



June 3, 2015

Costco Wholesale
Attn: Jenifer Murillo
9 Corporate Park, Suite 230
Irvine, CA 92606

Subject: Culver City Warehouse Expansion Noise Impact Study
Our Reference No. P15-015

Dear Ms. Murillo:

As per your request, we have evaluated the noise implications of site modifications to the existing Culver City Warehouse facility. We understand that the warehouse building footprint will be expanded, the tire center will be relocated, the former Albertson's store building will be demolished, and the parking lot will be slightly reconfigured. For sake of directional simplicity, we have assumed that Washington Blvd. and Zanja Street are east-west streets and that Walnut and Glencoe run north-south. The only proposed action that might have operational noise impact implications would be the relocation of the tire center from its current south-facing orientation to the eastern façade of the remodeled building. Whereas the warehouse building now shields line-of-sight to the closest homes along Zanja Street, the tire center would be relocated somewhat closer and would have a 90-degree field of view to the nearest homes. The relocated tire center would directly face the closest homes on Glencoe, but would maintain almost 500 feet of distance separation in addition to a 10-foot high block wall at the site property line.

Secondary noise impacts may be created by construction activities, particularly the demolition of the former Albertson's store. The existing 10-foot high perimeter wall along the Zanja and Glencoe site frontage is expected to reduce temporary noise impacts during construction/demolition. Minor additional noise would be created by added roof-top HVAC units to serve increased building square footage. The number of units to be added is small and they are shielded from line-of-sight by the roof edge parapet wall.

The analytical approach for the acoustic impact analysis was to establish baseline noise conditions for the existing site configuration, monitor a series of tire change operations at the existing tire center, superimpose the tire center noise footprint upon the baseline, adjust the noise contours for orientation, distance and barrier effects, and compare the analyzed "with project" values to the applicable noise standards for Culver City and/or Los Angeles. It should be noted that a predicted violation of noise ordinance standards for the relocated facility would be considered a significant impact under CEQA that would require mitigation, if feasible. Conversely, meeting the ordinance standard is not conclusive evidence of a less than significant impact. It is possible that a project may create a substantial increase in noise levels above a quiet

baseline without exceeding standards. Both the change in “with project” noise levels as well as the final magnitude of the future noise levels therefore must be considered.

Relative to the applicable noise ordinance standard, residences to the west and north of the project site are located in the City of Los Angeles. Residences to the east are within Culver City. The City of Culver City has no specific noise limitations in its Municipal Code. However, the Noise Element of the City’s General Plan, at page N-23, has clear property line noise standards for residential uses. The City of Los Angeles Municipal Code, at Section 112.04, restricts noise increases to no more than +5 dB above the presumed ambient level. The Code further allows for some deviation from this threshold for progressively shorter periods. If one presumes that the “default” residential ambient noise level is 50 dB, the daytime standards in the Culver City General Plan and the City of Los Angeles Municipal Code are almost identical as follows:

Levels not to be exceeded for more than 30 minutes in any hour	-	55 dBA
Levels not to be exceeded for more than 15 minutes in any hour	-	60 dBA
Levels not to be exceeded for more than 5 minutes in any hour	-	65 dBA
Level not to be exceeded at any time	-	75 dBA

By way of reference, an increase in noise levels of +10 dBA is perceived by human ears as being twice as loud. The following are typical noise levels that one might experience in the course of normal living:

Rural landscape with a slight breeze	-	30 dBA
Bedroom with sleeping occupants	-	40 dBA
Quiet office with muted conversations	-	50 dBA
School classroom during a Q&A session	-	60 dBA
Sidewalk along a busy street	-	70 dBA

Existing baseline noise levels at homes close to the Costco site, as well as on the site before warehouse opening time, are relatively low. Daytime traffic volumes on site perimeter streets except Washington Blvd. are low, and homes experience additional shielding benefit from large buildings and the existing 8 – 10 feet high site perimeter wall. Measured noise levels from 8:30 – 9:30 a.m. on Saturday morning (Costco and the tire center open at 9:30) were as follows:

