

Technical Memorandum

To: City of Los Angeles Bureau of Engineering
From: Alejandro Angel, PhD, PE, PTOE and Arief Naftali, PE, TE
cc: Anissa Voyiatzes, PE
Date: May 28, 2015
Re: **Bicycle and Pedestrian Facilities Assessment**

INTRODUCTION

On May 15, 2015, the City of Los Angeles Board of Public Works recommended adoption of the IS/MND for the Glendale Boulevard-Hyperion Avenue Complex of Bridges, which included a recommended option for Hyperion Avenue from Waverly Drive to Glendale Drive.

The objectives of this technical memorandum are to:

- Inventory the pedestrian and bicycle facilities in the project area both under existing and proposed conditions
- Compare conditions for bicyclists and pedestrians under current and proposed conditions
- Evaluate the significance thresholds for bicycle and pedestrian safety based on the Los Angeles CEQA Thresholds Guide (2006)
- Recommend additional measures to enhance bike and pedestrian travel and safety

EXISTING CONDITIONS

Bicycle and Pedestrian Facilities

The following facilities exist on or in the vicinity of the Hyperion bridge to connect the Silver Lake and Atwater Village areas:

- Sidewalks:
 - Sidewalks exist on both sides of the Hyperion bridge over I-5, and over the L.A. River.

- There are stairs connecting the sidewalk on the west side of the Hyperion bridge to Glendale Blvd between I-5 and the L.A. River.
- In the vicinity of the Waverly Drive underpass, the sidewalk along Hyperion Avenue is too narrow (2-ft wide) to be usable. Instead, safer pedestrian connectivity is achieved by a sidewalk going up to the Waverly Drive level and coming back down to Hyperion Avenue at Ettrick Street.
- ADA Compliant Pedestrian Access Route (PAR): Due to the constraint under Waverly Drive, and the grade of the alternative sidewalk to get to Waverly Drive and back down, there is no direct PAR along Hyperion Avenue. The nearest route crossing over I-5 and the LA River is Glendale Boulevard, which adds ½ mile of travel distance for pedestrians with origins or destinations in the vicinity of the Hyperion/Rowena intersection.
- Bike Lanes: There are no bike lanes on Hyperion Avenue or Glendale Boulevard across the L.A. River or I-5.
- Access and Conflict Points:
 - Signalized crosswalks exist at both ends of the project (Hyperion/Rowena and Glendale/Glenfeliz/Glenhurst)
 - Pedestrians using Hyperion Avenue have to negotiate an uncontrolled crossing of Glendale Blvd at the east end of the bridge (same condition exists on both sides of the bridge).
 - Pedestrians on northbound Glendale Blvd have to negotiate an uncontrolled crossing of the I-5 northbound off ramp.
 - Due to the grade differences between the roadway and existing ground, there are very few access points on Hyperion Avenue between Rowena and Glenfeliz/Glenhurst. All driveways and side streets are required to stop for both traffic and pedestrians along Hyperion Avenue.

Bicycle and Pedestrian Volumes

Bicycle and Pedestrian Volumes were collected in March of 2014 as part of a series of Technical Memorandums prepared by Psomas in 2014. The data collected is presented in *“Technical Memorandum #1, Existing and Future Traffic Demand”* (Psomas, June 2014) and included 12-hour bicycle and pedestrian counts (7 AM-7PM), as well as 30 intercept surveys of bicyclists and pedestrians (20 pedestrians, 10 bicyclists). Some highlights from those counts include:

- During the 12-hr period, 24 pedestrians use the east sidewalk on the Hyperion bridge. 82 pedestrians (approximately 75% of all pedestrians on Hyperion) use the west sidewalk.
- During the 12-hr period, 39 bicyclists traveled northbound on the Hyperion Avenue bridge, while 44 bicyclists (53%) traveled in the southbound direction.

- Some level of “wrong way” bike riding is taking place on the sidewalks. To some extent, this may be related to the fact that some riders may not feel comfortable riding with traffic without dedicated bike lanes.
- From the intercept surveys, the most common origin and destinations for bicycles and pedestrians were John Marshall H.S., fitness gyms, retail/services near the Hyperion/Rowena intersection, and locations near Glendale Blvd north of Glenfeliz/Glenhurst.

