

10.0 Final EIR Project Supporting Documentation

Based on comments received in opposition to the above-grade passenger concourse and the outcome of considerable coordination with project funding partners and rail operators, the Final EIR includes the following modifications to the Draft EIR project:

- Removal of above-grade passenger concourse
- Removal of loop track
- Removal of a construction access road located on LAUS property
- Removal of construction staging/assembly areas

The Final EIR project was analyzed under all CEQA issue areas. The changes to the project have been adequately analyzed in the Draft EIR, and there is no need to recirculate the EIR. Based on the environmental evaluation presented in Table 2-2 of the Final EIR, as well as the supporting documentation in this section and Appendix P of this EIR, the Final EIR project would have no new significant impacts or substantially greater impacts than the Draft EIR project.

Supporting documentation was prepared to address the environmental evaluation for the following key resource sections: Transportation and Traffic, Aesthetics, Air Quality and Climate Change, and Noise and Vibration.

This section and Appendix P of this EIR provide the substantial evidence (data, assumptions, and technical analysis) to support the analysis and conclusions for the Final EIR project.

10.1 Transportation and Traffic

10.1.1 Final EIR Project – Approach and Methodology

To determine potential transportation and traffic impacts based on the reduced scope and scale of the project, the construction assumptions for the Final EIR project, including material quantities and associated haul truck trips, construction equipment types and durations of use, as well as construction employee vehicles, were updated in May 2019. After close of the Draft EIR 45-day public review period during preparation of the Final EIR, engineering design advanced, including the availability of more detailed information regarding the construction process and material types (i.e., cellular concrete fill) required to construct the elevated rail yard and new modified expanded passageway as part of the Final EIR project.

An evaluation was conducted to determine:

- If construction-related truck trips and construction employee trips would change from the increase in construction traffic considered in the Draft EIR by removal of the loop track and associated roadway modifications to city streets south of US-101, removal of the above-grade passenger

10.0 Final EIR Project Supporting Documentation

concourse and modification to the expanded passageway below the rail yard, removal of a construction access road on the LAUS campus, and removal of construction staging/assembly areas north and south of LAUS

- If the previously identified intersection impacts south of US-101 would be reduced with the modified run-through track alignment north of Commercial Street
- If operational impacts would exceed LADOT significance thresholds
- If removal of staging areas would impact the trip distribution during construction

Construction Trip Generation

Similar to the Draft EIR project, construction of the Final EIR project would require large numbers of workers and materials with equipment working simultaneously in multiple locations. Similar to the Draft EIR project, the Final EIR project would result in construction-related traffic consisting of equipment, employee vehicles, deliveries of construction material, and hauling of landfill materials in trucks. The construction trip distribution assumptions for the Final EIR project were updated based on the removal of construction staging areas and an access road, in addition to incorporating updated construction assumptions developed in May 2019. In comparison with the Draft EIR project, the construction worker trips for the Final EIR project are reduced; however, the truck trips are slightly increased from what was considered for the Draft EIR project. The slight increase in truck trips for the Final EIR project is mainly attributed to advancement of engineering design and, specifically, the availability of more detailed information regarding the construction process and material types that was not available prior to release of the Draft EIR. The trip generation summary table is presented as Table 10-1.

Construction Workers' Trips

The anticipated construction worker traffic generated from the Final EIR project was added to the AM and PM peak hour traffic volumes of the 2031 no project scenario to determine the 2031 plus project construction volumes for the Final EIR. The average numbers of construction workers per day for the Final EIR project are presented in Appendix P of this EIR.

Construction Vehicle Trips

This analysis assumes that trucks would arrive and depart the construction site throughout the workday. The truck trips included in the Final EIR project traffic impact evaluation are associated with delivery of supplies/equipment and hauling of soil/materials to the landfill site and vary minimally from the truck trips considered in the Draft EIR.

As shown in Table 10-1, the Final EIR project is anticipated to generate a maximum of 63 trucks (or a 315 passenger car equivalent) per day that would cycle in and out of the study area and project staging areas on any given day for each construction phase. Based on this estimate, it is assumed that during the peak hour of construction, 40 trucks would arrive or depart during the AM peak hour, and 16 trucks would arrive or depart during the PM peak hour.

10.0 Final EIR Project Supporting Documentation

Table 10-1 summarizes the construction-related trips that would be generated based on the project modifications, fewer staging area locations, and projections for required materials and labor force to construct the Final EIR project with a new modified expanded passageway.

Table 10-1. Construction Trip Generation – Final EIR Project with New Modified Expanded Passageway

Trip Type	Number Required per Day	Unit	Daily Trips (passenger car equivalent)	AM Peak Hour (passenger car equivalent)			PM Peak Hour (passenger car equivalent)		
				In	Out	Total	In	Out	Total
Phase 1									
Employee vehicles/construction worker trips	583	workers	1,166	583	0	583	0	233	233
Trucks	63	trucks	315	20	20	40	8	8	16
<i>Total Trips - Phase 1</i>	==	==	1,481	603	20	623	8	241	249
Phase 2									
Employee vehicles/construction worker trips	330	workers	660	330	0	330	0	132	132
Trucks	47	trucks	235	15	15	30	6	6	12
<i>Total Trips - Phase 2</i>	==	==	895	345	15	360	6	138	144
Phase 3									
Employee vehicles/construction worker trips	346	workers	692	346	0	346	0	138	138
Trucks	49	trucks	245	16	16	32	6	6	12
<i>Total Trips - Phase 3</i>	==	==	937	362	16	378	6	144	150
Phase 4									
Employee vehicles/construction worker trips	435	workers	870	435	0	435	0	174	174
Trucks	12	trucks	60	4	4	8	2	2	4
<i>Total Trips - Phase 4</i>	==	==	930	439	4	443	2	176	178
Total construction traffic in passenger car equivalent (worst phase)			1,481	603	20	623	8	241	249

Notes:

Passenger car equivalent of 2.5 for truck trips.

For AM peak hour truck trips, hourly average of daily truck trips was split equally for inbound and outbound. Assumed that PM peak hour truck trips will be 40 percent of AM peak hour trips.

Assumed 8-hour workday.

Construction Staging Areas

There were nine construction staging areas considered in the Draft EIR. Four construction staging areas were removed from the Final EIR project. The remaining five staging areas as part of the Final EIR project are shown on Figure 10-1 and summarized below:

- Staging Area 1 – Eastern terminus of Commercial Street between US-101 and Commercial Street at the Amay's Bakery and Noodle Co. and the Magellan Storage building
- Staging Area 2 – Northwest corner of Commercial Street and Center Street at the vacant lot
- Staging Area 3 – North side of Commercial Street on the east and west sides of the US-101 ramps
- Staging Area 4 – Southeast corner of Vignes Street and Ramirez Street at the Denny's restaurant lot
- Staging Area 5 – Southwest corner of Vignes Street and Ramirez Street adjacent to the Patsaouras Transit Plaza

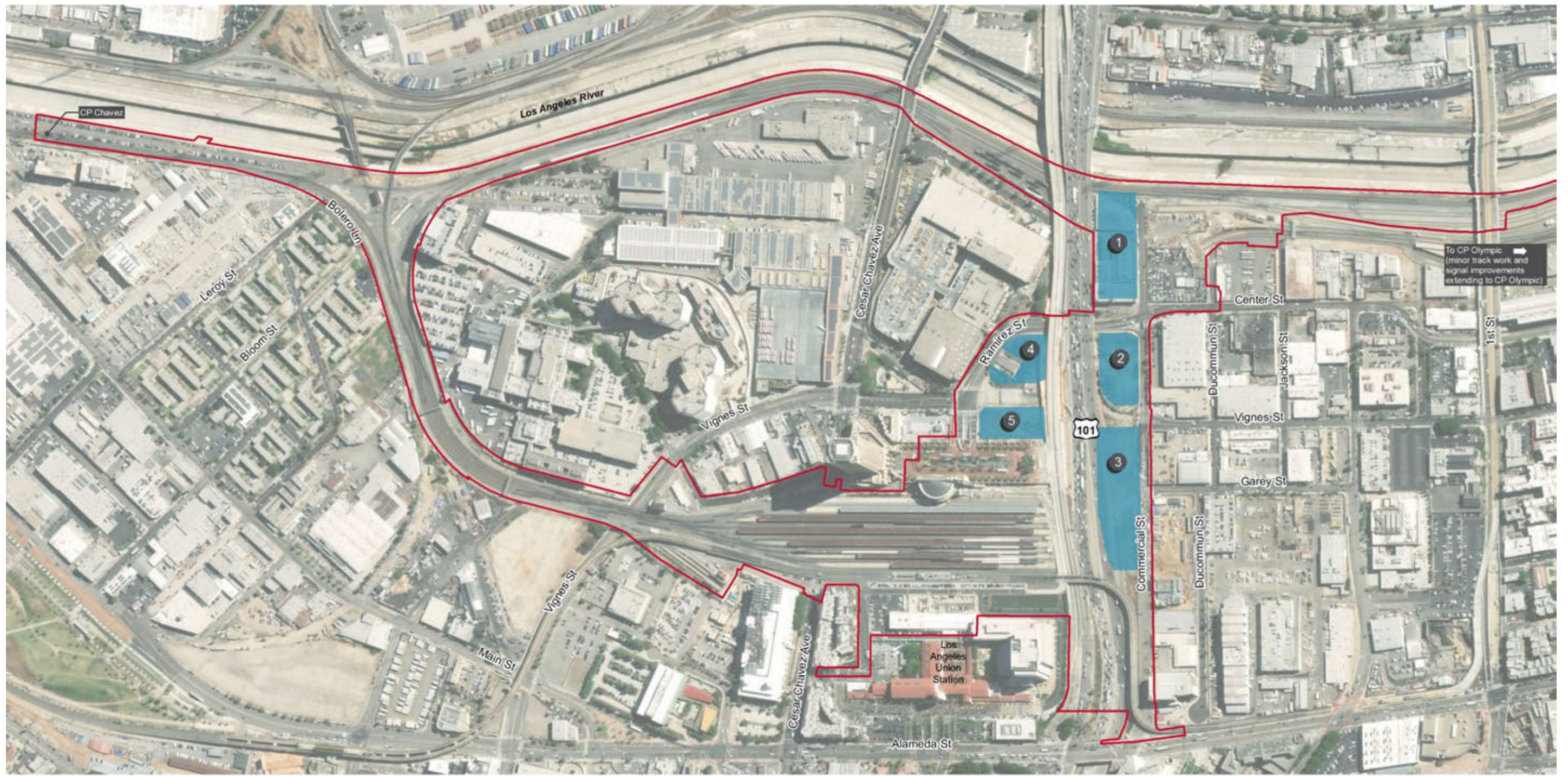
Construction Site Access

The Draft EIR included an evaluation of several potential site access points to be utilized during various stages of construction. While four construction staging areas were removed from the Final EIR project, only one potential site access point was removed (southern end of LAUS campus). The potential site access points for the Final EIR project (same as the Draft EIR project) are as follows:

