

Feasibility Study

Expo-Downtown Bicycle Connector



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Introduction

Washington Boulevard is Culver City's main street, running from east to west through the Arts District, TOD District, and Downtown Culver City and continuing to the western city boundary. In 2012, the Metro Expo Line opened to Culver City, creating additional demand for walking and biking along Washington, as well as opportunities for property owners to pursue transit-oriented development. As it develops over time, the Washington corridor will become home to even more destinations serving people who live, work, and visit Culver City.

Within the context of an evolving corridor, the City Council directed the Public Works Department to evaluate the feasibility of connecting the Expo Station to Downtown Culver City with a high-quality bike facility. A strong bike connection on Washington Boulevard will complement the City's efforts to encourage walkable, transit-oriented development by reshaping the street to be more bicycle-friendly. Improving accommodations for bicycles will also prepare the corridor for additional mobility options in the future, such as bike share.

Project Goals

This project has multiple goals, including:

- Improve bicycle & pedestrian safety in the TOD District,
- Promote mobility options for people of all ages and abilities,
- Increase access by bicycle to businesses and other local destinations, and
- Promote community health and sustainability.

Study Scope

In June 2016, the City retained TranspoGroup to develop project alternatives that would meet these goals. The findings and recommendations in this report are based on the feasibility analysis conducted by TranspoGroup. City staff considers the recommended project to be the best feasible project given the opportunities and constraints that exist in the corridor and the desire to minimize impacts to driveway access, vehicle capacity, transit operations and parking. The study does include sufficient information to seek right-of-way dedications and other mitigations from pending developments to enable the future implementation of the recommended project.

This feasibility study is not an exhaustive study of the proposal's potential benefits and impacts. The feasibility study only addresses geometric design issues that would be considered "fatal flaws" for the project concept. As this concept is refined, it will need to undergo more detailed study and environmental review, including a traffic assessment and more detailed cost estimate. At that point, decision makers will have more information to consider potential tradeoffs. Other potential issues would be addressed during engineering.



Community Engagement

The City's newly formed Bicycle & Pedestrian Advisory Committee (BPAC) played a central role in community engagement for this project. The BPAC includes perspectives of residents, businesses, youth, older adults, people with disabilities, and the school district. This project affects all of these segments of the community in different ways. For example, the project is designed to make it easier for residents in nearby neighborhoods to access the Expo Line and Downtown and for students to ride to Linwood Howe from the Arts District neighborhood, but would reduce on-street parking in front of some businesses. At multiple meetings and a public workshop, the BPAC considered comments from the public submitted at each meeting and via email.

At the BPAC's inaugural meeting on September 8th, 2016, TranspoGroup presented the initial conceptual project proposal based on their preliminary analysis of opportunities and constraints. Based on feedback from the BPAC and members of the public in attendance, TranspoGroup and City staff continued to develop the concept and engage with affected stakeholders. City staff met directly with representatives of all major stakeholders, including each developer with a pending project, Howard Industries, and Sony Pictures, to present the project and discuss any issues or concerns.

On January 7th, 2017, the BPAC hosted a public workshop to gather additional stakeholder input and gauge public support for the proposed project. This workshop was advertised to 4,000 households, businesses and property owners with postcards, as well as via the City's social media and local press coverage. Approximately 50 people attended the workshop. An additional 19 people submitted comments for the BPAC's consideration via email.

On January 19th, 2017, the BPAC considered the project again at its regular meeting. TranspoGroup and City staff addressed questions and concerns raised at the workshop and via email comments and stakeholder meetings. At this meeting, the BPAC voted unanimously to support the recommended project concept after additional consultation with affected stakeholders between Ince and Robertson regarding turn lane and access issues.

In February, City staff met with the managers of both the Honda and Toyota dealerships. In March, City staff met again with representatives from Sony Pictures at the Imageworks campus to evaluate concerns about driveway access. In response to concerns raised by these stakeholders, City staff developed additional alternatives discussed later in this report for further evaluation.