FUTURE CONDITIONS

The City’s recommended option for Hyperion Avenue from Waverly Drive to Glendale Drive is depicted below in Figures 1 and 2.

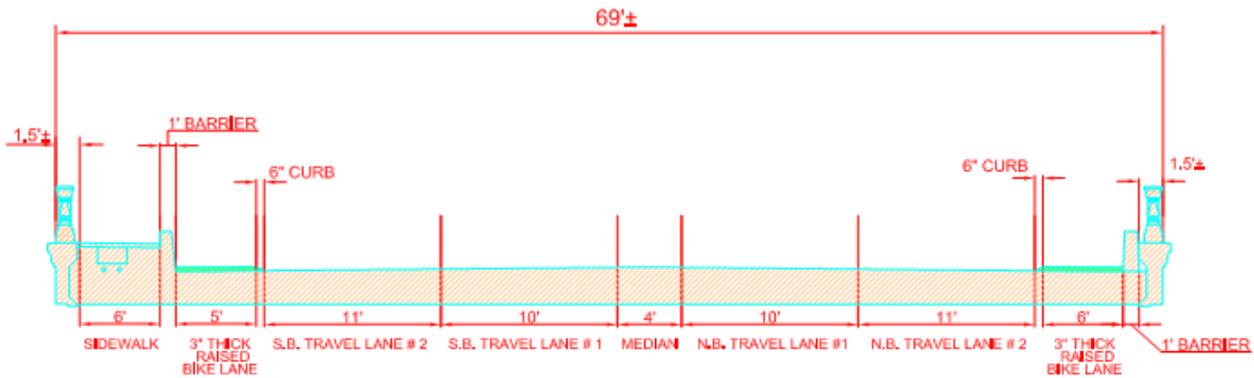


Figure 1: Hyperion Avenue Bridge over I-5, Riverside Drive and LA River (Looking North)

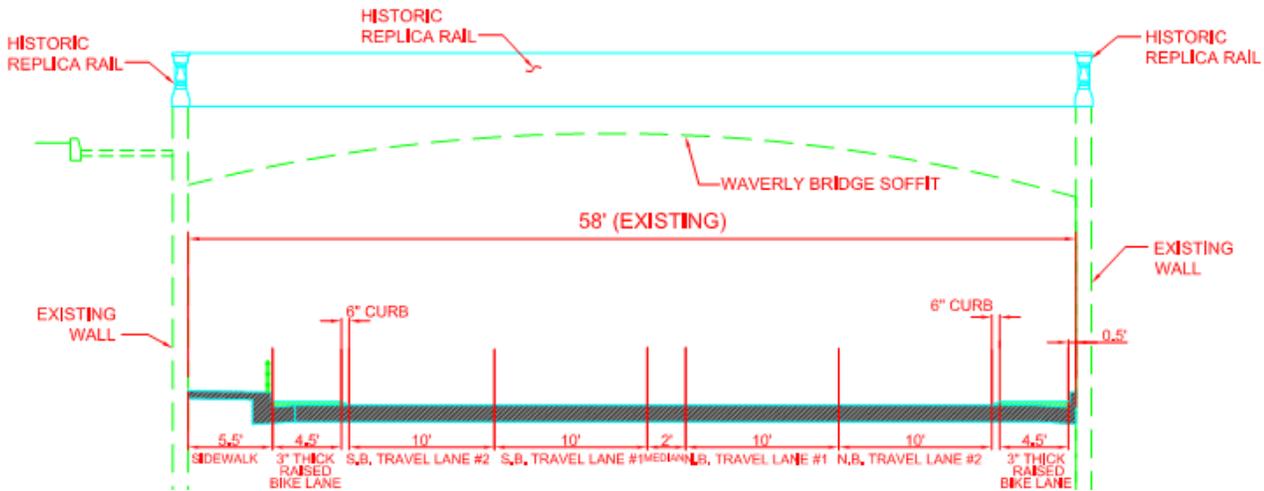


Figure 2: Hyperion Avenue at Waverly Drive (Looking North)