- Northern/middle part of the track throat area – access via old Alhambra Avenue and College Street
- Middle part of throat area – access via existing vacant property located along the west side of throat area just north of Vignes Street
- East side of station yard/throat area – access via Avila Street
- West side of station yard – access via access road serving Postal Annex building and Bauchet Street
- West side of proposed concourse/station yard – access via LAUS access road serving Mozaic Apartments

During construction, truck traffic and employees are anticipated to use a similar set of roadways as considered in the Draft EIR because they still provide the most direct and time-efficient access to LAUS and the remaining construction staging areas. For truck traffic, the predistributed routes do not change since there are limited designated truck routes within downtown, and trucks would still use the same set of roadways, even though some of the construction staging and access roads were removed.

Figure 10-1. Potential Staging Areas



LEGEND
[Red Outline] Link Union Station Final EIR Project Footprint
[Blue Shaded Area] Construction Staging/Assembly Area



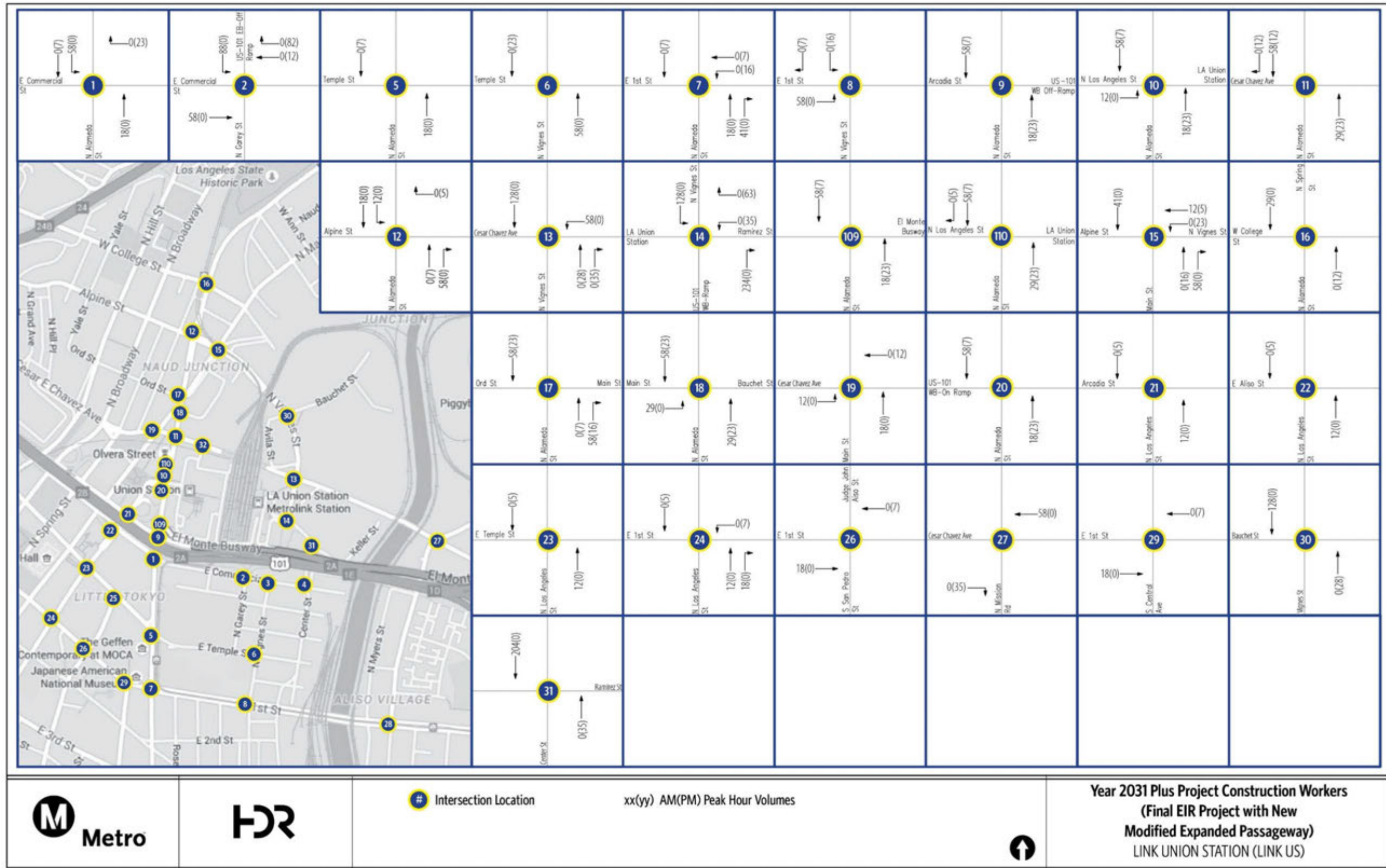
(THIS PAGE INTENTIONALLY LEFT BLANK)

2031 plus Project Construction Trip Projections

Illustrations of the construction workers, vehicles, and 2031 plus project construction (with new modified expanded passageway) peak hour traffic volumes are shown on Figure 10-2, Figure 10-3, and Figure 10-4, respectively.

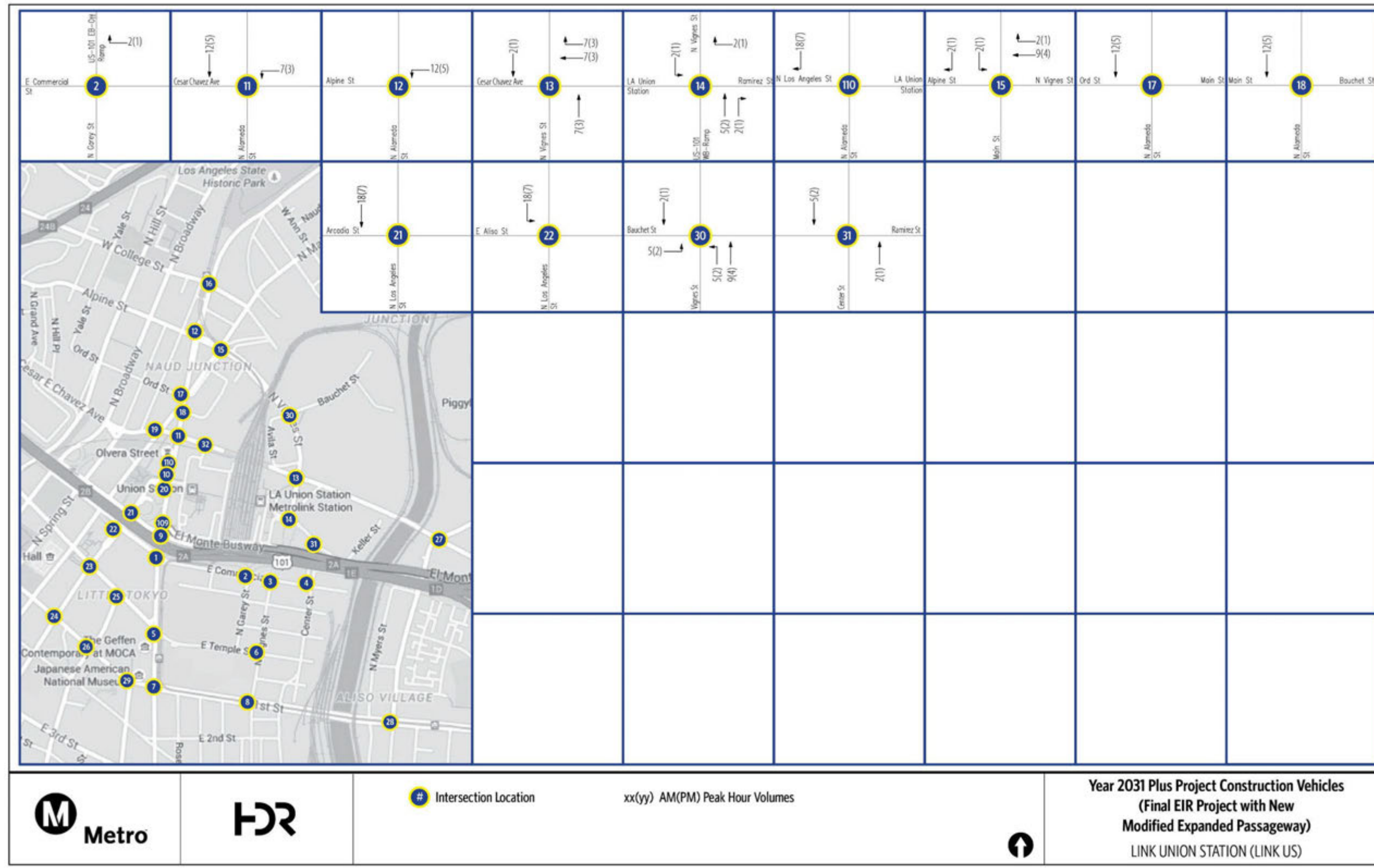
(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-2. 2031 plus Project Construction – Construction Workers Traffic Volumes (Final EIR Project with New Modified Expanded Passageway)