Photos from January 7th Workshop



Approximately 50 people attended the January 7th public workshop

In March, the TOD Visioning Study, led by the Community Development Department, kicked off public outreach for a planning process that covers much of the same geography as the Expo to Downtown Bicycle Connector. The consultant team for the Visioning Study has been briefed on the status of this project and has incorporated information about it into their outreach process. Recommendations from the Visioning Study can be incorporated into the future design and engineering phase of the Expo to Downtown Bicycle Connector.

On March 26th, the City partnered with the Southern California Association of Governments' (SCAG) GoHuman Initiative to set up a "pop-up" demonstration project concurrent with CicLAvia. Hundreds of people rode along the temporary protected bike lane on their way to and from CicLAvia to get a sense of what the project could look like.



Photos from March 26th Demonstration Project



Photos from March 26th Demonstration Project



Project Description

The recommended project would install a two-way protected bike lane on Washington Boulevard connecting to the Expo Bike Path at Wesley Street, the Expo Line station, and Town Plaza in Downtown Culver City. The project would also install a two-way protected bike lane on Robertson Boulevard from Washington to Venice Boulevard in order to connect the Washington facility to the Expo Phase II Bike Path north of Venice.

Considerations

TranspoGroup evaluated multiple bikeway options for the project corridor, considering the quality of the bike facility offered and the relative tradeoffs of cost, parking, and traffic. In analyzing feasibility of each option, TranspoGroup and City staff considered:

- Safety for bicyclists, pedestrians, transit users, and drivers
- Potential conflict points, including driveway and intersection conflicts
- Connectivity to key destinations, including the Expo Station and both phases of the Expo Bike Path
- Potential to increase delay for vehicles
- Right-of-way constraints
- Location of bus stops
- Location of storm drains and other significant infrastructure
- Cost-effectiveness

The project area's specific constraints include the narrow width of parts of Washington Boulevard compared to the minimum space needed for a bike lane buffer, the configuration and location of bus stops, and the need to preserve turn lanes for critical movements. TranspoGroup considered implementing the sharrows and bike lanes identified in the City's 2010 Bicycle & Pedestrian Master Plan, but these options do not meet the project goals of providing a bikeway that will attract new riders and serve people of all ages and abilities.

Protected bike lanes are the international best practice for providing safe and comfortable bike facilities on major streets. TranspoGroup evaluated multiple options for installing protected bike lanes, including one-way protected bike lanes, two-way protected bike-lanes, and raised bike lanes. One-way protected bike lanes are generally the preferred approach whenever feasible due to relatively simpler design and the more intuitive experience of riding alongside traffic moving in the same direction. However, the space required for one-way protected bike lanes would require severe impacts to vehicle capacity and/or turn restrictions due to Washington Boulevard's relatively narrow width.



A two-way protected bike lane in Redondo Beach functions like a bike path on one side of the street. Photo: Rock Miller

A two-way protected bike lane is a novel solution to the unique constraints that exist on Washington Boulevard that make other potential alternatives infeasible or less favorable. A two-way protected bike lane is like a bike path on one side of the street, completely separated from traffic lanes by bollards or another physical barrier. This concept would include dedicated bike signals at intersections and special markings at driveways to mitigate conflict points between bicyclists, pedestrians, and drivers. TranspoGroup believes this concept best meets the City's objective of creating a safe and comfortable facility for people who may not feel comfortable riding a bike in traffic.