Based on Figures 1 and 2 and on additional project documents, the bicycle and pedestrian facilities will include the following improvements:

- Sidewalks: 6 ft sidewalk along the west side of Hyperion Avenue over I-5 and the LA River (5.5 ft under Waverly Drive).
- ADA Compliant Pedestrian Access Route (PAR): The new sidewalk will provide an ADA-compliant PAR from Silver Lake to Atwater Village.
- Bike Lanes: Raised bike lanes on both sides of Hyperion Avenue
- Access and Conflict Points:
 - Existing signalized crossings as well as number/location of driveways and access points will remain the same.
 - A signalized pedestrian crossing of Glendale Boulevard will be added at the east end of the Hyperion bridge.
 - A new signalized crossing will be provided for pedestrians at the proposed realignment of the I-5 northbound off ramp onto Glendale Blvd (see Figure 3).
 - A new pedestrian bridge will be constructed across the LA River on the old Red Car piers east of the Hyperion bridge (see Figure 3 below).



Figure 3: Proposed Pedestrian Bridge and Signalized Crossing of Realigned I-5 Northbound Off Ramp

COMPARISON OF EXISTING AND PROPOSED BICYCLE AND PEDESTRIAN FACILITIES

Figure 4 presents the existing and proposed pedestrian facilities, as well as other key pedestrian features along or near Hyperion Avenue.

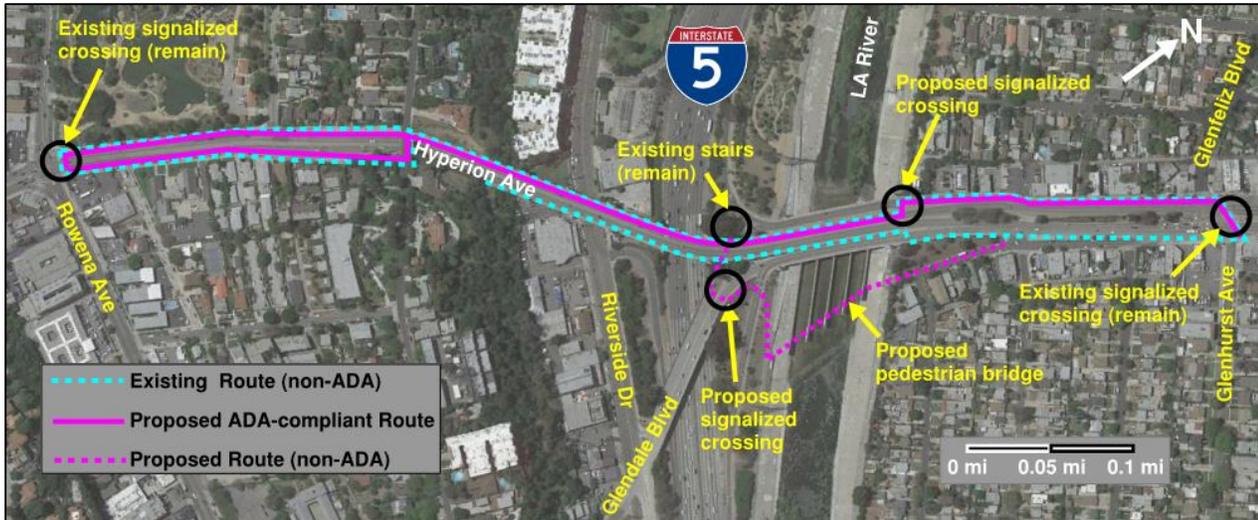


Figure 4 Comparison of Existing and Proposed Pedestrian Facilities

Based on Figure 4, as well as on information previously presented on this memorandum, the following are summaries of advantages and disadvantages of the recommended improvements when compared to the existing conditions.