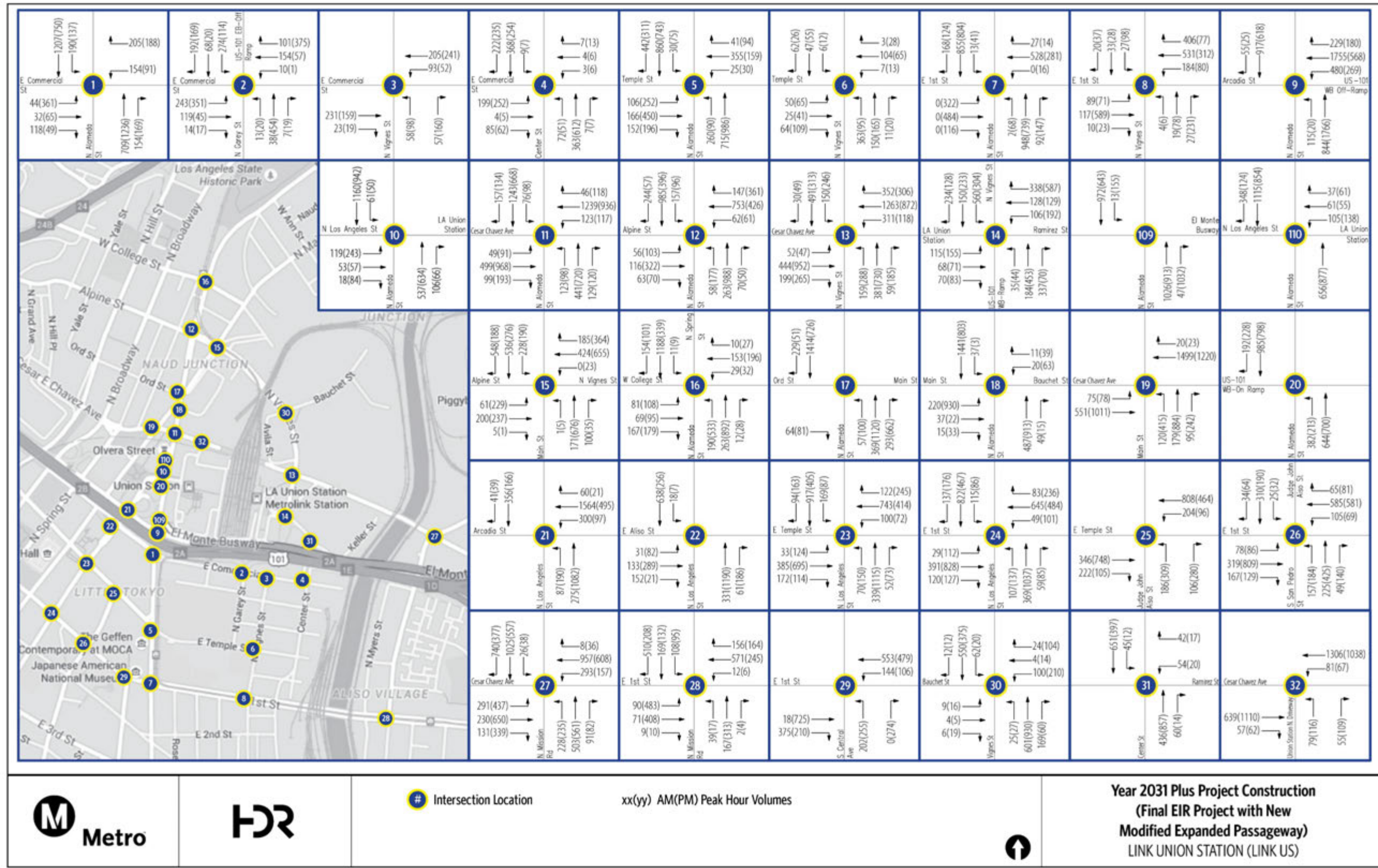
(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-3. 2031 plus Project Construction – Construction Vehicles Peak Hour Traffic Volumes (Final EIR Project with New Modified Expanded Passageway)



(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-4. 2031 plus Project Construction – Peak Hour Traffic Volumes (Final EIR Project with New Modified Expanded Passageway)



(THIS PAGE INTENTIONALLY LEFT BLANK)

10.0 Final EIR Project Supporting Documentation

10.1.2 Final EIR Project – Impact Evaluation

This section provides a description of the analysis methodology and projected 2031 and 2040 traffic conditions, both with and without the project. The analysis scenarios include:

- 2031 plus project construction (Final EIR project with new modified expanded passageway)
- 2031 plus project condition
- 2040 plus project condition

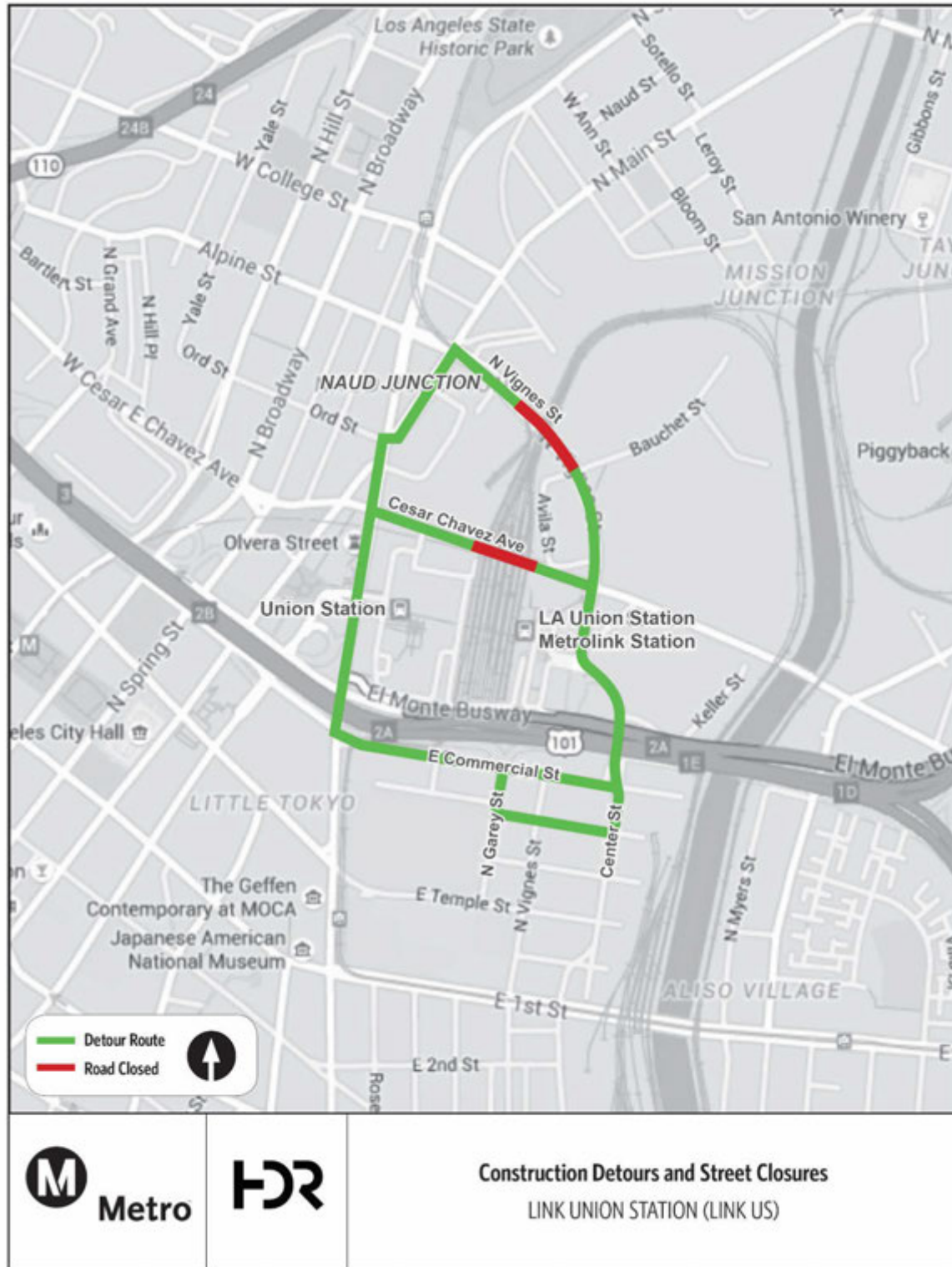
Construction***Construction Detours and Local Street Closures***

Construction of the Final EIR project would require modifications to the previously identified street closures considered in the Draft EIR because run-through track infrastructure in Segment 3 is proposed north of Commercial Street. Site-specific traffic detours for required street closures would be identified as part of a comprehensive TMP; however, the extent of detours and overall duration is expected to be reduced as a result of the modified run-through track alignment. Illustrations of the construction detours and temporary road closures for the Final EIR project are shown on Figure 10-5. Figure 10-5 was updated to reflect closure of Cesar Chavez Avenue during construction, in response to a comment raised during the 45-day public review period. As shown on Figure 10-5, Commercial Street would remain open to traffic and serve as a viable detour for other east to west traffic during different phases of construction, especially during bridge construction along Cesar Chavez Road and Vignes Street. The duration of temporary road closures and/or detours along Center Street would also be reduced because the intersection of Commercial Street and Center Street would not be lowered.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-5. Construction Detours and Street Closures



(THIS PAGE INTENTIONALLY LEFT BLANK)

10.0 Final EIR Project Supporting Documentation

Study Intersections - 2031 plus Project Construction

Table 10-2 summarizes peak hour LOS for all study locations for the 2031 plus project construction condition. Appendix P of this EIR presents the Synchro worksheets for each study intersection. Intersection #2 and #10 would not be subject to increased delays that would result in significant impacts, as previously disclosed in the Draft EIR; however, the Final EIR project would redistribute traffic such that an impact would occur at Intersection #27. Therefore, the Final EIR project would increase delays, resulting in a significant impact, at the following intersections:

- Intersection #15: Vignes Street and Main Street (LOS F – PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (LOS E – AM peak)

In total, construction would result in significant impacts at three intersections under the Draft EIR project and two intersections under the Final EIR project. The Final EIR project results in one less intersection impact during construction.