BIKEWAY CONSIDERATIONS



GREENBACK SHARROWS



BIKE LANES



BUFFERED BIKE LANES



RAISED BIKE LANES



ONE-WAY PROTECTED BIKE LANES

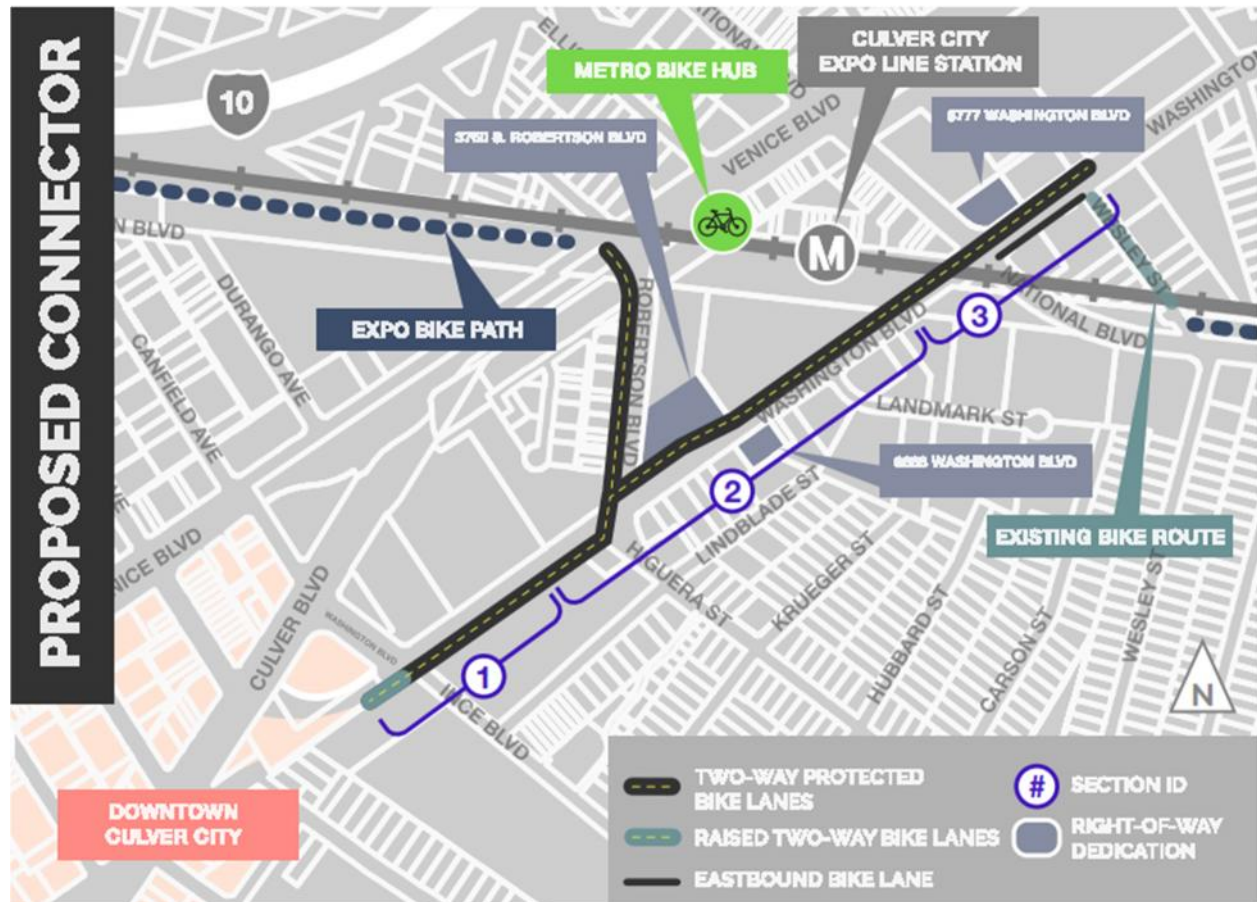


TWO-WAY PROTECTED BIKE LANES



Recommended Project

The recommended two-way protected bike lane would provide a direct connection from the Expo Line station on the north side of Washington Boulevard to Town Plaza on the south side of the street by switching sides midway along the corridor. This configuration provides better access to likely destinations and connects seamlessly with the proposed bike lane on Robertson, while carefully avoiding the constraints imposed by the bus stops at the Robertson/Higuera intersection. This intersection is the pinch point for the project, where the proposed bike lanes converge and the right-of-way is at its narrowest. Therefore, the project's feasibility is dependent on securing additional right-of-way in this location.



Washington Boulevard varies in width from 60 feet from curb to curb on the west end to nearly 80 feet on the east end. As a result, the recommended project changes significantly from one end to the other. On the more constrained western end, every foot is precious and each street element is brought down to minimum acceptable widths. Additional right-of-way is necessary at the Robertson/Higuera intersection in order to install a right turn lane that cannot fit within the existing width. On the eastern end, there is room for elements like on-street parking and an eastbound supplemental bike lane. The recommended project is further described on the following boards that were presented at the January 7th public workshop.