Advantages of the recommended improvements

1. Improved conditions for disabled pedestrians by adding an ADA-compliant Pedestrian Access Route (PAR) from one end of the project to the other. Eliminating the extremely narrow sidewalk (2-ft wide) near Waverly Drive will also help improve safety in the vicinity of the underpass.
2. Improve safety for pedestrians crossing southbound Glendale Blvd at the east end of the Hyperion bridge by installing a signalized crossing.
3. Provides an additional pedestrian facility with the new Red Car bridge over the LA River. The recommended signalized crosswalks at the Glendale Blvd/I-5 NB Off-ramp will minimize vehicle-pedestrian conflicts for people walking to and from the new Red Car bridge or Glendale Blvd.
4. Enhances bicyclist safety and encourages bicycling by adding raised bike lanes on both sides of Hyperion Avenue.

Disadvantages of the recommended improvements

1. Eliminates the proposed sidewalk on the east side of the Hyperion bridge. This will require longer travel paths for pedestrians starting or ending their trips on the east side of Glendale Blvd between the LA River and Glenhurst Avenue. For able-bodied pedestrians who can negotiate

the stairs on the Hyperion bridge and use the Red Car pedestrian bridge, the increase in travel distance will be up to approximately 310 ft (1.5 min at 3.5 ft/s walking speed). Disabled pedestrians would have to travel to the Glenfeliz/Glenhurst intersection and back track on the other side of the road, adding up to approximately 1,550 ft in travel distance (7.4 min at 3.5 ft/s). The alternative routes described here are illustrated in the Appendix. However, it should be noted that there is no existing ADA-compliant route along Hyperion Avenue from Silver Lake to Atwater Village (the alternative route from Rowena to Glendale Blvd is longer than the PAR from the recommended option).

EVALUATION OF CEQA SIGNIFICANCE THRESHOLDS FOR BICYCLE AND PEDESTRIAN SAFETY

This section focuses on evaluating the significance thresholds for bicycle and pedestrian safety based on the Los Angeles CEQA Threshold Guide (2006), Section L.5., Project Access. The assessment of the thresholds is done using a mix of qualitative and quantitative tools.

The determination of significance for Bicycle and Pedestrian safety is based on issues associated with conflicts between pedestrians or bikes and vehicles at access and other conflict points. Table 1 lists each criterion, the effects of the recommended option and whether or not there are significant impacts.

Table 1. Summary of CEQA Bicycle and Pedestrian Thresholds Assessment

CEQA Threshold Guidelines Criterion	Effect of Project	Significant Impact?
Amount of pedestrian activity at access points	Pedestrian activity is expected to continue to steadily increase. The removal of the sidewalk on the east side of Hyperion Avenue will eliminate conflicts at those access points, but will increase pedestrian activity along the west side of the road.	No
Features that affect the visibility of pedestrians and bicyclists to drivers (and vice versa).	The location, grade, width, and traffic control for side streets and driveways will remain unchanged. Therefore, no impacts are expected. Furthermore, the addition of bike lanes will improve visibility of drivers to bicyclists and pedestrians (and vice versa)	No
Type of bike facility the project driveways cross and level of utilization	The project will add class II bike lanes, which is expected to have two key beneficial effects: 1) Provide a dedicated, delineated space for bicyclists making drivers more aware of them; and 2) improve sight visibility for drivers at all access points by shifting vehicles away from the curb line.	No
Physical conditions such as curves, slopes, walls, landscaping or others that could result in vehicle/ pedestrian, or vehicle/bicycle crashes	No changes are proposed to physical conditions that would affect the listed crash types. In fact, the widening of the narrow sidewalk under Waverly Drive will help reduce vehicle/pedestrian crashes.	No

Another question that has been asked is the pedestrian safety impact of the recommended option having sidewalk on only one side of the road, and the likelihood of conflicts between bicycles and pedestrians walking on the bike lane along the east side of Hyperion Avenue between Waverly and Glenfeliz/Glenhurst.

The *Highway Safety Manual* (AASHTO, 2010) and the *Crash Modification Factors (CMF) Clearinghouse* (<http://www.cmfclearinghouse.org/>) have information to quantify the safety effect of various improvements. Although there are CMFs to calculate the safety benefits of adding sidewalks along a corridor without sidewalks, there are no CMFs to evaluate the safety impact of having sidewalks on both sides of the road as opposed to just one side.