US-101 Main Line

The Final EIR project includes minor design changes from the US-101 main line modifications/safety improvements that were discussed in Section 2.9.6 of the Draft EIR. Night closures are expected to last for 8 to 12 weeks on weekends only for the Final EIR project, rather than the 20 consecutive days as considered for the Draft EIR project. Similar to the Draft EIR, these changes would not result in traffic patterns that would increase traffic demand by more than 2 percent of the capacity. The following highway modifications/safety improvements within the Caltrans ROW would be implemented on the main line, Alameda Street off-ramp, Commercial Street on-ramp, and the Vignes Street on-ramp as part of the Final EIR project:

- Improved median and shoulder horizontal clearances
- Increased horizontal stopping sight distance to provide required design speed
- Increased shoulder widths for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased lane widths for reduced sideswipe collisions
- Improved lane geometry to provide increased comfort speed for existing superelevation
- Increased tangent length between reversing curves for improved drivability (greater distance between curves allows the driver to see the upcoming horizontal curve, prepare for the curve ahead, and adjust driving/steering accordingly)

Alameda Street Off-Ramp (Northbound)

- Increased deceleration length
- Standard ramp exit diverge angle (provides standardized exit geometry matching driver expectations for safe exits)
- Increased shoulder width for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased weaving length, which provides for safer exit from US-101

Commercial Street On-Ramp (Southbound)

- Increased shoulder widths for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased inside lane width for improved truck drivability and reduced sideswipe collisions

Vignes Street On-Ramp (Northbound)

- Increased weaving length, which provides for safer merge onto US-101

Since the proposed improvement measures are related to safety, sight distance, and driver comfort, there would be no change in the operations along the US-101 during construction. Therefore, the LOS analysis presented in the Draft EIR would remain the same since the construction-related traffic, which used the US-101 to access the construction staging areas and sites in the Draft EIR, would still be using the same segment of the US-101 to access the sites for the Final EIR project. The changes in locations of construction staging areas associated with the Final EIR project would not result in changes to travel patterns of construction traffic along the US-101.

10.0 Final EIR Project Supporting Documentation

Table 10-2. 2031 plus Project Construction (Final EIR Project with New Modified Expanded Passageway) Intersection Level of Service													
Intersection Number	Intersection Name	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	
1	Alameda Street and Commercial Street	29.1	C	31.3	C	2.2	No	35.1	D	38.9	D	3.8	No
2	Garey Street and Commercial Street	31.3	C	31.6	C	0.3	No	34.1	C	35.4	D	1.3	No
3	Vignes Street and Commercial Street	9.8	A	9.8	A	0.0	=	10.1	B	10.1	B	0.0	=
4	Center Street and Commercial Street ^a	17.2	C	17.2	C	0.0	No	57.5	F	57.5	F	0.0	No
5	Alameda Street and Temple Street	14.6	B	14.6	B	0.0	No	16.7	B	15.6	B	-1.1	No
6	Vignes Street and Temple Street ^a	15.4	C	19.3	C	3.9	No	9.9	A	10.0	B	0.1	No
7	Alameda Street and First Street	18.3	B	17.9	B	-0.4	No	17.3	B	18.2	B	0.9	No
8	Vignes Street and First Street	20.2	C	22.4	C	2.2	No	27.6	C	26.1	C	-1.5	No
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	C	21.7	C	0.6	No	14.6	B	15.1	B	0.5	No
10	Alameda Street and Los Angeles Street Eastbound	12.1	B	12.6	B	0.5	No	30.6	C	30.8	C	0.2	No
110	Alameda Street and Los Angeles Street Westbound	4.3	A				No	5.7	A				No
11	Alameda Street and Cesar Chavez Avenue	20.7	C	21.5	C	0.8	No	17.1	B	20.3	C	3.2	No
12	Alameda Street and Vignes Street/Alpine Street	11.6	B	12.7	B	1.1	No	13.8	B	13.8	B	0.0	No
13	Vignes Street and Cesar Chavez Avenue	18.5	B	19.8	B	1.3	No	25.1	C	26.3	C	1.2	No
14	Vignes Street and Ramirez Street	23.3	C	24.4	C	1.1	No	24.5	C	25.4	C	0.9	No
15	Vignes Street and Main Street	27.2	C	23.8	C	-3.4	No	74.6	E	82.8	F	8.2	Yes
16	Alameda Street/Spring Street and College Street	16.5	B	16.5	B	0.0	No	17.7	B	17.3	B	-0.4	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.6	A	-0.1	No	0.7	A	0.7	A	0.0	No
18	Alameda Street and Main Street/Bauchet Street	5.8	A	6.1	A	0.3	No	9.6	A	10.5	B	0.9	No
19	Main Street and Cesar Chavez Avenue	7.7	A	8.1	A	0.4	No	19.8	B	20.0	B	0.2	No
20	Alameda Street and Northbound US-101 ^b	=	=				=	=	=				=
21	Los Angeles Street and Arcadia Street	7.7	A	7.4	A	-0.3	No	4.8	A	4.8	A	0.0	No
22	Los Angeles Street and Aliso Street	9.4	A	9.6	A	0.2	No	11.8	B	11.9	B	0.1	No
23	Los Angeles Street and Temple Street	15.2	B	15.4	B	0.2	No	17.6	B	17.5	B	-0.1	No
24	Los Angeles Street and First Street	15.2	B	15.0	B	-0.2	No	20.7	C	22.1	C	1.4	No

10.0 Final EIR Project Supporting Documentation

Table 10-2. 2031 plus Project Construction (Final EIR Project with New Modified Expanded Passageway) Intersection Level of Service

Intersection Number	Intersection Name	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		LOS	Delay (Second)	LOS	Delay (Second)	LOS	
25	Judge John Aiso Street and Temple Street	8.3	A	8.2	A	-0.1	No	8.0	A	8.0	A	0.0	No
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.9	B	0.3	No	15.3	B	14.2	B	-1.1	No
27	Mission Road and Cesar Chavez Avenue	58.0	E	61.8	E	3.8	Yes	25.6	C	26.4	C	0.8	No
28	Mission Road and First Street	25.8	C	29.5	C	3.7	No	33.2	C	32.9	C	-0.3	No
29	Central Avenue and First Street	8.8	A	8.5	A	-0.3	No	11.3	B	12.2	B	0.9	No
30	Vignes Street and Bauchet Street	11.4	B	11.1	B	-0.3	No	20.0	B	19.5	B	-0.5	No
31	Ramirez Street and Center Street	1.7	A	1.7	A	0.0	No	0.6	A	0.7	A	0.1	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	B	13.6	B	0.0	No	14.0	B	14.0	B	0.0	No

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

LOS=level of service

Operations

Study Intersections – 2031 and 2040 plus Project

Intersection peak hour LOS for 2031 plus project condition is presented in Table 10-3, intersection peak hour LOS for 2040 plus project conditions is presented in Table 10-4, and the Synchro worksheets for each study intersection are presented in Appendix P. When compared with the 2031 and 2040 no project scenario (which includes the existing conditions plus background traffic growth), the following intersection would be impacted due to implementation of the Final EIR project with new modified expanded passageway:

- Intersection #4: Center Street and Commercial Street (AM and PM peaks)

The Final EIR project avoids a significant and unavoidable impact at Intersection #2 (Garey Street and Commercial Street) previously considered as part of the Draft EIR project.

US-101 Main Line

The following highway modifications/safety improvements within the Caltrans ROW would be implemented as part of the Final EIR project:

US-101 Main Line

- Improved median and shoulder horizontal clearances
- Increased horizontal stopping sight distance to provide required design speed
- Increased shoulder widths for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased lane widths for reduced sideswipe collisions
- Improved lane geometry to provide increased comfort speed for existing superelevation
- Increased tangent length between reversing curves for improved drivability (greater distance between curves allows the driver to see the upcoming horizontal curve, prepare for the curve ahead, and adjust driving/steering accordingly)

Alameda Street Off-Ramp (Northbound)

- Increased deceleration length
- Standard ramp exit diverge angle (provides standardized exit geometry matching driver expectations for safe exits-)
- Increased shoulder width for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased weaving length, which provides for safer exit from US-101

10.0 Final EIR Project Supporting Documentation

Commercial Street -On-Ramp (Southbound)

- Increased shoulder widths for enhanced horizontal clearance and safe refuge area for disabled vehicles
- Increased inside lane width for improved truck drivability and reduced sideswipe collisions

Vignes Street On-Ramp (Northbound)

- Increased weaving length, which provides for safer merge onto US-101

To analyze the traffic-related operational impacts of the above mentioned improvements along US-101, in early 2019, a weaving analysis was prepared to determine the operational benefits of the proposed modifications/safety improvements along US-101. Since the proposed improvement measures are related to safety, sight distance, and driver comfort, the results of the weaving analysis suggest there would be no change in the operations along US-101 as compared with the existing operations. The weaving analysis was provided to Caltrans April 10, 2019. Also, the LOS analysis presented in the Draft EIR during the 2031 and 2040 plus project scenarios would remain the same since the traffic, which was using US-101 to access the project site in the Draft EIR, would still be using the same segment of US-101 to access the sites for the Final EIR project. Additionally, the proposed improvements along US-101 would not increase or decrease the existing capacity of the freeway segment.