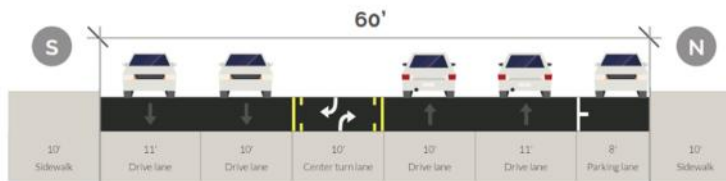
1 WASHINGTON/INCE

FEATURES:



CROSS SECTION A WASHINGTON BLVD FROM INCE BLVD TO ROBERTSON BLVD

EXISTING:



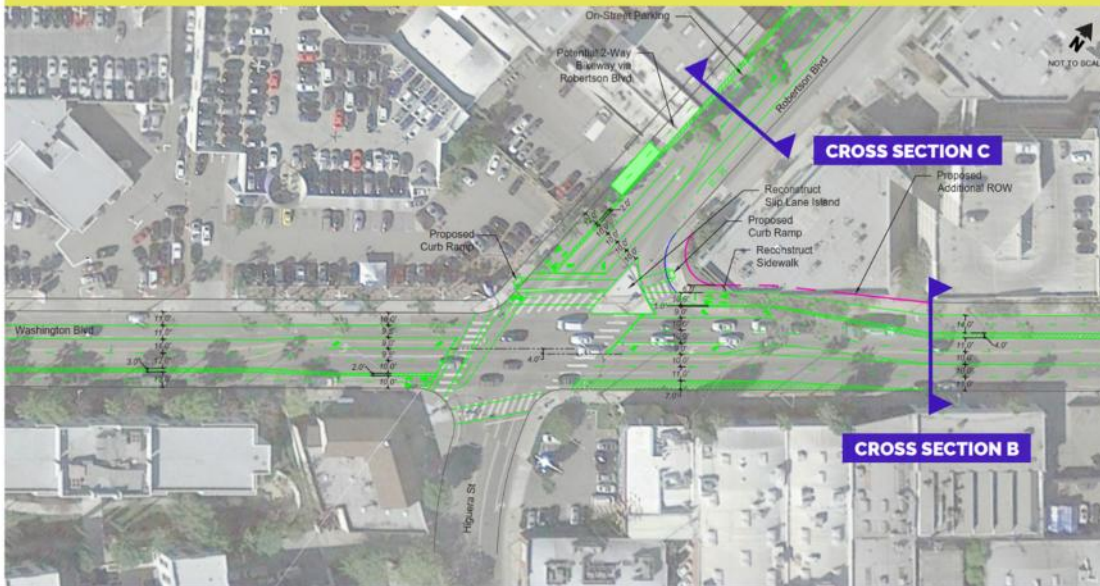
PROPOSED:



2

WASHINGTON/ROBERTSON/HIGUERA

FEATURES:



CROSS SECTION B

WASHINGTON BLVD
FROM ROBERTSON BLVD/HIGUERA ST TO
LANDMARK ST

EXISTING:



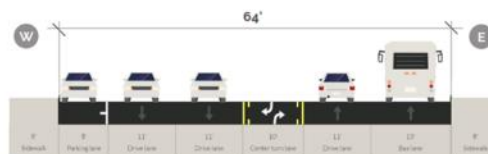
PROPOSED:



