10:27:00 AM
Project:	Costco Culver City, 20201678.001A	**Matrix:**	SOIL
Lab ID:	N047177-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC							
EPA 3010A			**WET/ EPA 6010B**				
RunID: **NV00922-ICP2_210923F**	QC Batch: **89417**			PrepDate:	**9/23/2021**		Analyst: **DJ**
Lead	2.1	0.020	0.25		mg/L	5	9/23/2021 10:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: Kleinfelder
Work Order: N047177
Project: Costco Culver City, 20201678.001A

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-89417**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **PBS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									

Sample ID: **MB-89380 STLC**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **PBS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-89417**	SampType: **LCS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **LCSS**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.519	0.050	0.5000	0	104	85	115				

Sample ID: **N047190-001F-MS**	SampType: **MS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **ZZZZZZ**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.388	0.050	0.5000	0	77.6	75	125				

Sample ID: **N047190-001F-MSD**	SampType: **MSD**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **9/23/2021**	RunNo: **156889**
Client ID: **ZZZZZZ**	Batch ID: **89417**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **9/23/2021**	SeqNo: **4362828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.388	0.050	0.5000	0	77.6	75	125	0.3882	0.00427	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

Mary Ann Balilu (maryann.balilu@assetlaboratoriesph.com)

From: tmalit@assetlaboratories.com
Sent: Monday, September 20, 2021 10:59 AM
To: 'Lindsey Dandridge-Perry'
Cc: 'Paolo Dizon'; 'Herbert Vogler'; 'Yoandra Rodriguez'; 'Ashley Marie DaSilva'; 'Mary Ann'; 'Sonny Lorenzo'; 'Giselle G'; rustico.aquino@assetlaboratoriesph.com
Subject: RE: Costco Culver City, 20201678.001A (Asset Labs No. N047044)

Hi Lindsey,

Noted, we will perform the additional analysis below. Please confirm the TAT to be applied.

Regards
Thad

From: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Sent: Monday, September 20, 2021 10:52 AM
To: Thad Malit <tmalit@assetlaboratories.com>
Cc: Paolo Dizon <PDizon@kleinfelder.com>; Herbert Vogler <HVogler@kleinfelder.com>
Subject: RE: Costco Culver City, 20201678.001A (Asset Labs No. N047044)

Please analyze sample KB-2-2.5 for lead STLC.

From: Reports CA <reports@assetlaboratories.com>
Sent: Thursday, September 16, 2021 2:19 PM
To: Lindsey Dandridge-Perry <LDandridge@kleinfelder.com>
Cc: Thad Malit <tmalit@assetlaboratories.com>
Subject: Costco Culver City, 20201678.001A (Asset Labs No. N047044)

External Email

Enclosed is the final report for the above project.

Thanks,

Fern Rivera

Nevada: 3151 W. Post Road, Las Vegas, NV 89118 **|** **P:** 702.307.2659 **|** **F:** 702.307.2691
California: 11110 Artesia Blvd., Ste. A, Cerritos, CA 90703 **|** **P:** 562.219.7435 **|** **F:** 562.219.7436
www.assetlaboratories.com

ASSET Laboratories

Please review the checklist below. Any NO and/or NA signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Change Order Checklist

Client Name: **KLEFE02**

Date / Time Created: **9/20/2021 11:49:01 AM**

Work Order Number: **N047177**

Created by: **GGJ**

Checklist completed by:	GGarcia	9/20/2021	Reviewed by:	MBC	9/21/2021
	Signature	Date		Initials	Date

1. All samples within holding time?	Yes ☑	No ☐
2. Refrigerator temperature in compliance?	Yes ☑	No ☐
3. Change Order documents present?	Yes ☑	No ☐

Comments:

ASSET Laboratories

WORK ORDER Summary

21-Sep-21

WorkOrder: N047177

Client ID: KLEFE02

Project: Costco Culver City, 20201678.001A **QC Level:** RTNE **Date Received:** 9/20/2021

Comments: Addendum WO for N047044

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N047177-001A	KB-2-2.5	9/9/2021 10:27:00 AM	9/27/2021	Soil	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WS
			9/27/2021		WET/ EPA 6010B	ICP METALS by STLC	☐	☐	☐	WS
			9/27/2021		WET	STLC Sample Prep (Metals)	☐	☐	☐	WS
N047177-002A	FOLDER	9/27/2021	9/27/2021		Folder	Folder	☐	☐	☐	LAB

Attachment 6

Protect Tustin Ranch v. City of Tustin, 70 Cal.App.5th 951 (2021)

(Attached)

70 Cal.App.5th 951
Court of Appeal, Fourth District, Division 3, California.

PROTECT TUSTIN RANCH,
Plaintiff and Appellant,
v.
CITY OF TUSTIN et al.,
Defendants and Respondents;
Costco Wholesale Corporation, Real Party in Interest and Respondent.