10.0 Final EIR Project Supporting Documentation

Table 10-3. 2031 plus Project Intersection Level of Service													
Intersection Number	Intersection Name	AM Peak						PM Peak					
		2031 No Project		2031 Plus Project		Delta	Significant Impact?	2031 No Project		2031 Plus Project		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	
1	Alameda Street and Commercial Street	29.1	C	29.5	C	0.4	No	35.1	D	35.4	D	0.3	No
2	Garey Street and Commercial Street	31.3	C	31.3	C	0.0	No	34.1	C	30.3	C	-3.8	No
3	Vignes Street and Commercial Street ^a	9.8	A	9.8	A	0.0	No	10.1	B	10.1	B	0.0	No
4	Center Street and Commercial Street ^a	17.2	C	17.2	C	0.0	No	57.5	F	60.5	F	3.0	Yes
5	Alameda Street and Temple Street	14.6	B	14.7	B	0.1	No	16.7	B	15.8	B	-0.9	No
6	Vignes Street and Temple Street ^a	15.4	C	15.4	C	0.0	No	9.9	A	9.9	A	0	No
7	Alameda Street and First Street	18.3	B	18.3	B	0.0	No	17.3	B	17.9	B	0.6	No
8	Vignes Street and First Street	20.2	C	20.2	C	0.0	No	27.6	C	27.5	C	-0.1	No
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	C	21.2	C	0.1	No	14.6	B	14.5	B	-0.1	No
10	Alameda Street and Los Angeles Street Eastbound	12.1	B	11.7	B	-0.4	No	12.4	B	12.6	B	0.2	No
110	Alameda Street and Los Angeles Street Westbound	4.3	A	4.4	A	0.1	No	5.7	A	7.0	A	1.3	No
11	Alameda Street and Cesar Chavez Avenue	20.7	C	20.9	C	0.2	No	17.1	B	16.9	B	-0.2	No
12	Alameda Street and Vignes Street/Alpine Street	11.6	B	13.7	B	2.1	No	13.8	B	18.1	B	4.3	No
13	Vignes Street and Cesar Chavez Avenue	18.5	B	19.9	B	1.4	No	25.1	C	25.9	C	0.8	No
14	Vignes Street and Ramirez Street	23.3	C	23.4	C	0.1	No	24.5	C	24.8	C	0.3	No
15	Vignes Street and Main Street	27.2	C	17.6	B	-9.6	No	74.6	E	50.7	D	-23.9	No
16	Alameda Street/Spring Street and College Street	16.5	B	16.5	B	0.0	No	17.7	B	17.9	B	0.2	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.7	A	0.0	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.8	A	5.7	A	-0.1	No	9.6	A	9.8	A	0.2	No
19	Main Street and Cesar Chavez Avenue	7.7	A	7.7	A	0.0	No	19.8	B	19.8	B	0	No
20	Alameda Street and Northbound US-101 ^b	=	=	=	=	=	=	=	=	=	=	=	=
21	Los Angeles Street and Arcadia Street	7.7	A	7.8	A	0.1	No	4.8	A	5.1	A	0.3	No
22	Los Angeles Street and Aliso Street	9.4	A	9.5	A	0.1	No	11.8	B	11.7	B	-0.1	No
23	Los Angeles Street and Temple Street	15.2	B	15.2	B	0.0	No	17.6	B	17.6	B	0	No
24	Los Angeles Street and First Street	15.2	B	15.2	B	0.0	No	20.7	C	20.7	C	0	No
25	Judge John Aiso Street and Temple Street	8.3	A	8.2	A	-0.1	No	8.0	A	7.7	A	-0.3	No

Table 10-3. 2031 plus Project Intersection Level of Service

Intersection Number	Intersection Name	AM Peak						PM Peak					
		2031 No Project		2031 Plus Project		Delta	Significant Impact?	2031 No Project		2031 Plus Project		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.6	B	0.0	No	15.3	B	15.3	B	0	No
27	Mission Road and Cesar Chavez Avenue	58.0	E	58.1	E	0.1	No	25.6	C	25.7	C	0.1	No
28	Mission Road and First Street	25.8	C	25.8	C	0.0	No	33.2	C	33.2	C	0	No
29	Central Avenue and First Street	8.8	A	8.8	A	0.0	No	11.3	B	11.3	B	0	No
30	Vignes Street and Bauchet Street	11.4	B	11.1	B	-0.3	No	20.0	B	20.0	B	0	No
31	Ramirez Street and Center Street	1.7	A	1.7	A	0.0	No	0.6	A	0.6	A	0	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	B	13.6	B	0.0	No	14.0	B	14.0	B	0	No

Notes:
 a *Non-signalized intersection*
 b *Freeway on-ramp, neither signalized nor STOP-sign controlled*
 LOS=level of service

10.0 Final EIR Project Supporting Documentation

Table 10-4. 2040 plus Project Intersection Level of Service													
Intersection Number	Intersection Name	AM Peak						PM Peak					
		2040 No Project		2040 Plus Project		Delta	Significant Impact?	2040 No Project		2040 Plus Project		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	
1	Alameda Street and Commercial Street	31.6	C	32.0	C	0.4	No	47.8	D	49.2	D	1.4	No
2	Garey Street and Commercial Street	31.3	C	31.3	C	0.0	No	34.6	C	33.8	C	-0.8	No
3	Vignes Street and Commercial Street ^a	9.8	A	9.8	A	0.0	No	10.2	B	10.2	B	0.0	No
4	Center Street and Commercial Street ^a	18.0	C	18.9	C	0.9	No	62.5	F	65.6	F	3.1	Yes
5	Alameda Street and Temple Street	16.3	B	16.3	B	0	No	16.9	B	16.9	B	0	No
6	Vignes Street and Temple Street ^a	15.9	C	15.9	C	0	No	10	A	10	A	0	No
7	Alameda Street and First Street	18.5	B	18.5	B	0	No	16.2	B	16.2	B	0	No
8	Vignes Street and First Street	21.1	C	21.1	C	0	No	26.9	C	26.6	C	-0.3	No
9	Alameda Street and El Monte Busway/Arcadia Street	90.3	F	90.0	F	0	No	15.7	B	15.6	B	-0.1	No
10	Alameda Street and Los Angeles Street Eastbound	28.0	C	28.1	A	0.1	No	15.5	B	14.2	B	-1.3	No
110	Alameda Street and Los Angeles Street Westbound	0.1	A	0.1	A	0	No	0.2	A	0.2	A	0	No
11	Alameda Street and Cesar Chavez Avenue	29.7	C	29.7	C	0	No	21.1	C	21.2	C	0.1	No
12	Alameda Street and Vignes Street/Alpine Street	12.5	B	12.5	B	0	No	14.4	B	14.5	B	0.1	No
13	Vignes Street and Cesar Chavez Avenue	18.1	B	18.1	B	0	No	21	C	21.1	C	0.1	No
14	Vignes Street and Ramirez Street	23.3	C	23.3	C	0	No	26	C	25.9	C	-0.1	No
15	Vignes Street and Main Street	18.8	B	18.8	B	0	No	62.8	E	63.8	E	1	No
16	Alameda Street/Spring Street and College Street	16.8	B	16.8	B	0	No	16.8	B	17.1	B	0.3	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.7	A	0	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.3	A	5.3	A	0	No	14	B	14.3	B	0.3	No
19	Main Street and Cesar Chavez Avenue	7.1	A	7.1	A	0	No	19.6	B	19.4	B	-0.2	No
20	Alameda Street and Northbound US-101 ^b	=	=	=	=	=	=	=	=	=	=	=	=
21	Los Angeles Street and Arcadia Street	8.9	A	9.0	A	0.1	No	5.9	A	6	A	0.1	No
22	Los Angeles Street and Aliso Street	10.1	B	10.2	B	0.1	No	12.1	B	12.2	B	0.1	No
23	Los Angeles Street and Temple Street	15.1	B	15.1	B	0	No	18	B	18	B	0	No
24	Los Angeles Street and First Street	14.1	B	14.1	B	0	No	21.9	C	21.9	C	0	No
25	Judge John Aiso Street and Temple Street	7.8	A	7.8	A	0	No	8.2	A	8.1	A	-0.1	No
26	Judge John Aiso Street/San Pedro Street and First Street	16.1	B	16.1	B	0	No	15.4	B	15.3	B	-0.1	No
27	Mission Road and Cesar Chavez Avenue	59.7	E	59.7	E	0	No	26.6	C	26.6	C	0	No
28	Mission Road and First Street	26.9	C	26.9	C	0	No	36.9	D	36.9	D	0	No

10.0 Final EIR Project Supporting Documentation

Table 10-4. 2040 plus Project Intersection Level of Service

Intersection Number	Intersection Name	AM Peak						PM Peak					
		2040 No Project		2040 Plus Project		Delta	Significant Impact?	2040 No Project		2040 Plus Project		Delta	Significant Impact?
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)		LOS	Delay (Second)	LOS	Delay (Second)	LOS	
29	Central Avenue and First Street	9.1	A	9.1	A	0	No	11.4	B	11.3	B	-0.1	No
30	Vignes Street and Bauchet Street	11.8	B	11.9	B	0.1	No	20.9	C	20.5	C	-0.4	No
31	Ramirez Street and Center Street	1.8	A	1.7	A	0	No	0.7	A	0.7	A	0	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.0	B	13.0	B	0	No	14.1	B	14.1	B	0	No

Notes:

a Non-signalized intersection

b Freeway on-ramp, neither signalized nor STOP-sign controlled

LOS=level of service

10.1.3 Final EIR Project – Mitigation Measures

Construction

For the Final EIR project with new modified expanded passageway, the following two intersections would experience significant impacts per LADOT guidelines (LADOT 2016) during construction:

- Intersection #15: Vignes Street and Main Street (LOS F – PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (LOS E – AM peak)

According to LADOT guidelines (LADOT 2016), these intersections would require the same type of mitigation to reduce impacts to a level less than significant as considered in the Draft EIR. Mitigation Measure TR-1 (described in Section 3.3, Transportation and Traffic) includes provisions that require changes to signal phasing and timing to mitigate the temporary impacts of traffic shifts caused by the construction detour. In addition to the signal phasing and timing, temporary closed-circuit television cameras are also required to mitigate temporary impacts by allowing for real-time monitoring of traffic during construction. Proposed locations of the closed-circuit television would need to be coordinated with the City of Los Angeles. Proposed changes to signal phasing and timing are identified at the following intersections:

- Intersection #15: Vignes Street and Main Street
 - o Optimized intersection cycle lengths and splits to 120 seconds during PM peak
- Intersection #27: Mission Road and Cesar Chavez Avenue
 - o Optimized intersection cycle lengths and splits to 90 seconds during AM peak

The proposed construction TMP as part of Mitigation Measure TR-1 would further reduce the impacts of construction-related traffic on local intersections. A comparison of the intersections for 2031 plus project construction condition traffic with and without mitigation is presented in Table 10-5, and detailed Synchro analysis worksheets are presented in Appendix P.