Measurement Location	Avg. LEQ	Max. L _{max} .	Min. L _{min} .	5-Minute L ₀₈	15-Min. L ₂₅	30-Min. L ₅₀
Tire Center–Pre-Open	50	55	47	51	50	49
Zanja/Louella	46	52	40	49	44	43
Zanja/Glencoe	48	56	43	50	47	45
Adopted Std.	--	75	--	65	60	55

At 9:30 a.m., four vehicles waiting for tire installation were pulled into the four tire center bays and old tire removal and new tire installation began almost immediately on three vehicles with five air guns in intermittent operation. Measurements were made at 70 feet from the open roll-up doors during the busiest 5-minute period of tire center operations. The measured noise level, minus the pre-opening background levels, became the reference noise “footprint” for a busy tire center upon relocation to the eastern warehouse façade as follows:

Operational Condition	Avg. LEQ	Max. L _{max} .	Min. L _{min} .	5-Minute L ₀₈	15-Min. L ₂₅	30-Min. L ₅₀
Tire Center–Pre-Open	50	55	47	51	50	49
5 Air Guns Working	53	67	48	56	51	50
Operational Noise	50	67	48	54	44	43
Adopted Std.	--	75	--	65	60	55

The measured reference noise generation at 70 feet from the building façade was assigned to the new tire center location and then allowed to decay through distance propagation, site perimeter wall shielding and emissions directivity where applicable. Residual noise levels were calculated at the closest home north of the tire center on Zanja Street, and the closest home to the east on Glencoe Avenue. Noise level adjustments included the following (dBA):

Noise Level Adjustment	Zanja Street	Glencoe Avenue
Distance decay vs. 70’ reference measurement	-8	-16
10’ high site perimeter wall	-9	-9
Directivity (faces receiver vs. 90° field of view)	-5	0

Residual noise levels after all adjustment, combined with the measured background levels, demonstrate that there will be a large margin of safety relative to the adopted standards, for the relocated facility seen as follows (dBA)

Location/Scenario	5-Minute Level	15-minute Level	30-Minute Level
70' from Tire Center Roll-Up Door			
Background Level Only	51	50	49
Tire Center Only	54	44	43
Tire Center + Background	56	51	50
Zanja Street			
Background Level Only	49	44	43
Tire Center Only (adj.)	32	29	28
Tire Center + Background	49	44	43
Glencoe Avenue			
Background Level Only	50	47	45
Tire Center Only (adj.)	29	26	25
Tire Center + Background	50	47	45
Adopted Standard	65	60	55

These findings are shown graphically in the attached bar graphs. Because decibels are on a logarithmic scale, representation in a linear format such as a table or bar graph hides the large margin of safety that will continue to exist after fire center relocation. As noted above, the superposition of tire center operational noise will not measurably change the ambient acoustic environment because the addition of two noise levels that differ by more than 10 dB do not increase the larger value by more than 0.4 dB (not measurable).

Construction activities, particularly the demolition of the Albertson's building, will generate short-term noise levels that may be temporarily intrusive at the nearest residences. Both the Culver City and City of Los Angeles municipal codes exempt such activities from compliance with the numerical noise performance standard if they occur during hours of lesser sensitivity (not at night or early morning hours). The City of Los Angeles code specifies a noise performance standard of 75 dB at the nearest residence unless it is technically infeasible to meet that threshold.

Construction equipment noise is typically in the mid-80 dB range at 50 feet from the source during peak power operations. The noise attenuation of a 10-foot high perimeter wall is near 10 dB. The noise reduction with distance between on-site and off-site residences is 5-10 dB, depending upon separation distance. Combined effects of a barrier wall and distance spreading losses will reduce peak construction activity noise to around 70 dB at the nearest residence. Such levels are not considered to have a significant impact if they are restricted to the following hours per Section 9.09.035 of the Culver City Municipal Code:

8 a.m. – 8 p.m.	Monday-Friday
9 a.m. – 7 p.m.	Saturday

10 a.m. – 7 p.m. Sunday

Sunday construction involving heavy equipment would be highly unusual. The following measures are recommended to reduce possible noise nuisance (beyond compliance with the municipal code):

1. Heavy equipment operations on Sundays or major holidays should only be performed with prior written concurrence of the Building Official, and
2. Demolition of the Albertson's store building should proceed from SW to NE to preserve the northern and eastern building walls to act as additional sound barriers as long as possible.