G059709
|
Filed 09/28/2021

Synopsis

Background: Citizen group petitioned for writ of mandate to set aside city's approval of proposed project after concluding that it was exempt from the California Environmental Quality Act (CEQA) under the categorical exemption for in-fill development. The Superior Court, Orange County, No. 30-2019-01113056, Randall J. Sherman, J., denied the petition. Citizen group appealed.

Holdings: The Court of Appeal, Marks, J., sitting by designation, held that:

[1] substantial evidence supported city's determination that size of the project fell within the five-acre limit for the in-fill development exemption from CEQA;

[2] citizen group failed to establish that planned project presented circumstances that were unusual for projects falling in the in-fill development exemption; and

[3] substantial evidence supported the city's conclusion that the unusual circumstance exception did not apply.

Affirmed.

West Headnotes (27)

[1] **Environmental Law** Constitutional provisions, statutes, and ordinances

The California Environmental Quality Act (CEQA) is to be interpreted to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. Cal. Pub. Res. Code § 21000 et seq.

[2] **Environmental Law** Major government action

The first step of reviewing an activity under the California Environmental Quality Act (CEQA) is jurisdictional and requires a public agency to determine whether a proposed activity is a "project." Cal. Pub. Res. Code § 21000 et seq.

[3] **Environmental Law** Major government action

Environmental Law Categorical exclusion; exemptions in general

After determining that an activity is a project within the meaning of the California Environmental Quality Act (CEQA), the second step of reviewing an activity under CEQA is reached, wherein an agency must decide whether the project is exempt from the CEQA review process under either a statutory exemption or a categorical exemption set forth in the CEQA guidelines. Cal. Pub. Res. Code § 21000 et seq.

[4] **Environmental Law** Categorical exclusion; exemptions in general

Unlike statutory exceptions to California Environmental Quality Act (CEQA) review, categorical exemptions under the CEQA Guidelines are subject to exceptions. Cal. Pub. Res. Code § 21000 et seq.

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[5] **Environmental Law** Categorical exclusion; exemptions in general

If a project is categorically exempt from the California Environmental Quality Act (CEQA) and does not fall within an exception, it is not subject to CEQA requirements and may be implemented without any CEQA compliance whatsoever. Cal. Pub. Res. Code § 21000 et seq.

[6] **Environmental Law** Categorical exclusion; exemptions in general

Environmental Law Negative declaration; statement of reasons

The third step of reviewing an activity under the California Environmental Quality Act (CEQA) is reached if a project is not exempt or if an exemption may not be relied on due to an applicable exception; under such circumstances, the agency must decide whether the project may have a significant effect on the environment, and depending on the answer to that question, the agency then prepares a negative declaration, a mitigated negative declaration or an environmental impact report. Cal. Pub. Res. Code § 21000 et seq.

[7] **Environmental Law** Assessments and impact statements

In an appeal challenging a trial court's denial of a petition for a writ of mandate in a case under the California Environmental Quality Act (CEQA), the task of the Court of Appeal is the same as the trial court's. Cal. Pub. Res. Code § 21000 et seq.

[8] **Environmental Law** Assessments and impact statements

In reviewing a trial court's denial of a petition for a writ of mandate an agency's action under California Environmental Quality Act (CEQA), the Court of Appeal conducts its review of the agency's action independently of the trial court's findings. Cal. Pub. Res. Code § 21000 et seq.

[9] **Environmental Law** Assessments and impact statements

A public agency's determination that a particular project is exempt from compliance with the California Environmental Quality Act (CEQA) requirements is subject to judicial review under the abuse of discretion standard. Cal. Pub. Res. Code § 21168.5.

[10] **Environmental Law** Assessments and impact statements

Abuse of discretion is established with respect to an agency's determination that a project is exempt from compliance with California Environmental Quality Act (CEQA) requirements if an agency has not proceeded in a manner required by law or if the determination or decision is not supported by substantial evidence. Cal. Pub. Res. Code § 21168.5.

1 Case that cites this headnote

[11] **Environmental Law** Assessments and impact statements

Where a public agency makes a factual determination that a project falls within a categorical exemption under the California Environmental Quality Act (CEQA), the Court of Appeal applies the substantial evidence standard in reviewing the agency's finding. Cal. Pub. Res. Code § 21000 et seq.