Operations

The traffic impact analysis determined that the 2031 and 2040 plus project conditions would result in a significant traffic delay impact at one intersection (one less intersection than the Draft EIR project). Mitigation Measure TR-2 (described in Section 3.3, Transportation and Traffic) would be applicable, which requires installation of a traffic signal for Intersection #4: Center Street and Commercial Street. A comparison of the intersections for 2031 and 2040 plus project conditions traffic with and without mitigation is presented in Table 10-6 and Table 10-7, respectively. Detailed Synchro analysis worksheets are presented in Appendix P.

(THIS PAGE INTENTIONALLY LEFT BLANK)

10.0 Final EIR Project Supporting Documentation

Table 10-5. 2031 Construction Condition with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2031 with Construction		2031 Construction with Mitigation		Delta	2031 with Construction		2031 Construction with Mitigation		Delta
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)
15	Vignes Street and Main Street	=	=	=	=	=	82.8	F	61.4	E	-21.4
27	Mission Road and Cesar Chavez Avenue	61.8	E	54.0	D	-7.8	=	=	=	=	=

Notes:

LOS=level of service

Table 10-6. 2031 plus Project with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2031 plus Project		2031 plus Project with Mitigation		Delta	2031 plus Project		2031 plus Project with Mitigation		Delta
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)
4	Center Street and Commercial Street	17.2	C	11.5	B	-5.7	60.5	F	14.7	B	-45.8

Notes:

LOS=level of service

10.0 Final EIR Project Supporting Documentation

Table 10-7. 2040 plus Project with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2040 plus Project		2040 plus Project with Mitigation		Delta	2040 plus Project		2040 plus Project with Mitigation		Delta
		Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)	Delay (Second)	LOS	Delay (Second)	LOS	Delay (Second)
4	Center Street and Commercial Street	18.9	C	11.7	B	-7.2	65.6	F	14.9	B	-50.7

Notes:

LOS=level of service

10.0 Final EIR Project Supporting Documentation

10.1.4 Final EIR Project – CEQA Determination

The magnitude of temporary and operational impacts is reduced, and the CEQA significance determination for Threshold 3.3-A is changed from significant and unavoidable to less than significant after mitigation.

Impacts are reduced because one less intersection would be impacted during construction, and fewer road closures/detours with shorter durations are required. Additionally, the Vignes Street/Commercial Street intersection would remain open, and a significant and unavoidable long-term impact previously identified at Intersection #2 (Garey Street and Commercial Street) would be avoided.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

10.2 Aesthetics**10.2.1 Final EIR Project – Approach and Methodology**

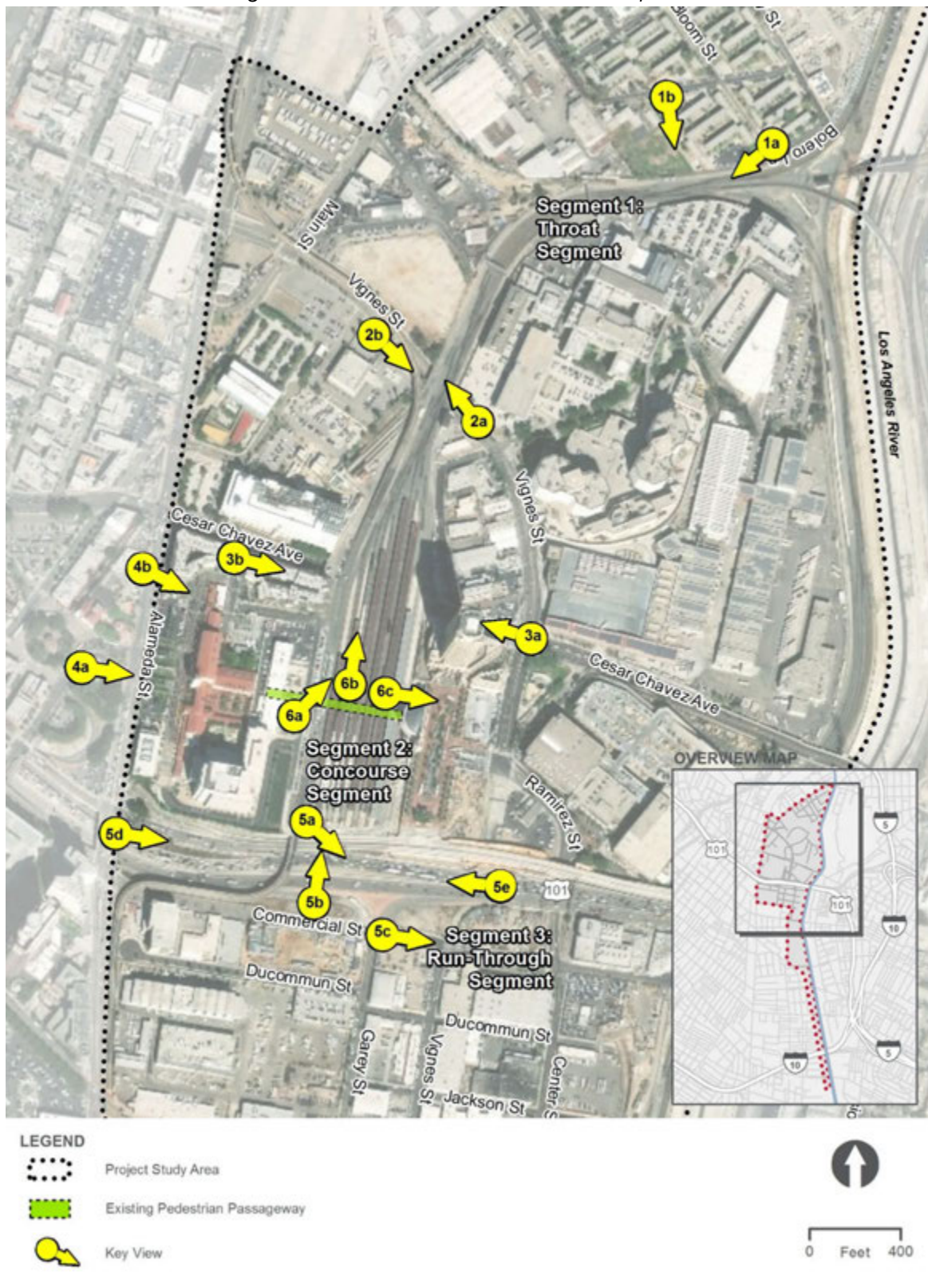
An evaluation was conducted to determine:

- If existing key views and/or visual simulations are applicable or require modification
- If visual character and visual quality would be impacted with the removal of the above-grade passenger concourse
- If light and glare would be impacted with the removal of the above-grade passenger concourse

In the Draft EIR, the project study area was divided into a series of “visual assessment units.” Each visual assessment unit has its own visual character and visual quality, defined by boundaries in visual characteristics. Six visual assessment units and 14 key viewpoints, or “key views,” were identified. The location of all visual assessment units and key views are shown on Figure 10-6. Two additional viewpoint locations (#5d southbound US-101 [view looking east from Alameda Street toward run-through tracks] [Figure 10-7] and #5e northbound US-101 [view looking west from US-101 toward Downtown Los Angeles] [Figure 10-8]) are considered in this section based on comments received on the Draft EIR. In addition, Key Views #5a, #5b, and #5c and all viewpoints within Visual Assessment Unit #6 were updated to reflect the removal of the above-grade passenger concourse and the modified run-through track alignment as part of the Final EIR project.