CROSS SECTION C

ROBERTSON BLVD
FROM WASHINGTON BLVD TO VENICE BLVD

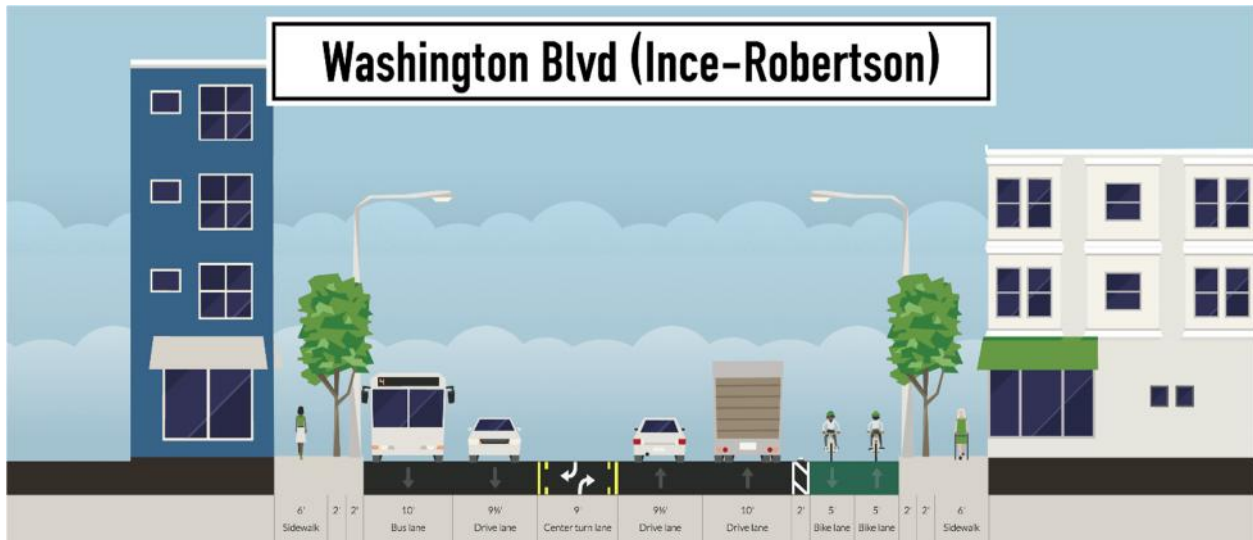
EXISTING:



PROPOSED:



After additional consultation with Sony Pictures, City staff evaluated a variation of the recommended project between the Ince and Robertson intersections (Cross Section A, above) that would retain the center turn lane for the entire length of the block in order to maintain access to the principal driveway for Sony’s Imageworks campus. City staff conducted traffic counts at both the front and rear driveways of the campus in order to assess demand for turning movements into and out of each driveway and the potential impact if the turn lane was removed. City staff concurs with Sony that there is sufficient left turn volume to justify retaining the center turn lane.



A variation of Cross Section A retains the center turn lane by installing minimum-width lanes.

Alternatives

At the January 7th workshop and other stakeholder meetings, several stakeholders requested more information about potential alternatives to the recommended alignment. City staff reviewed the following alternatives:

Venice-Culver Alternative

Venice and Culver Boulevards provide a relatively direct connection between the Metro Bike Hub at Venice/Robertson and Downtown Culver City. This alternative is not recommended for the following reasons:

PROS	CONS
<ul style="list-style-type: none"> • CREATES A HIGH-QUALITY BIKE FACILITY • ATTRACTS NEW RIDERS • IMPROVES SAFETY FOR EVERYONE • IMPROVES ACCESS • CLOSSES THE GAP IN THE EXPO BIKE PATH • PROVIDES TRAFFIC CALMING • MAINTAINS CURRENT # OF TRAVEL LANES 	<ul style="list-style-type: none"> • REMOVES ON-STREET PARKING • REMOVES SOME TURN LANES • COST

Tradeoffs of recommended project

- Venice is a very wide street that is not conducive to crossing. This alignment would require bike riders traveling from the Expo Station to Downtown to cross Venice twice, adding substantial time delay and discomfort to what would otherwise be a very short trip.

- The Expo Line bridge over Venice constrains the width of the westbound bike lane on Venice, likely making a protected bike lane infeasible between Robertson and Culver without the loss of a westbound traffic lane.
- A protected bike lane on Culver would require the loss of one traffic lane in each direction and substantial reconstruction of the entrance to the Ince parking garage.
- Extending the protected bike lane on Culver into Downtown Culver City would require the loss of on-street parking and/or a traffic lane in each direction.
- This alternative would not directly connect Culver City residents in the Arts District or future residents in the TOD District to Downtown Culver City. This alternative would not provide a strong connection to Linwood Howe for students living in eastern Culver City.
- The majority of the project would be in the City of Los Angeles, so the City would not have the authority to pursue this alignment.

This alternative is not recommended for further consideration.