[12] **Environmental Law** Assessments and impact statements

In applying the substantial evidence standard in reviewing an agency's finding that a project falls within a categorical exemption under the California Environmental Quality Act (CEQA), the Court of Appeal does not weigh conflicting evidence, as that is the role of the agency; rather, the Court of Appeal reviews the administrative record to see if it contains evidence of ponderable legal significance that is reasonable in nature, credible, and of solid value, to support the

agency's decision. Cal. Pub. Res. Code § 21000 et seq.

[13] **Environmental Law** Land use in general

Substantial evidence supported city's determination that size of proposed project, construction of a new gas station and ancillary facilities in an existing 12-acre shopping center, was limited to 2.38 acres, such that it fell within the five-acre limit for the in-fill development categorical exemption under the California Environmental Quality Act (CEQA); although total size of the existing shopping center was approximately 12 acres, project owner's development application form, technical documents, including a water quality management plan, and city maps showed that only 2.38 acres were being altered by the project and no new development or construction activity related to the proposed project would occur in other portions of the shopping center. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[14] **Environmental Law** Presumptions, inferences, and burden of proof

With respect to projects that meet the requirements of a categorical exemption from the California Environmental Quality Act (CEQA), a party challenging the exemption has the burden of producing evidence supporting an exception from the exemption. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[15] **Environmental Law** Categorical exclusion; exemptions in general

To show a project qualifies for the unusual circumstances exception from a categorical exemption under the California Environmental Quality Act (CEQA), one may identify evidence that the project will have a significant effect on the environment, or one may show evidence (1) the project is unusual because it has some feature that distinguishes it from others in the exempt class, such as its size or location, and (2) there is a reasonable possibility of a significant effect due to that unusual circumstance. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[16] **Environmental Law** Categorical exclusion; exemptions in general

Whether a particular project presents circumstances that are unusual for projects in a class exempt from the California Environmental Quality Act (CEQA), for purposes of the unusual circumstances exception, is an essentially factual inquiry, founded on the application of the fact-finding tribunal's experience with the mainsprings of human conduct. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[17] **Environmental Law** Categorical exclusion; exemptions in general

Environmental Law Assessments and impact statements

As to question of whether a project qualifies for the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA), the agency serves as the finder of fact, and a reviewing court should apply the traditional substantial evidence standard. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[18] **Environmental Law** Assessments and impact statements

After resolving all evidentiary conflicts in the agency's favor and indulging in all legitimate and reasonable inferences to uphold the agency's finding that a project qualifies for the unusual circumstances exception from a categorical exemption from the California Environmental Quality Act (CEQA), the court must affirm the agency's finding if there is any substantial evidence, contradicted or uncontradicted, to support it. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

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[19] **Environmental Law** Categorical exclusion; exemptions in general

In determining whether there is a reasonable possibility that an unusual circumstance will produce a significant effect on the environment, for a project to qualify for the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA), an agency applies a fair argument standard, meaning it reviews the evidence to see if there is a fair argument of a reasonable possibility the project will have significant effect on the environment. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

1 Case that cites this headnote

[20] **Environmental Law** Categorical exclusion; exemptions in general

Pursuant to the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA), if there is substantial evidence of a reasonable possibility that a project will have a significant effect on the environment, an agency may not rely on a categorical exemption even if there is evidence to the contrary.

2 Cases that cite this headnote

[21] **Environmental Law** Assessments and impact statements

A reviewing court determines whether substantial evidence supports an agency's conclusion as to whether prescribed "fair argument" of a reasonable possibility that a project will have a significant effect on the environment could be made, as required for the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA). Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

1 Case that cites this headnote

[22] **Environmental Law** Assessments and impact statements

If a reviewing court perceives substantial evidence that there is a reasonable possibility a project will have a significant environmental impact, as required for the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA), but the agency relied on the exemption, the agency's action is to be set aside because the agency abused its discretion by failing to proceeding in a manner required by law. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[23] **Environmental Law** Land use in general

Citizen group failed to establish that planned project involving construction of a new gas station with 32 individual fueling pumps and ancillary facilities presented circumstances that were unusual for projects falling in the in-fill development exemption from the California Environmental Quality Act (CEQA), as required for the unusual circumstances exception to that exemption to apply; group cited the former operations of an automobile oil and tire changing station, the large configuration of the fueling station, and planned re-routing of traffic during peak usage as unusual circumstances, but it did not explain why those features distinguished the project from others that would qualify for the in-fill exemption, and it did not cite any evidence from the record demonstrating a distinction. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[24] **Environmental Law** Land use in general

City's conclusion that proposed project to construct a new gas station with 32 individual fueling pumps and ancillary facilities was not unusual compared to other projects falling within in-fill development exemption from the California Environmental Quality Act (CEQA), such that the unusual circumstances exception from the exemption did not apply, was supported by substantial evidence, where the project was in