(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-6. Visual Assessment Units and Key Views



(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-7. Key View #5d – Southbound US-101 (View Looking East from Alameda Street)

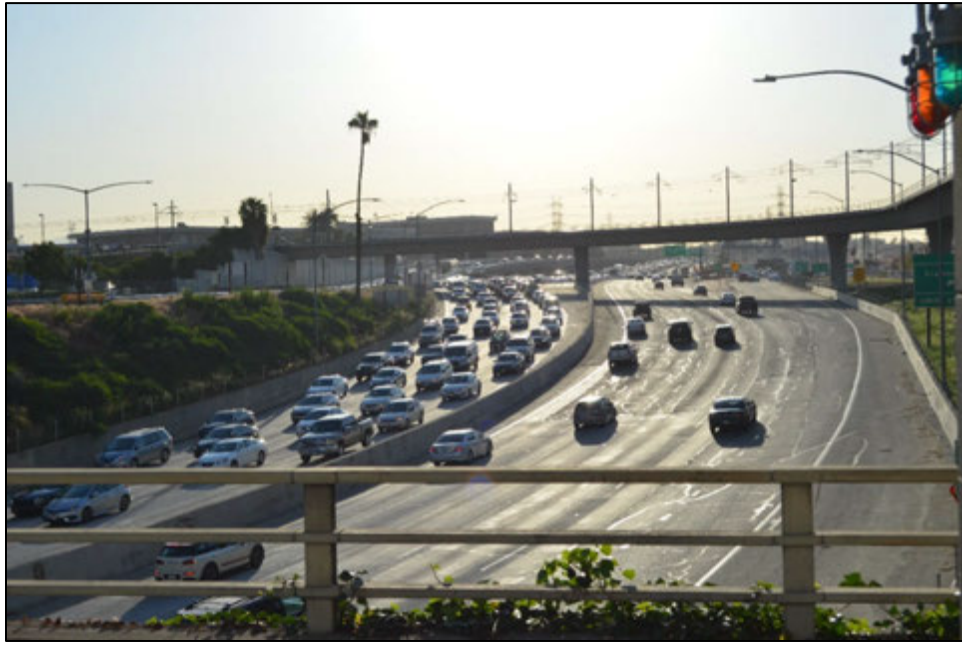


Figure 10-8. Key View #5e –Northbound US-101 (View Looking West toward Downtown Los Angeles)



10.0 Final EIR Project Supporting Documentation

10.2.2 Final EIR Project – Impact Evaluation**Construction**

During construction of the Final EIR project, vehicle and equipment use would be visible from surrounding land uses, including William Mead Homes, the Mozaic Apartments, and the areas south of US-101. Vehicles and equipment would be contained within the project footprint; however, some construction areas would be directly adjacent to residential buildings. Construction activities would also extend into the road during replacement of the Vignes Street and Cesar Chavez Avenue bridges.

During nighttime construction activities associated with the Final EIR project, temporary lighting may be used at discrete locations for certain construction activities. The project study area is currently an urban area with multiple sources and types of lighting typically associated with a large, metropolitan city. The use of construction lighting during nighttime hours would not change the visual character of the area or degrade the visual quality because lighting would only be temporary and placed in select locations. Due to the proximity of nearby residences to the construction work zone, residents of Mozaic Apartments and William Mead Homes would be exposed to higher levels of lighting than the existing condition during the nighttime hours for a temporary duration throughout project construction. The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

Operations**Visual Character and Visual Quality****Visual Assessment Unit #4 (Alameda Street Corridor/Father Serra Park)**

From Key Views #4a and #4b, views from the Alameda Street corridor and Father Serra Park looking east toward LAUS would not include the elevated portion of the above-grade passenger concourse, although they may still include a small segment of the grand canopy structure. Views of the canopy structure are expected to take place intermittently for short durations of time as viewers pass LAUS along Alameda Street or utilize the public spaces in the vicinity. A grand canopy would introduce new infrastructure behind the historic LAUS entrance that would include design elements consistent with other transportation-related infrastructure and development in the project study area. The primary viewers would be commuters, tourists, business persons, and nearby residents.

The grand canopy would be visible from portions of Father Serra Park and the adjacent plaza area and would result in a moderately high change to visual character (although at a reduced scale than the above-grade passenger concourse considered in the Draft EIR). Views looking east from Key Views #4a and #4b have changed substantially over time, and the visual landscape has changed dramatically over the last 8 decades due to construction of LAUS; modernization of Alameda and Los Angeles Streets; and construction of US-101 and the El Monte Busway, high-rise condominium buildings, Gateway Plaza, and the MWD headquarters. While vantage points would be limited because of the topography and existing development within the study area, viewer response would be moderately high for commuters, business

10.0 Final EIR Project Supporting Documentation

persons, and nearby residents due to the historic integrity of LAUS. No changes to the visual quality of LAUS would occur due to the preservation of the historic main building (e.g., tile roof, stucco wall cladding, arched main entrance, decorated beams, and tile floors) and other features, such as the ticketing halls, arcades, clock tower, and patios. The new modified expanded passageway would be located under the rail yard and would not be visible from Key Views #4a and #4b.

Visual Assessment Unit #5 (Commercial Street/US-101 Corridor)

Views from Key Views #5a, #5b, #5c, #5d, and #5e would consist of new run-through track structures south of LAUS, including the common viaduct/deck that would be constructed over US-101 and common embankment that would be constructed north of Commercial Street in the interim condition (Figure 10-9 through Figure 10-14). The Final EIR project's new modified expanded passageway is located under the rail yard and would not be visible from Key Views #5a, #5b, #5c, #5d, and #5e. From all key views within Visual Assessment Unit #5, the elevated portion of the above-grade passenger concourse would not be visible, and placement of outrigger bents over the intersection of Commercial Street and the US 101 on- and off-ramps would not be required, thereby avoiding potential shadow impacts on Commercial Street.

The run-through track structures would be highly visible south of LAUS following construction in the interim condition. The US-101 viaduct within Caltrans ROW would be approximately 205 feet wide, 700 feet long, with a deck elevation that varies between 307 feet and 314 feet in height. The height of the structure would vary from 17 feet to 38 feet in height, depending on location. The US-101 viaduct would be supported by two abutments and on seven bents located at the south end of LAUS, between the El Monte Busway and US-101, at the freeway median, and on the south side of the US-101 ROW.

The viaduct over US-101 would be constructed of materials similar to those used in the Alameda Street overhead crossing and the Gold Line viaduct; however, it would be a more prominent structure than the existing Gold Line viaduct over US-101 due to the width of the structure required to accommodate up to 10 run-through tracks. The Final EIR project would result in a substantial addition of new transportation infrastructure elements to the existing visual environment south of LAUS, but the proposed improvements would be in context with the existing transportation infrastructure in this visual assessment unit, as it is primarily a transportation corridor with multiple highway and railroad-oriented uses. The scale of the highway corridor and surrounding development is linear and large; therefore, the addition of the run-through track viaduct structure and embankment would not significantly impact the low visual character of this visual assessment unit.

- From Key View #5a, looking southeast from LAUS toward Commercial Street, the run-through track structures associated with the Final EIR project would present a new, dominant feature in the foreground landscape and would reduce the visibility of aging industrial buildings and overhead power lines in the background (Figure 10-9 and Figure 10-10).
- From Key View #5b, looking north from Commercial Street toward US-101 and LAUS, the run-through track structure over US-101 associated with the Final EIR project would dominate the views from Commercial Street looking toward LAUS, the MWD headquarters, and the Metro

10.0 Final EIR Project Supporting Documentation

headquarters building (Figure 10-11 and Figure 10-12). The elevated portion of the above-grade passenger concourse would not be visible from this key view.

- From Key Views #5c, #5d, and #5e, introduction of the run-through track structure and embankment would occur north of Commercial Street and the US-101 on-/off-ramps. Overhead bridges with associated bents and abutments within public ROW and at freeway on- and off-ramp locations are a common infrastructure element within and adjacent to Caltrans ROW. Placement of outrigger bents over the intersection of Commercial Street and the US 101 on- and off-ramps would not be required, thereby avoiding potential shadow impacts on Commercial Street. There are no scenic resources, residential land uses, or other sensitive land uses that would be significantly impacted by the run-through track structures associated with the Final EIR project at this location in Segment 3 (Figure 10-13 through Figure 10-18).

Travelers along northbound and southbound US-101 would be subject to the greatest duration of views of the US-101 viaduct structure, primarily because they would be traveling toward and under the viaduct, and, in some cases, slowly during heavy traffic. Views are anticipated to be no different than any other overhead crossings within Caltrans ROW. Although travelers along US-101 may be subject to a visual change with introduction of new run-through track infrastructure, the aesthetics of the proposed abutments and bents to support the US-101 viaduct would be designed consistent with other overhead crossings within Caltrans ROW. This portion of US-101 is not a protected scenic highway.

Similar to the Draft EIR project infrastructure, the changes in views and scale from the run-through track structures would be moderately high, although in context with the surrounding transportation infrastructure and industrial land uses, the Final EIR project would result in a low change to visual character and quality (resource change). As there are no scenic highways, residential land uses, or other sensitive land uses at this location, viewer response would vary from moderately high for business owners/employees experiencing new, large structures, while the visual response of visitors and commuters on US-101 (northbound and southbound travelers) would be moderately low, as there would be minimal disruption to their visual expectations.

Metro, in coordination with the City of Los Angeles and Caltrans, will include aesthetic treatments to the US-101 viaduct and run-through structures south of LAUS. Examples of potential aesthetic treatment concepts that could be applied to the US-101 viaduct and run-through tracks structures provided that additional funding are depicted on Figure 10-19 and Figure 10-20. These aesthetic treatments are concepts and subject to change. Figure 10-19 and Figure 10-20 also depict the proposed bicycle lanes along Commercial Street (Mitigation Measure LU-1) including open space and recreational areas where urban design enhancements could be implemented provided that additional funding is identified in coordination with City of Los Angeles and Caltrans.