Hoke-Culver Alternative

Hoke Avenue is an alley that runs parallel to Washington and Venice and provides access to a small business district behind the Honda dealership. City staff assessed Hoke's suitability as a bike facility and does not recommend it for the following reasons:

- Like the Venice-Culver alternative, the majority of the project would be in the City of Los Angeles, so the City would not have the authority to pursue this alignment.
- Hoke is not a continuous street and therefore this route would require acquisition of the property currently used as a drive-thru by Wendys, resulting in a significant economic impact on the property owner and a commensurately high sale price. This property is located within the City of Los Angeles.
- Hoke is not sufficiently wide for a dedicated bicycle facility. Instead, this alternative would be a shared street.
- A protected bike lane on Culver would require the loss of one traffic lane in each direction and substantial reconstruction of the entrance to the Ince parking garage. A new signalized intersection on Culver or alternative crossing treatment would be necessary to connect to Hoke.
- Extending the protected bike lane on Culver into Downtown Culver City would require the loss of on-street parking and/or a traffic lane in each direction.
- Hoke does not provide a direct connection to the Expo Line station without additional infrastructure on Robertson and Venice.
- Hoke is a relatively isolated alley that runs along the backside of a strip mall. It is unlikely to provide a pleasant experience for biking and walking, particularly at night.
- This alternative would not directly connect Culver City residents in the Arts District or future residents in the TOD District to Downtown Culver City. This alternative would not provide a strong connection to Linwood Howe for students living in eastern Culver City.

This alternative is not recommended for further consideration.

Washington Boulevard South Side Alternative

Several residents of the Arts District neighborhood requested that the bike lane be located on the south side of Washington Boulevard instead of switching to the north side at Robertson/Higuera. City staff agrees that this would provide a more direct connection to the neighborhood, though at the expense of

providing a less direct connection to the Expo Station. Despite the apparent benefits of this alternative, it was not recommended as the preferred alternative in this study for the following reasons:

- There is not adequate width for both the bike lane and a bus stop at the corner of Washington and Robertson/Higuera. (The recommended alternative avoids this conflict by changing sides of the street.) Keeping the bike lane on the south side of Washington would require the removal of the eastbound bus stop at Robertson/Higuera. This bus stop is the transfer point between Culver CityBus Line 1 and all of the buses that use the Robertson Transit Center. Requiring bus passengers to alight at Landmark and then walk back to Robertson would add a considerable time penalty to these transfers. Higuera is the main collector street for the Lucerne-Higuera neighborhood, so this bus stop serves a substantial number of residents.
- There is not adequate right-of-way at the southwest corner of Washington and Robertson/Higuera to separate turning movements from bike movements. This would need to be addressed in one of three ways:
 - Right-of-way could be acquired from the adjacent property, which could potentially impact the building. (In contrast, the additional right-of-way at the northeast corner needed for the recommended alternative is currently occupied by landscaping.)
 - Bike movements could have a dedicated phase without concurrent vehicle movements. This would create additional vehicle delay on Washington compared to the recommended alternative. It would also cause additional delay for bike riders, which may discourage use of the bike lane.
 - Right turns could be restricted from eastbound Washington onto Higuera, limiting access to the neighborhood.
- This alternative would require a new signalized crossing between Landmark and National to reach the Expo Station, in close proximity to these existing signalized intersections. Otherwise, bicyclists trying to reach the Expo Station from the west would have to ride past the station to National, cross at a crosswalk and then walk back to the station on the sidewalk.

These constraints are primarily driven by the geometry of the Robertson/Higuera intersection. This alternative has sufficient merit to justify additional study of potential solutions for this intersection. *City staff recommends revisiting this alternative during preliminary engineering to reassess feasibility.*

Lindblade Alternative

During a site visit with Sony Pictures regarding potential impacts to access for their front driveway, Sony suggested routing the bike lane behind the Imageworks campus on Higuera, Lindblade, and Ince. While this alternative would be 1/10th of a mile longer, it would have the same number of signalized intersections and driveway crossings as the recommended project and therefore a comparable travel time for bicycle riders. However, it would result in significantly greater parking loss than the recommended project as well as the loss of a dedicated right turn lane on Ince. These tradeoffs warrant additional consideration. *City staff recommends exploring this alternative during preliminary engineering in consultation with Sony.*

Cost Estimate

TranspoGroup prepared the following preliminary cost estimate for the recommended project. This cost estimate would install a relatively basic level of infrastructure. The City could choose to provide a greater level of design and aesthetics by considering additional streetscape elements where sufficient room is available, such as additional curb separation, planters, or decorative paving. Aesthetic decisions should be made in consultation with the Washington Boulevard Streetscape Plan, the TOD Visioning Study, and stakeholders.