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line with the characteristics of the surrounding setting, as it was within an existing shopping center located along a major commercial thoroughfare and adjacent to an expansive retail center. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[25] **Environmental Law** Categorical exclusion; exemptions in general

Courts may look to conditions in the immediate vicinity of a proposed project to determine whether a circumstance is unusual, for purposes of the unusual circumstances exception to a categorical exemption from the California Environmental Quality Act (CEQA). Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[26] **Environmental Law** Categorical exclusion; exemptions in general

A "categorically exempt project" from the California Environmental Quality Act (CEQA), by definition, is deemed by law to not have a potentially significant impact on the environment unless the project's administrative record sufficiently demonstrates applicability of an exception to the claimed exemption. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

[27] **Environmental Law** Categorical exclusion; exemptions in general

Where a claimed exception to a categorical exemption from the California Environmental Quality Act (CEQA) is the unusual circumstances exception, one does not reach the question of whether there is a fair argument of a reasonable possibility of a significant environmental effect unless there is an adequate showing of an unusual circumstance. Cal. Pub. Res. Code § 21000 et seq.; Cal. Code Regs. tit. 14, § 15332.

****779** Appeal from a judgment of the Superior Court of Orange County, Randall J. Sherman, Judge. Affirmed. (Super. Ct. No. 30-2019-01113056)

Attorneys and Law Firms

Finney Arnold, Tal C. Finney, Shaune B. Arnold; R. Bruce Tepper and R. Bruce Tepper, Los Angeles, for Plaintiff and Appellant.

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Armbruster Goldsmith & Delvac, and Damon P. Mamalakis, Los Angeles, for Real Party in Interest and Respondent.

OPINION

MARKS, J.[*]

****780** ***955** This case involves the proposed construction of a new gas station and ancillary facilities (project) in an existing shopping center surrounded by commercial and residential uses. Respondent City of Tustin (City) reviewed the project pursuant to the California Environmental Quality Act, ***956** Public Resources Code section 21000 et seq. (CEQA),[1] and concluded the project was exempt from CEQA under the categorical exemption for "in-fill development" (Cal. Code Regs., tit. 14, § 15332; infill exemption). After the City approved the project and filed a notice of exemption, appellant Protect Tustin Ranch (Protect) sought a writ of mandate to set aside the City's approvals due to what it claimed was an erroneous finding by the City that the project was exempt from CEQA. The trial court denied Protect's petition.

Protect contends the trial court should have issued a writ of mandate because the administrative record evidences the project site is too large for the project to qualify for the infill exemption and there were "unusual circumstances" which precluded the City from relying on the exemption. We find no error and affirm the judgment.

FACTS

Real Party in Interest Costco Wholesale Corporation (Costco) wants to build a gas station next to an existing Costco

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warehouse located in an area of the City known as Tustin Ranch. The project site is within an already built shopping center located along a major commercial thoroughfare. It is adjacent to the Tustin Auto Center and the Tustin Marketplace, a large retail center, as well as some residential neighborhoods. Other existing buildings in the shopping center include a McDonald's restaurant, a vacant major retail store, a Goodyear Tire Center and two multi-tenant buildings.

The project has two components: (1) construction of a 16-pump (32-fuel position) gas station with a canopy, related equipment and landscaping; and (2) demolition of an existing Goodyear Tire Center and adjacent surface parking, all to be replaced with 56 new surface parking stalls. The gas station portion of the project will replace a portion of an existing surface parking lot.

Costco applied to the City for a conditional use permit (CUP) and design review approval. Its original development application included, among other information, the address of the project, the present and proposed uses, the existing and proposed building sizes, and the "[l]ot [s]ize"—listed by Costco as 11.97 acres. Likewise, the original environmental assessment form submitted by Costco listed the "[s]ite size" as 11.97 acres.

With City staff believing the project was exempt from review under CEQA, the City planning commission held a public hearing concerning the CUP and considered adopting a notice of exemption for the project. ****781** Regarding CEQA, the City staff report stated the following: "This project is ***957** Categorically Exempt from further environmental review pursuant to the CEQA Class 32, 'In-Fill Development Projects' in that the project is consistent with the City's General Plan and [the East Tustin Specific Plan] and occurs within city limits on a project site of no more than five (5) acres substantially surrounded by urban uses. The project site has no value as habitat for endangered, rare, or threatened species. The project can be adequately served by all required utilities and public services. Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality." It thereafter included a paragraph addressing each of the latter subjects.

After receiving public comments, the planning commission chose to continue the public hearing so City staff could address concerns raised by the public and planning commission questions.