Review of other National guides and resources did not identify any widely accepted means of quantitatively assessing the benefits of having sidewalks on both sides of the road. The authors believe that part of the reason for that is the fact that the benefits of having sidewalks on both sides of the road instead of one side are highly dependent on factors such as distance between crossing opportunities, alternative routes, roadside environment, vehicular speeds, pedestrian volumes, etc.

Although doing a strictly quantitative analysis of the Hyperion project is not feasible, it is possible to develop an approximate analysis with the following assumptions/information:

- As stated early in this memorandum, 75% of the pedestrians already use the west sidewalk along Hyperion. Therefore, pedestrians that may walk on the northbound bike lane are limited to those who use the east sidewalk (currently 24 pedestrians over the peak 12 hours).
- Of the pedestrians currently using the east sidewalk, only those with origins or destinations between the LA River and Glenhurst Avenue would have to cover a greater travel distance. Those with origins/destinations within Atwater village north of Glenhurst Avenue would most likely use the west sidewalk and cross Glendale Blvd at the Glenfeliz/Glenhurst signal. The area of potential impact is depicted in Figure 5.



Figure 5 Area Potentially Impacted by Lack of Sidewalk on East Side of the Hyperion Bridge

- 20 Pedestrian intercept surveys (roughly a 20% sample of the 12-hr pedestrian volume) were conducted in 2014. None of the origins or destinations identified by pedestrians are located within the area of potential impact (east of Glendale Blvd between the LA River and Glenhurst Avenue). That does not mean that there is no pedestrian traffic to or from that area, but it does indicate that trips from that area represent a small percentage of the pedestrians on the east sidewalk.
- Able-bodied pedestrians with origins/destinations in the area of potential impact can use the stairs from the Hyperion bridge to access the proposed Red Car pedestrian bridge, thus minimizing the additional travel length (maximum difference is 310 ft as previously reported), and therefore would have little incentive to walk on the bike lane.
- On the 2012 *National Survey of Bicyclist and Pedestrian Attitudes and Behavior* (NHTSA, 2013, Table 12.1), 19% of pedestrians nationwide reported having a disability, health impairment or condition that limits walking. Those pedestrians would most likely be unable to negotiate the stairs to access the Red Car bridge. Instead they should use the west sidewalk, but may decide to walk on the bike lane for convenience.

From the above information, the number of pedestrians that may walk on the bike lane could be conservatively estimated if it is assumed that 10% of pedestrians using the existing east sidewalk have origins/destinations in the area of potential impact, that 19% of those pedestrians are disabled, and that all of those disabled pedestrians would walk on the bike lane (which is a conservative assumption).

$$\text{Pedestrians walking on bike lane} = 24 \text{ ped} \times 10\% \times 19\% = 0.46 \text{ pedestrians}$$