Protected bike lanes can include planters (above) or concrete curbs (below) for enhanced separation.



Planning Level Engineer's Opinion of Cost - Culver City Expo-to-DT Bike Lane

Transpo Job No.: 16041.00

Description of Work:

Conceptual plan to install a bikeway to link downtown with the Expo Line Culver City station.

Last Edit: March 2, 2017

Checked: CAC

Item Description	Quantity	Unit	Unit Cost	Total
REMOVING CEMENT CONCRETE SIDEWALK	240	SY	\$ 15	\$ 3,600
REMOVING CEMENT CONCRETE CURB AND GUTTER	215	LF	\$ 15	\$ 3,225
ROADWAY EXCAVATION INCLUDING HAUL	1,000	CY	\$ 100	\$ 100,000
PLANING HMA PAVEMENT	25,000	SY	\$ 3	\$ 75,000
CRUSHED SURFACING TOP COURSE	900	TON	\$ 80	\$ 72,000
HMA CL. 1/2 IN. PG 64-22	3,000	TON	\$ 100	\$ 300,000
CEMENT CONCRETE CURB AND GUTTER	850	LF	\$ 50	\$ 42,500
CEMENT CONCRETE SIDEWALK	2,285	SY	\$ 80	\$ 182,800
CEMENT CONCRETE CURB RAMP	5	EA	\$ 4,000	\$ 20,000
SIGNAL MODIFICATIONS - NATIONAL BLVD	1	LS	\$ 125,000	\$ 125,000
SIGNAL MODIFICATIONS - HIGUERA ST	1	LS	\$ 200,000	\$ 200,000
SIGNAL MODIFICATIONS - LANDMARK ST	1	LS	\$ 40,000	\$ 40,000
SIGNAL MODIFICATIONS - INCE BLVD	1	LS	\$ 175,000	\$ 175,000
ILLUMINATION SYSTEM MODIFICATIONS	1	LS	\$ 15,000	\$ 15,000
SIGNING	1	LS	\$ 8,000	\$ 8,000
PAVEMENT MARKINGS	1	LS	\$ 75,000	\$ 75,000
FLEXIBLE DELINEATORS	1	LS	\$ 10,000	\$ 10,000
Sub Total				\$ 1,448,000
PROJECT TEMPORARY TRAFFIC CONTROL (10% OF SUB TOTAL)	1	LS	\$ 145,000	\$ 145,000
LANDSCAPING (3% OF SUB TOTAL)	1	LS	\$ 44,000	\$ 44,000
STORMWATER IMPROVEMENTS (15% OF SUB TOTAL)	1	LS	\$ 218,000	\$ 218,000
TEMPORARY EROSION AND SEDIMENT CONTROL (2% OF SUB TOTAL)	1	LS	\$ 29,000	\$ 29,000
MOBILIZATION (8% OF SUB TOTAL)	1	LS	\$ 116,000	\$ 116,000
Sub Total₁				\$ 2,000,000
Contingency (15% of Sub Total ₁)				\$ 300,000
Construction Administration (15% of Sub Total ₁)				\$ 300,000
Design Engineering (20% of Sub Total ₁)				\$ 400,000
TOTAL PROJECT ESTIMATE				\$ 3,000,000
			Low	\$ 2,700,000
			High	\$ 3,750,000

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available.

2. Low cost estimate is equal to 90% of the total project estimate.

3. High cost estimate is equal to 125% of the total project estimate.

Implementation

The recommended project is a major capital project that would require multiple years to implement. At this time, City staff recommends further developing the project to “shovel-ready” status within the next fiscal year. These steps would include developing a more detailed cost estimate, environmental review (including a traffic assessment), engineering, and other related tasks. Concurrently, City staff would create a funding plan that evaluates grant opportunities as well as City-controlled funding sources including the Capital Improvement Program, Measure R Local Return, and Measure M Local Return.



Photo from March 26th Demonstration Project