Ultimately, the planning commission approved the project, adopting a resolution which found the project categorically exempt from environmental review under CEQA pursuant to CEQA Guidelines section 15332 (Class 32, In-Fill Development Projects) (infill exemption).[2]

Members of the public appealed the planning commission's decision to the city council which considered the matter anew. The City staff report presented to the city council included a more detailed analysis of the CEQA infill exemption the planning commission had found applicable. With respect to the size of the project site, it stated, in relevant part: "The project site (consisting of the area where the fueling station and landscape screening will be constructed and the area where the existing Goodyear Tire Center building will be demolished and restriped with surface parking) has a total area of approximately 2.38 acres. No new development or construction activity related to the proposed project will occur in the other portions of the shopping center, including the existing Costco Warehouse, former K-mart/Ansar Gallery retail space, and other pad parcels, nor will the existing operations at these uses change as a result of the proposed project." The staff report also addressed potential exceptions to the exemption, concluding none of the exceptions applied.

After receiving public comments, the city council adopted a resolution finding the project categorically exempt from CEQA review under the infill exemption, with no applicable exceptions, and granting the requested approvals. In doing so, it expressly found the project did not present any unusual circumstances as compared to other projects that would qualify for the infill ***958** exemption. The City filed a notice of exemption pursuant to CEQA. An attachment to the notice of exemption explained the reasons for the exemption, with the explanation being the same as was provided in the city council staff report and city council resolution concerning the project.

Protect filed a petition for writ of mandate against the City, the city council and the planning commission, challenging the City's finding that the project was exempt from CEQA review, among other matters. In its briefing prior to the hearing on the petition, Protect argued one of the criteria for the claimed infill exemption—that the project site be no more than five acres in size—was not met because documents described the project site as occupying nearly 12 acres. It also asserted the City erroneously relied on the exemption because the project fell within the scope of the ****782** "unusual circumstances"

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exception set forth in CEQA Guidelines section 15300.2, subdivision (c).

The trial court heard the matter, rejected Protect's arguments and denied the writ petition. It entered judgment accordingly.

Protect timely appealed.

DISCUSSION

Protect contends the trial court's conclusion was error for two reasons.[3] First, it argues the project does not qualify for the infill exemption claimed by the City because the project is too large. Second, it asserts the City improperly relied on the exemption because the project falls within the scope of the "unusual circumstances" exception. We find no error.

CEQA and general standard of review

[1] "CEQA is a comprehensive scheme designed to provide long-term protection to the environment." (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 112, 65 Cal.Rptr.2d 580, 939 P.2d 1280.) It applies to "discretionary projects proposed to be carried out or approved by public agencies." (§ 21080, subd. (a).) "In enacting CEQA, the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties. [Citations.] CEQA is to be interpreted 'to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.' " (*Mountain Lion Foundation*, at p. 112, 65 Cal.Rptr.2d 580, 939 P.2d 1280.)

***959** **[2]** **[3]** **[4]** **[5]** **[6]** There are three fundamental steps in the CEQA review process. " 'The first step is jurisdictional and requires a public agency to determine whether a proposed activity is a "project." ... If a proposed activity is a project, the agency proceeds to the second step of the CEQA process. [¶] At the second step, the agency must "decide whether the project is exempt from the CEQA review process under either a statutory exemption [citation] or a categorical exemption set forth in the ... [CEQA] Guidelines [citations]." ... [¶] Unlike statutory [exemptions], categorical exemptions are subject to exceptions.... [¶] If a project is categorically exempt and does not fall within an exception, " 'it is not subject to CEQA requirements and "may be implemented without any CEQA compliance whatsoever." ' " (*Holden v. City of San Diego* (2019) 43 Cal.App.5th 404, 409, 255 Cal.Rptr.3d 873 (*Holden*).) The third step is reached if a project is not exempt or if an exemption may not be relied on due to an applicable exception. (See *ibid.*) Under such circumstances, the agency must decide whether the project may have a significant effect on the environment. Depending on the answer to that question, the agency then prepares a negative declaration, a mitigated negative declaration or an environmental impact report. (See § 21080, subds. (c) & (d); *Citizens for Responsible & Open Government v. City of Grand Terrace* (2008) 160 Cal.App.4th 1323, 1331-1332, 73 Cal.Rptr.3d 202.)

[7] **[8]** "[In] an appeal challenging a trial court's denial of a petition for a writ of mandate in a CEQA case, our task is the same as the trial court's. [Citation.] We conduct our review of the agency's action ****783** independently of the trial court's findings. [Citation.] Accordingly, in this appeal we review [the] City's decision and not the trial court's." (*Holden, supra*, 43 Cal.App.5th at p. 409, 255 Cal.Rptr.3d 873.)