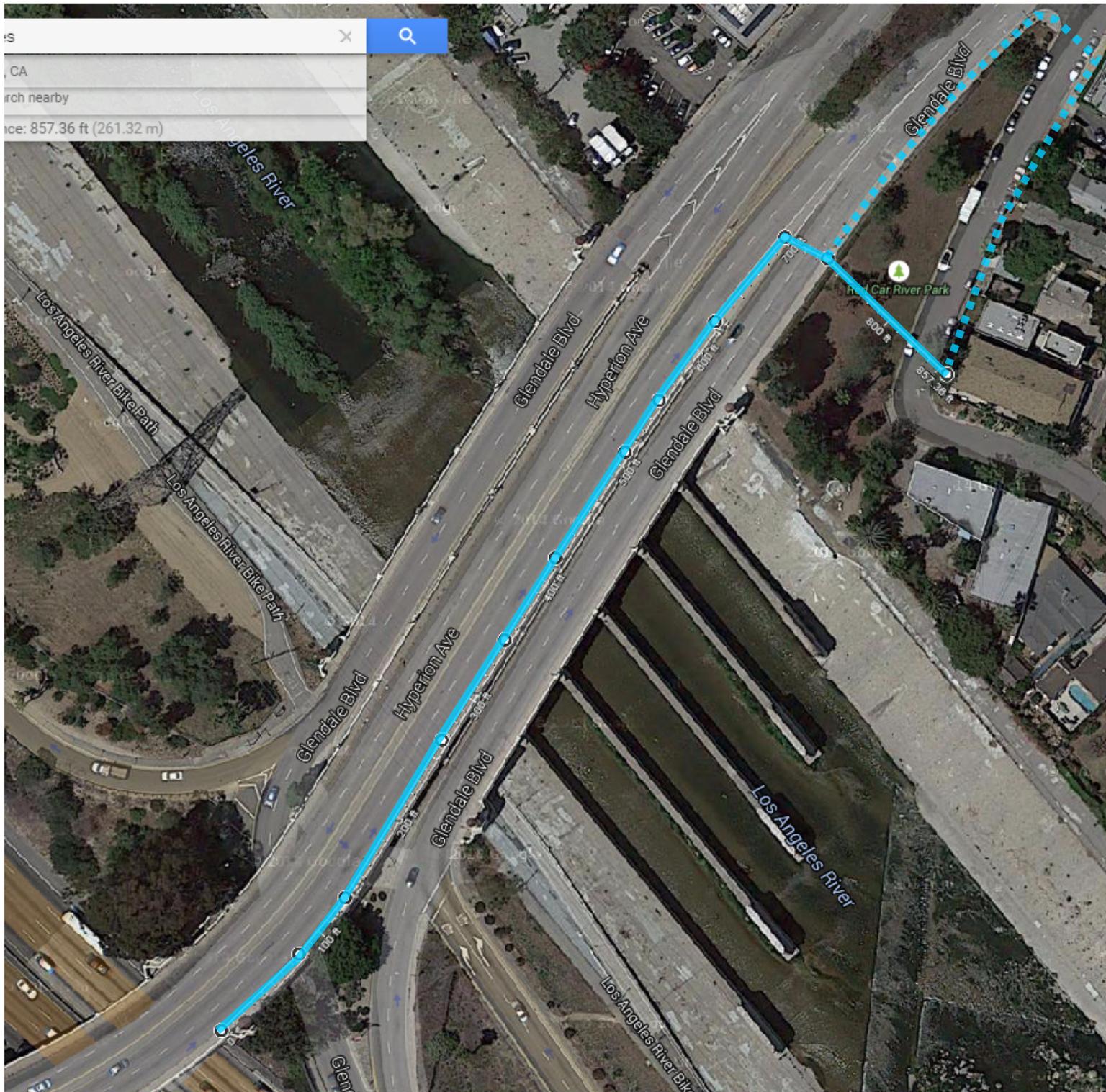
Based on the calculation above, even if pedestrian volumes double, the estimated number of pedestrians likely to walk along the bike lane is less than 1 for the 12 hours between 7 AM and 7 PM. The likelihood of 1 pedestrian conflicting with one of the 44 daily bicyclists using the bridge is minimal. As a result, it is concluded that the risk of pedestrian/bicycle conflicts is extremely low. Also, as previously stated, even with the need to go to Glenhurst and backtrack, the new route is shorter than the shortest existing ADA-compliant route.

ADDITIONAL RECOMMENDED BICYCLE AND PEDESTRIAN MEASURES

This analysis found that when compared to existing conditions, the recommended improvements for the Hyperion bridge project provide significant benefits in terms of bicycle accommodation, universal ADA accessibility, enhanced safety (visibility, signal control) at conflict points, and alternative pedestrian routes. The main impact is the loss of the existing sidewalk on the east side of the bridge. While that was found to not be a significant impact, the following additional measures are recommended to enhance pedestrian safety and make sure that pedestrians in the area are aware of and know how to use the available alternatives:

- Install guide signs for pedestrians directing them to the available routes (i.e. near the Hyperion bridge stairs to show access to the LA River and the Red Car River Park).
- Consider installation of regulatory signs prohibiting walking along the bike lanes.
- Develop educational materials (maps, brochures, etc.) and outreach showing how bicycles and pedestrians can traverse the project area during and after construction.