Roof-top HVAC equipment will be added near the southern warehouse building to serve the new space created by vacation of the tire center and new construction of approximately 30,000 square feet of retail space. The relocated tire center operates with open doors and will not have much new mechanical equipment. The new added HVAC equipment will be located 500 feet away from existing homes and will be additionally shielded by the northern parapet wall on the existing building. No equipment audibility would occur with such distance separation and shielding effects.

The most important conclusions to be reached from the above analysis are:

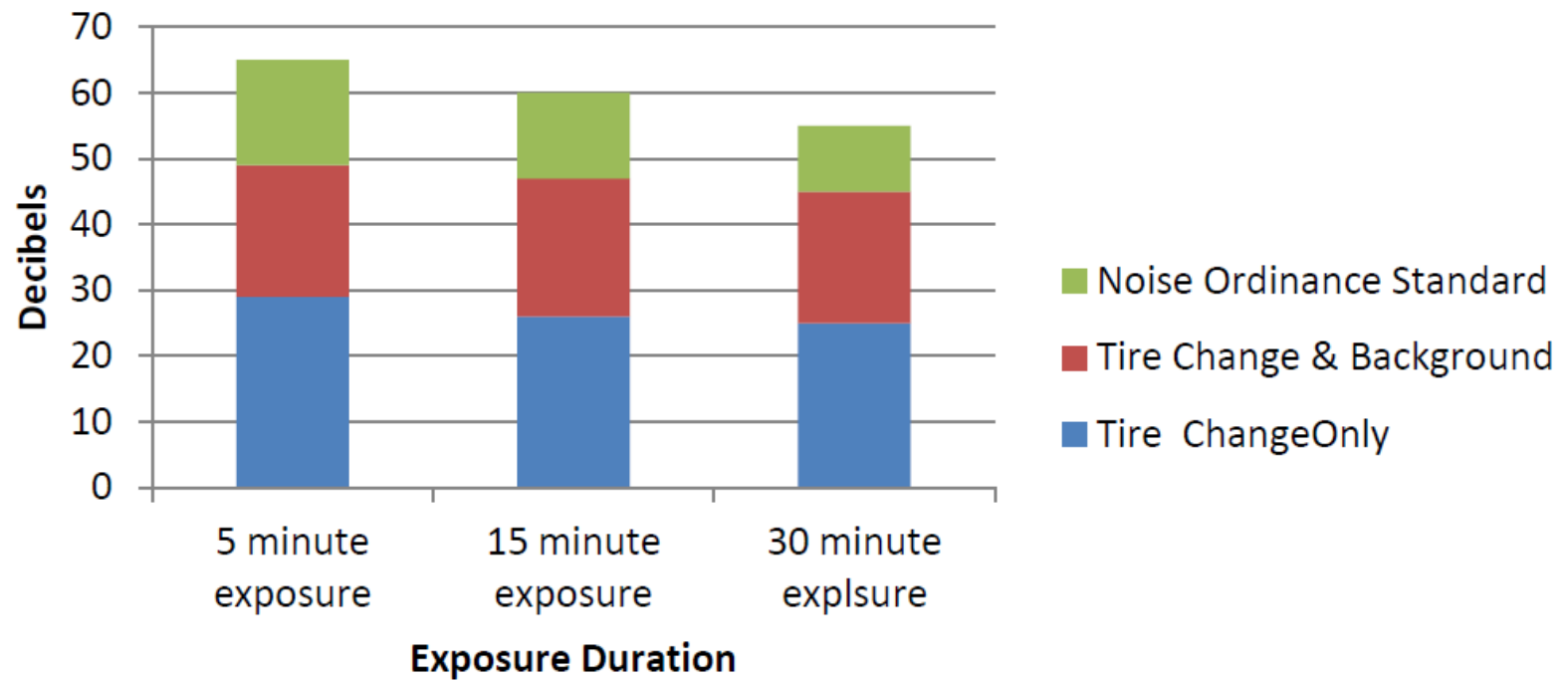
- The adopted noise standard is already met on-site at 70 feet from the tire center bay entry doors with a direct line of sight. With distance spreading, a perimeter sound wall and possible directional effects, the standard is guaranteed to be met at the closest homes.
- The tire center noise footprint, with standard adjustment factors, is not sufficient to increase the relatively quiet baseline, by even 0.5 dBA except in close proximity to the tire changing operations themselves.