Class 32 infill exemption

The City concluded the project was categorically exempt from CEQA under the infill exemption set forth in CEQA Guidelines section 15332. In order for a project to qualify for the infill exemption, five criteria must be met: "(a) [t]he project [must be] consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations[;] [¶] (b) [t]he proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses[;] [¶] (c) [t]he project site has no value, as habitat for endangered, rare or threatened species[;] [¶] (d) [a]pproval of the project [must] not result in any significant effects relating to traffic, noise, air quality, or water quality[; and] [¶] (e) [t]he site [must be able to] be adequately served by all required utilities and public services." (CEQA Guidelines, § 15332.)

***960** Protect challenges the City's determination concerning only one of the five criteria for the exemption—the size of the project site. It claims the project site is not less than five acres.

[9] **[10]** "A public agency's 'determination that [a particular] project [is] exempt from compliance with CEQA requirements ... is subject to judicial review under the abuse of discretion standard in ... section 21168.5. [Citations.] ... Abuse of discretion is established if the agency has not proceeded in a manner required by law or if the determination

or decision is not supported by substantial evidence.' " (*Holden, supra*, 43 Cal.App.5th at p. 410, 255 Cal.Rptr.3d 873.)

[11] **[12]** "[W]here[, as here,] a public agency makes a factual determination that a project falls within a ... categorical exemption, we apply the substantial evidence standard in reviewing the agency's finding." (*Holden, supra*, 43 Cal.App.5th at p. 410, 255 Cal.Rptr.3d 873.) We do not weigh conflicting evidence, as that is the role of the public agency. (See *Western States Petroleum Assn. v. Superior Court* (1995) 9 Cal.4th 559, 576, 38 Cal.Rptr.2d 139, 888 P.2d 1268 (*Western States*).) Rather, we review the administrative record to see if it contains evidence of ponderable legal significance that is reasonable in nature, credible, and of solid value, to support the agency's decision. (*Holden, supra*, at p. 410, 255 Cal.Rptr.3d 873.)

[13] Here, the administrative record contains substantial evidence indicating the project site is less than five acres in size. Multiple documents confirm the size of the project site is approximately 2.38 acres. A revised development application form submitted by Costco specifies: "Area of work—2.38 Acres inclusive of new gas station and parking at demolished Goodyear site area." Identical language appears in a revised environmental assessment form completed by Costco. Technical documents, including a water quality management plan, also refer to a 2.38 acre area as that which will be disturbed as part of the project. And maps, along with City staff comments during the city council's consideration of the matter, clarify the total project site acreage was calculated by adding together the acreage of the project's two components—1.74 acres where the gas station and ancillary facilities will be built, and 0.64 acres which will include demolition of the existing Goodyear Tire Center and development of the new surface parking spaces.

****784** Protect notes original planning and environmental assessment documents prepared by Costco "described the [p]roject size as 12 acres." Although it appears some initial documents specified a "site size" of almost 12 acres, the City and Costco representatives explained the discrepancy. The total size of the existing shopping center is approximately 12 acres, but only 2.38 acres is ***961** being altered by the project. "No new development or construction activity related to the proposed project will occur in the other portions of the shopping center ...."

In sum, substantial evidence supports the City's factual determination concerning the project site size. Because that is the only infill exemption criteria challenged by Protect, it has failed to show the City abused its discretion in concluding the project fell within the scope of the exemption.

Unusual circumstances exception

Protect contends it was improper for the City to rely on the infill exemption because the "unusual circumstances" exception applies. The City disagrees, arguing Protect has not met its burden of demonstrating the exception applies under the circumstances. We agree with the City.

CEQA Guidelines section 15300.2, subdivision (c), provides: "Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."

[14] **[15]** The Supreme Court clarified the meaning of the language, the relative burdens and the applicable standards of review in *Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 184 Cal.Rptr.3d 643, 343 P.3d 834 (*Berkeley Hillside*). "As to projects that meet the requirements of a categorical exemption, a party challenging the exemption has the burden of producing evidence supporting an exception." (*Id.* at p. 1105, 184 Cal.Rptr.3d 643, 343 P.3d 834.) For the unusual circumstances exception, this may be done in one of two ways. One may identify "evidence that the project *will* have a significant effect on the environment." (*Ibid.*) Alternatively, one may show evidence (1) the project is unusual because it "has some feature that distinguishes it from others in the exempt class, such as its size or location"; and (2) there is "a reasonable possibility of a significant effect due to that unusual circumstance." (*Ibid.*)

A couple of different standards of review are applied to an agency's determination the unusual circumstances exception is inapplicable, both of which stem from section 21168.5. (*Berkeley Hillside, supra*, 60 Cal.4th at p. 1114, 184 Cal.Rptr.3d 643, 343 P.3d 834.)