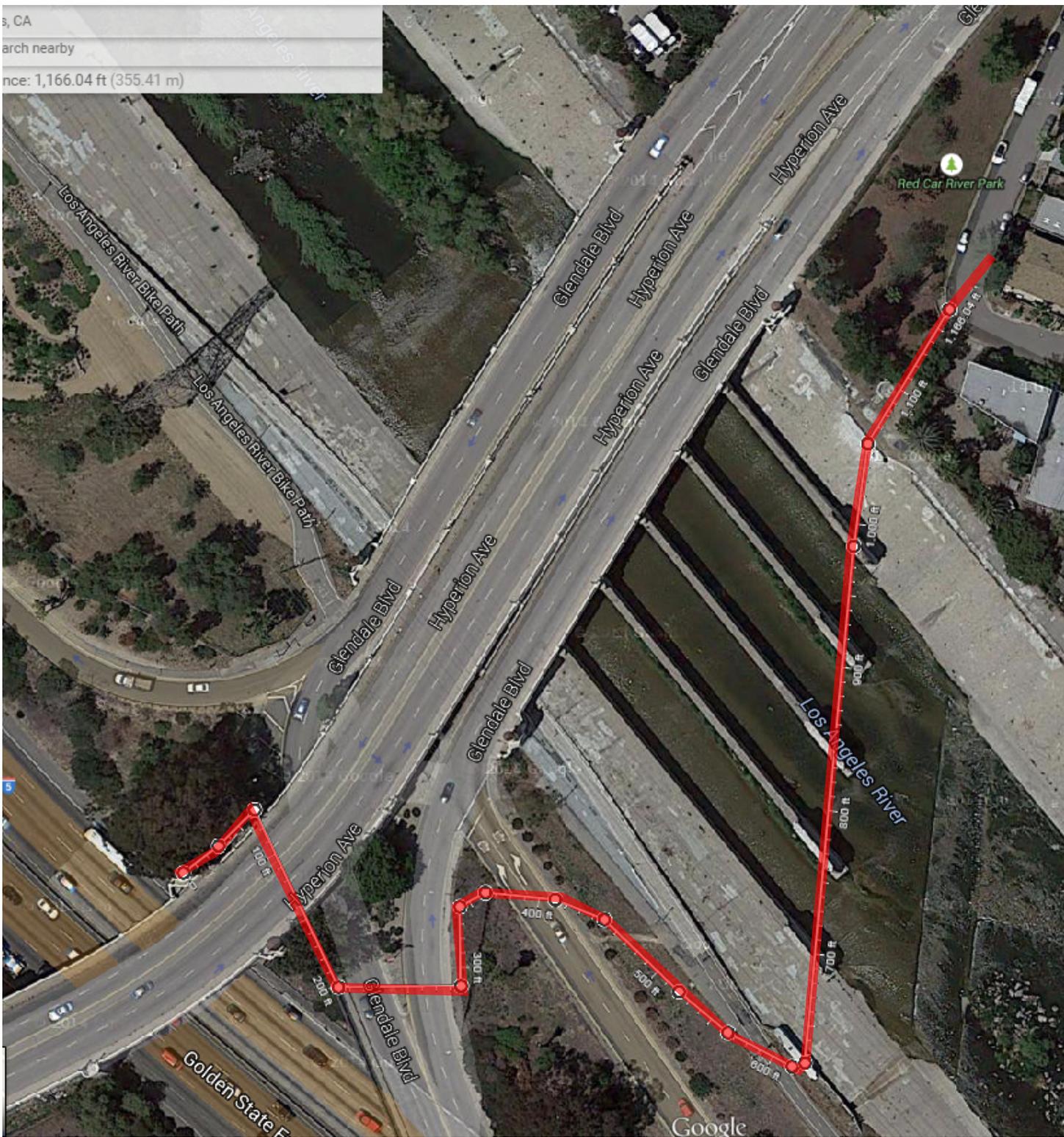
Appendix



Sidewalk on south side of bridge - 860 ft (non-ADA compliant, uses slope)