The test for noise impact significance is to not exceed adopted standards and to not create a substantial increase. As noted above, the adopted standards derived from the Culver City General Plan and the City of Los Angeles Municipal Code are met at the closest homes with a large margin of safety. Tire center operational noise at the closest homes will not change the normally quiet background by any measurable amount. Tire center relocation and other activities will not impact the closest neighbors because of noise. Please call me with any questions.

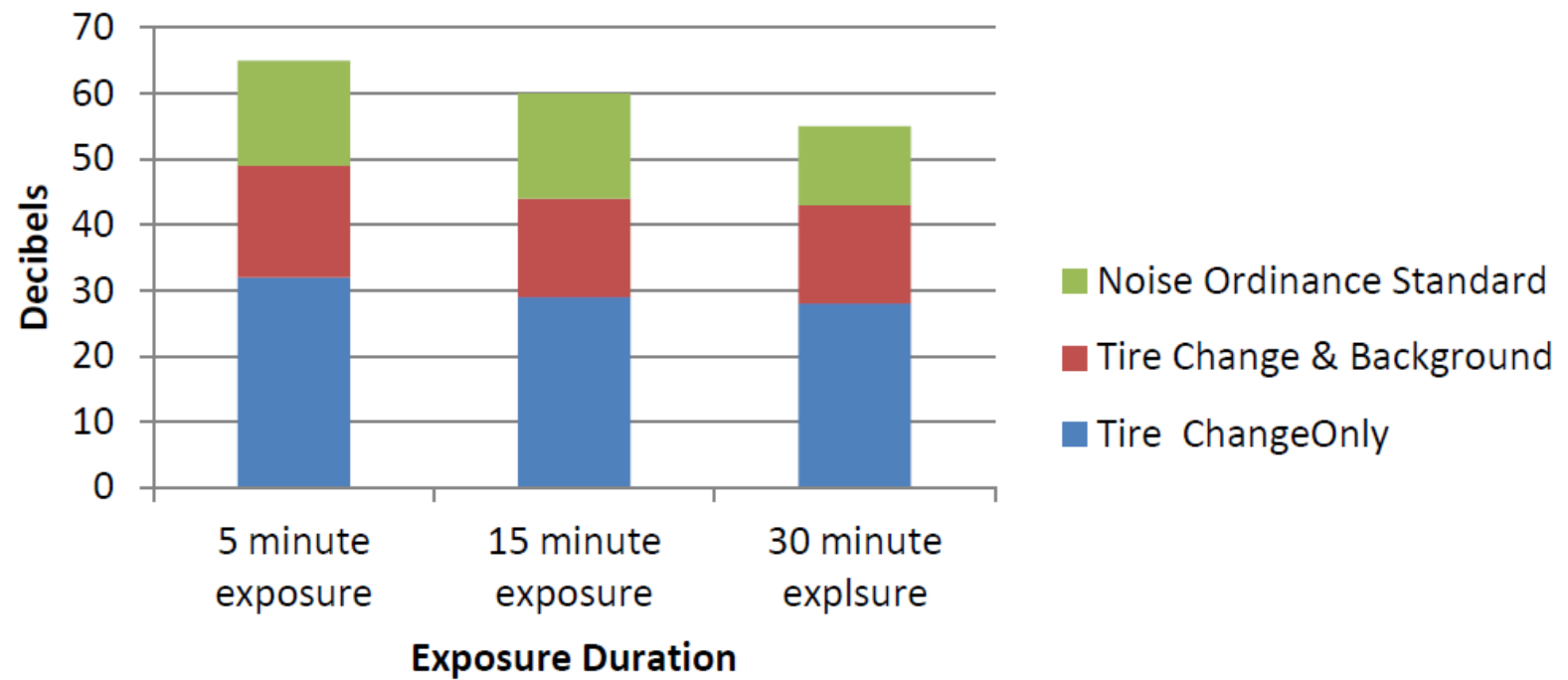
Sincerely,

Hans D. Giroux
Senior Analyst
Giroux & Associates

Glencoe Residences



Zanja Residences



70 Feet from Tire Change Doors