[16] **[17]** **[18]** "Whether a particular project presents circumstances that are unusual for projects in an exempt class is an essentially factual inquiry, ' "founded 'on the application of the fact-finding tribunal's experience with the mainsprings of human conduct.' " ' [Citation.] Accordingly, as to this question, the agency serves as 'the finder of fact' [citation], and a reviewing court should apply the ***962**

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traditional substantial evidence standard .... [A]fter resolving all evidentiary conflicts in the agency's favor and indulging in all legitimate and reasonable inferences to uphold the agency's finding, [the court] must affirm [the agency's] finding if there is any substantial evidence, contradicted or uncontradicted, to support it." (*Berkeley Hillside, supra*, 60 Cal.4th at p. 1114, 184 Cal.Rptr.3d 643, 343 P.3d 834.)

[19] **[20]** "As to whether there is 'a reasonable possibility' that an unusual circumstance will produce 'a significant effect on the environment' [citation], a different approach ****785** is appropriate, both by the agency making the determination and by reviewing courts." (*Berkeley Hillside, supra*, 60 Cal.4th at p. 1115, 184 Cal.Rptr.3d 643, 343 P.3d 834.) The agency applies a fair argument standard, meaning it reviews the evidence to see if there is a fair argument of a reasonable possibility the project will have a significant effect on the environment. (*Ibid.*) If there is substantial evidence of a reasonable possibility the project will have such an effect, the agency may not rely on the exemption even if there is evidence to the contrary. (*Id.* at p. 1112, 184 Cal.Rptr.3d 643, 343 P.3d 834.)

[21] **[22]** A reviewing court " 'determine[s] whether substantial evidence support[s] the agency's conclusion as to whether the prescribed "fair argument" could be made.' " (*Berkeley Hillside, supra*, 60 Cal.4th at p. 1115, 184 Cal.Rptr.3d 643, 343 P.3d 834.) If it " ' "perceives substantial evidence" ' " that there is a reasonable possibility the project will have a significant environmental impact, but the agency relied on the exemption, " ' "the agency's action is to be set aside because the agency abused its discretion by failing to proceeding "in a manner required by law." ' " (*Id.* at p. 1112, 184 Cal.Rptr.3d 643, 343 P.3d 834; see *Protect Telegraph Hill v. City and County of San Francisco* (2017) 16 Cal.App.5th 261, 270, 223 Cal.Rptr.3d 846.)

Because Protect does not argue there is evidence the project *will* have a significant effect on the environment, we focus on the two-prong test prescribed in *Berkeley Hillside.*

[23] Protect claims "unusual circumstances apply to the [p]roject due to: (i) the former operations of the Goodyear Service Center wherein tires were installed and oil and other fluid changes were performed; (ii) the unusually large configuration of the Costco gasoline fueling station with 32 individual fueling pumps; and (iii) the planned use of retractable bollards and additional Costco employees to re-route [t]raffic during peak usage." But it does not explain why these features distinguish the project from others that would qualify for the infill exemption, and it does not cite any evidence from the record demonstrating a distinction. As the party challenging the City's reliance on the infill exemption, Protect bears the burden of producing evidence to support the claimed exception. (*Berkeley Hillside, supra*, 60 Cal.4th at p. 1105, 184 Cal.Rptr.3d 643, 343 P.3d 834; *Citizens for Environmental Responsibility v. State ex. rel. 14th Dist. Ag. Assn.* (2015) 242 Cal.App.4th 555, 578, 195 Cal.Rptr.3d 168 ***963** (*Citizens*).) And, as appellant, it bears the burden of providing reasoned argument, supported by citation to the law and facts in evidence, demonstrating trial court error. (*Holden, supra*, 43 Cal.App.5th at p. 418, 255 Cal.Rptr.3d 873; *Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467, 555, 264 Cal.Rptr.3d 309.) It has not met those burdens.

Assuming arguendo Protect articulated and supported an argument of unusual circumstances, substantial evidence supports the City's conclusion the project is not unusual in relation to other infill development which would qualify for the exemption. As for the size of the project, although the proposed gas station will have 16 pumps (32 fuel positions), evidence in the record shows that size is not remarkably different than other Costco gas stations in California. Further, the infill exemption is not limited to gas stations. Many types of development may qualify so long as the other criteria are met, including the size limitation of less than five acres. Because the infill exemption is expressly limited to projects under a certain size, it's questionable whether the size of a ****786** project can be a characteristic that makes an otherwise exempt project unusual.