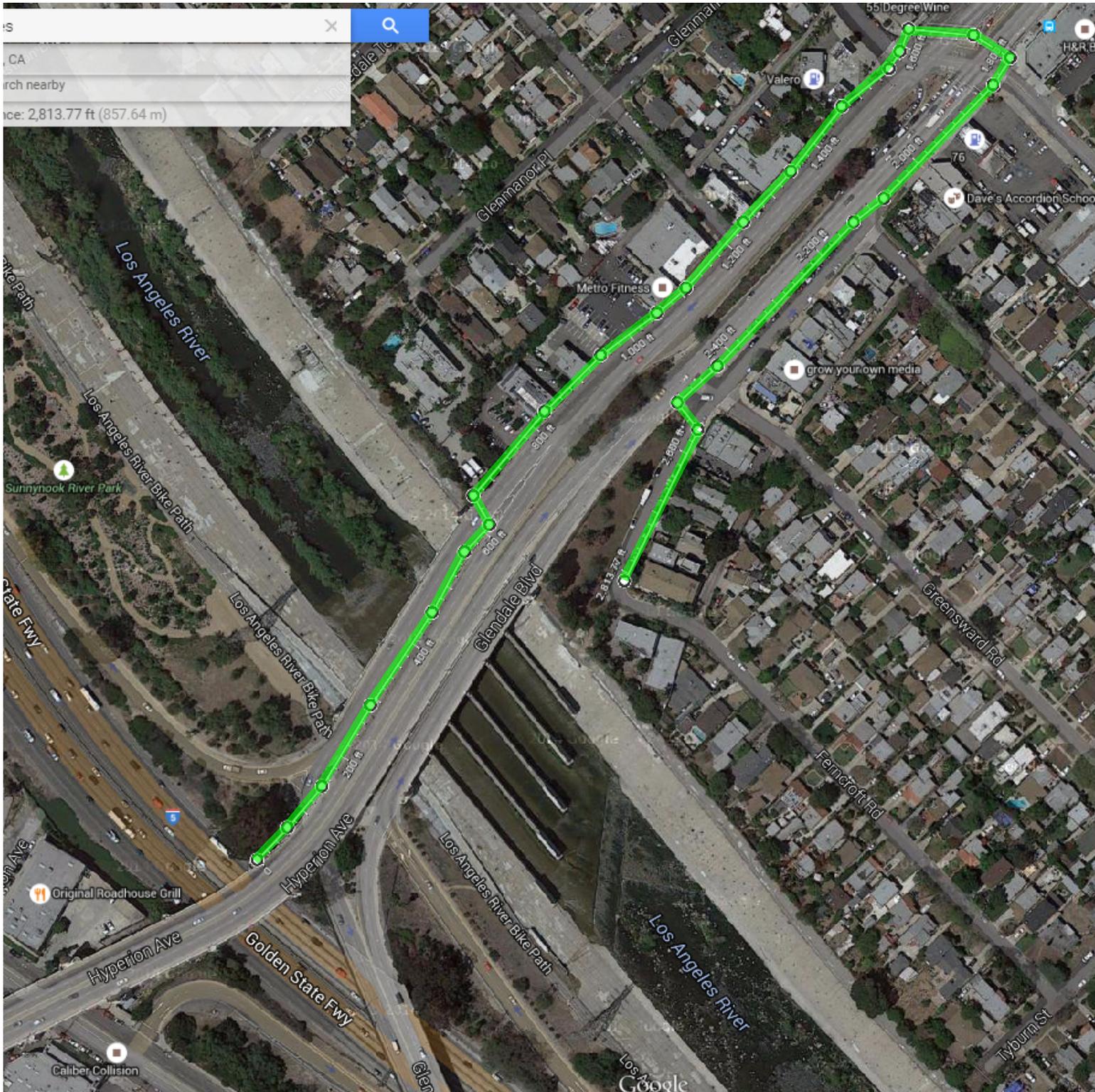
If ADA compliant (going to Greensward and coming back, dashed line) would be 1,260 ft.

s, CA
arch nearby
nce: 1,166.04 ft (355.41 m)



Using stair and Red Car pedestrian bridge - 1,170 ft (non-ADA compliant at stairs).

Additional 310 ft at 3.5 ft/s walking speed = 1.5 min additional walking time.



Using sidewalk on west side of bridge then crossing at Glenfeliz - 2,810 ft (ADA compliant)

Compared to shortest ADA route on south side (1,260 ft) adds 1,550 ft.

At 3.5 ft/s walking speed adds 7.4 minutes walking time