[24] **[25]** "Courts may also look to conditions in the immediate vicinity of a proposed project to determine whether a circumstance is unusual. [Citation.] This includes whether the project is consistent with the surrounding zoning and land uses." (*Citizens, supra*, 242 Cal.App.4th at p. 586, 195 Cal.Rptr.3d 168.) As part of the exemption determination, the City concluded the project was consistent with the City's general plan, the applicable specific plan, the applicable zoning designation, and development and design standards. Protect does not challenge that conclusion. Additionally, the record shows the project is within an existing shopping center, located "along a major commercial thoroughfare," and adjacent to the Tustin Marketplace, an expansive retail center, and the Tustin Auto Center. Substantial evidence in the record shows the proposed gas station is in line with the characteristics of the surrounding setting.

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Protect's true concern appears to be what might be uncovered if the City were to engage in further environmental review. It asserts "[c]ommon sense" necessitates looking further at what it characterizes as potential soil contamination.[4] Additionally, it claims there is "a fair argument of the inference of [project] [s]ite contamination."

***964** **[26]** **[27]** But unsupported concerns, presumptions or conjectures are not enough to force the City to proceed further down the CEQA road. A categorically exempt project, by definition, is deemed by law to not have a potentially significant impact on the environment unless the project's administrative record sufficiently demonstrates applicability of an exception to the claimed exemption. (*Berkeley Hillside, supra*, 60 Cal.4th at pp. 1104-1105, 184 Cal.Rptr.3d 643, 343 P.3d 834; *World Business Academy v. State Lands Com.* (2018) 24 Cal.App.5th 476, 491, 234 Cal.Rptr.3d 277.) And in a situation such as this, where the claimed exception is the "unusual circumstances" exception, one does not reach the question of whether there is a fair argument of a reasonable possibility of a significant environmental effect unless there is an adequate showing of an unusual circumstance. (*Walters v. City of Redondo Beach* (2016) 1 Cal.App.5th 809, 822, fn. 5, 205 Cal.Rptr.3d 157; *Citizens, supra*, 242 Cal.App.4th at p. 588, fn. 24, 195 Cal.Rptr.3d 168; see *Berkeley Hillside, supra*, 60 Cal.4th at p. 1105, 184 Cal.Rptr.3d 643, 343 P.3d 834 ["it is not enough for a challenger merely to provide substantial evidence that the project *may* have a significant effect on the environment, because that is the inquiry CEQA requires absent an exemption"].) Protect has not made that showing.

****787** DISPOSITION

The judgment is affirmed. Respondents are entitled to costs on appeal.

WE CONCUR:

BEDSWORTH, ACTING P. J.

FYBEL, J.

All Citations

70 Cal.App.5th 951, 285 Cal.Rptr.3d 775, 21 Cal. Daily Op. Serv. 11,014, 2021 Daily Journal D.A.R. 11,182

Footnotes

* Judge of the Orange Super. Ct., assigned by the Chief Justice pursuant to article VI, section 6 of the California Constitution.

1 All statutory references are to the Public Resources Code unless otherwise specified.

2 All references to the "CEQA Guidelines" are to the state regulations which implement the provisions of CEQA. (Cal. Code Regs., tit. 14, § 15000 et seq.)

3 For the first time in its reply brief, Protect also argues the City's traffic technical analysis was not supported by substantial evidence. " 'Obvious reasons of fairness militate against consideration of an issue raised initially in the reply brief of an appellant.' " (*Reichardt v. Hoffman* (1997) 52 Cal.App.4th 754, 764, 60 Cal.Rptr.2d 770.)

4 After appellate briefing was complete, Protect filed a request for judicial notice of certain letters and reports related to the Goodyear Tire Center site. At oral argument, it requested we remand the case to allow the trial court to consider the additional documents. We deny the requests. First, we do not consider matters raised for the first time at oral argument without proper presentation and due notice to the other parties. (See *Burchett v. City of Newport Beach* (1995) 33 Cal.App.4th 1472, 1483, 40 Cal.Rptr.2d 1.) Second, the documents post-date the City's consideration and approval of the project. As the Supreme Court has made clear, except in unusual circumstances not applicable here, extra-record evidence which comes into existence after an agency's final CEQA determination on a project may not be considered by the courts. (*Western States, supra*, 9 Cal.4th at pp. 573-574, 578, 38 Cal.Rptr.2d 139, 888 P.2d 1268; see *El Morro Community Assn. v. California Dept. of Parks & Recreation* (2004) 122 Cal.App.4th 1341, 1359, 19 Cal.Rptr.3d 445 [rejecting request to add post agency decision document to administrative record]; *Fort Mojave Indian Tribe v. California Department of Health Services* (1995) 38 Cal.App.4th 1574, 1597, 45 Cal.Rptr.2d 822 [same].)

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