Figure 10-9. Key View #5a – US-101/Commercial Street (View Looking Southeast from Los Angeles Union Station toward US-101/Commercial Street) Existing Conditions



Figure 10-10. Key View #5a – US-101/Commercial Street (View Looking Southeast from Los Angeles Union Station toward US-101/Commercial Street) Post-Final EIR Project Conditions

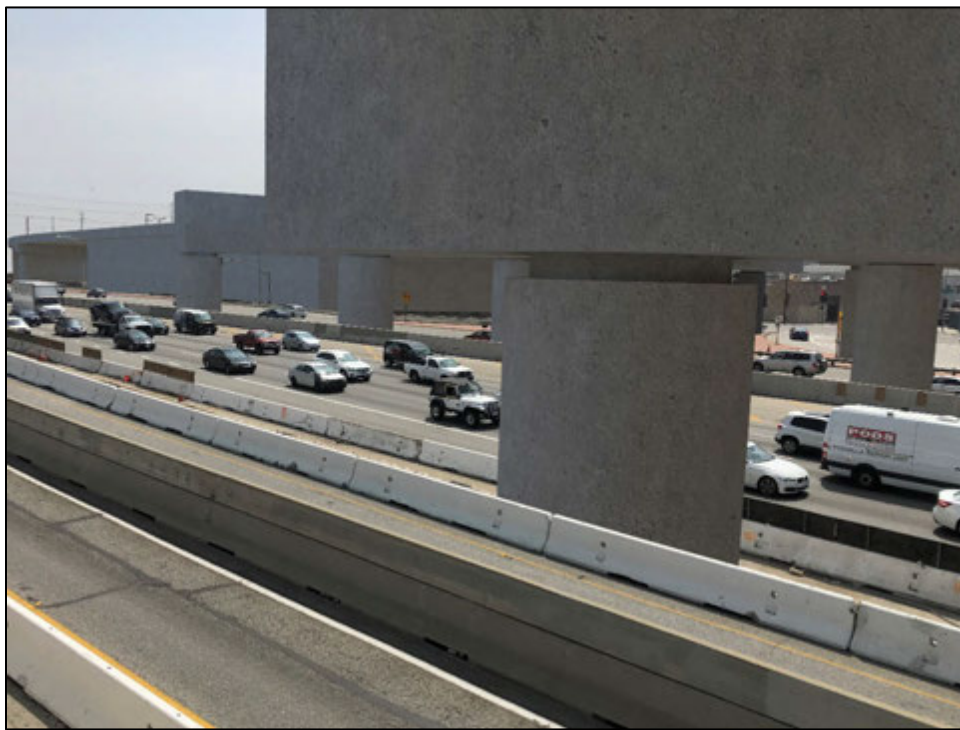


Figure 10-11. Key View #5b – Commercial Street (View Looking North from Commercial Street toward US-101 and Los Angeles Union Station) Existing Conditions



Figure 10-12. Key View #5b – Commercial Street (View Looking North from Commercial Street toward US-101 and Los Angeles Union Station) Post-Final EIR Project Conditions



Figure 10-13. Key View #5c – Commercial Street (View Looking East from US-101 On-/Off-Ramps toward Embankment) Existing Conditions



Figure 10-14. Key View #5c – Commercial Street (View Looking East from US-101 On-/Off-Ramps toward Embankment) Post-Final EIR Project Conditions



Figure 10-15. Key View #5d – US-101 (View Looking North from US-101) Existing Conditions

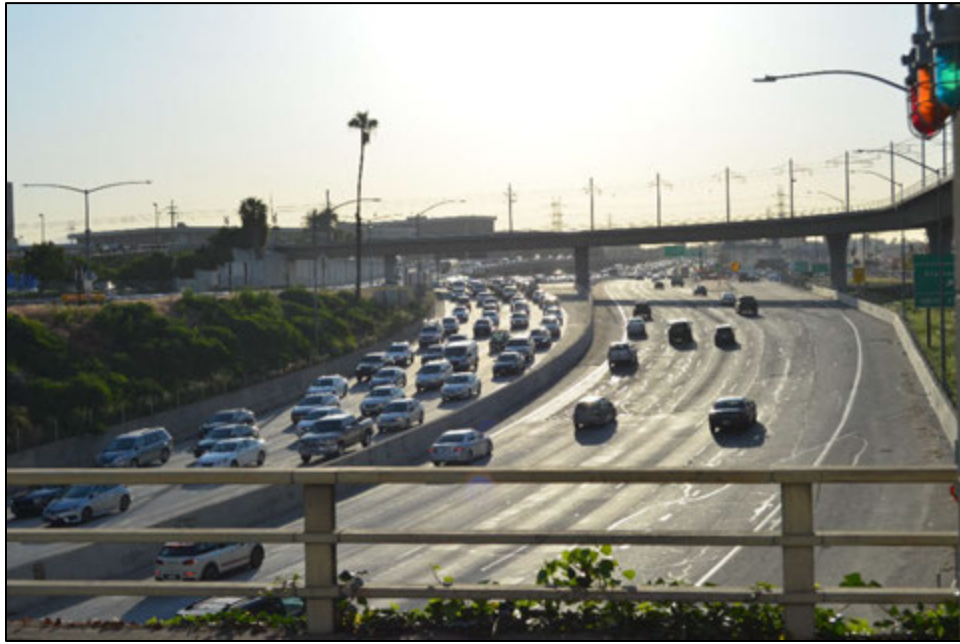


Figure 10-16. Key View #5d – US-101 (View Looking North from US-101) Post-Final EIR Project Conditions



*Figure 10-17. Key View #5e – US-101 (View Looking North from US-101 toward Downtown Los Angeles)
Existing Conditions*



*Figure 10-18. Key View #5e – US-101 (View Looking North from US-101 toward Downtown Los Angeles)
Post-Final EIR Project Conditions*



Figure 10-19. Aesthetic Treatments and Urban Design Enhancements South of US-101 (Commercial Street)



Figure 10-20. Aesthetic Treatments and Urban Design Enhancements South of US-101 (Center Street/Commercial Street)



10.0 Final EIR Project Supporting Documentation

Visual Assessment Unit #6 (New Modified Expanded Passageway)

Within Visual Assessment Unit #6, the Final EIR project would include a new modified expanded passageway with plazas east and west of the elevated rail yard at LAUS. New VCEs and standard amenities, including benches, variable message signs, new lighting, closed-circuit television security cameras, ticket vending machines, passenger waiting areas, and trash receptacles, would be distributed throughout the concourse. Similar to existing conditions, the rail yard would be within an exterior environment, although it would be elevated approximately 15 feet within this visual assessment unit. The elevated rail yard would block some existing views of commercial/industrial developments in this visual assessment unit.

The new modified expanded passageway would introduce new visual elements in the LAUS landscape that would be more modern than the existing visual elements. The scale and modern architectural style of the new modified expanded passageway with east and west plazas would result in changes to the character of the visual assessment unit; however, the design would be compatible with the surrounding visual landscape in Downtown Los Angeles, include sustainable design features consistent with the vision for LAUS, and improve upon the aesthetics in the existing rail yard, ramp areas, and pedestrian passageway.

Architectural representations of the new modified expanded passageway depicting the interior and exterior views from within Visual Assessment Unit #6 were prepared. Figure 10-21 depicts the viewpoint locations that were selected to depict the new modified expanded passageway. Figure 10-22 through Figure 10-27 depict views of and within the West Plaza, East Plaza, ingress/egress areas, waiting areas, VCEs, and platforms areas (Views A through F). The renderings are conceptual, subject to change, and provided to illustrate the extent of architectural expansion and renovation proposed for LAUS.

(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-21. Viewpoint Locations of the Final EIR Project with New Modified Expanded Passageway



LEGEND

East Plaza

West Plaza

New Modified Expanded Passageway



Passenger Concourse Viewpoint Location



0 Feet 100

(THIS PAGE INTENTIONALLY LEFT BLANK)

Figure 10-22. View A – View of New Passageway from West Plaza Looking East



Figure 10-23. View B – New Passageway under Gold Line Platforms Looking West



Figure 10-24. View C – New Platforms and Vertical Circulation Elements Looking North



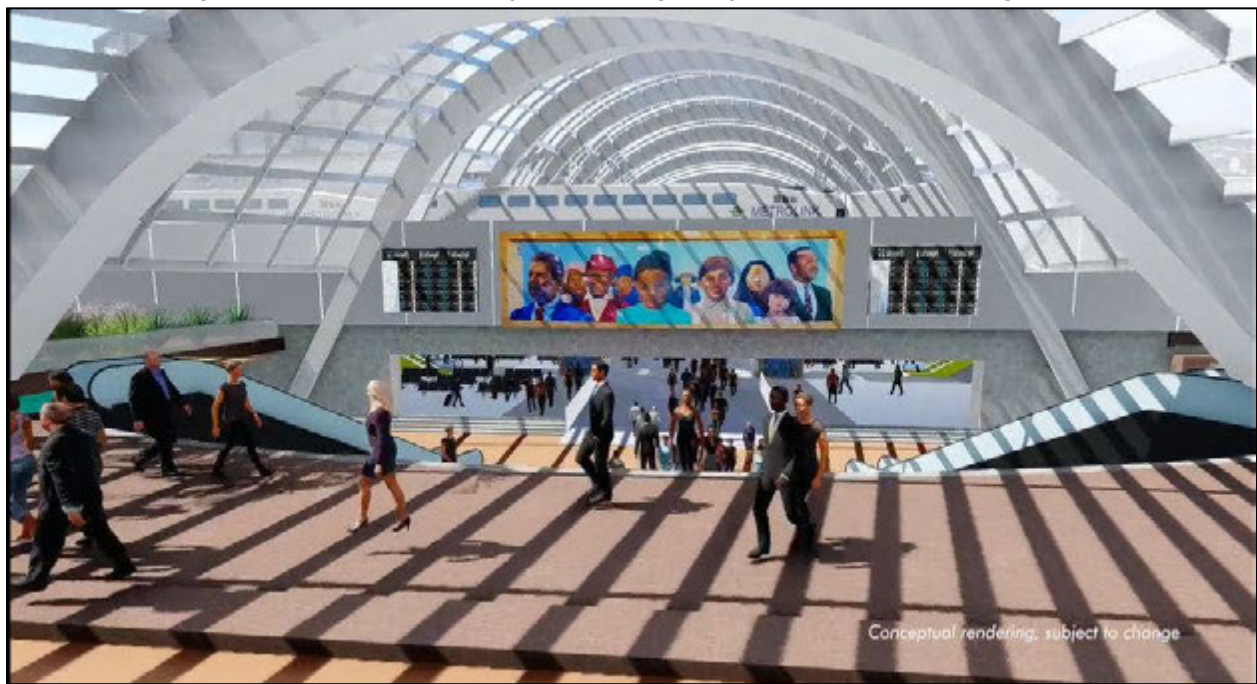
Figure 10-25. View D – New Passageway with Retail and Waiting Areas Looking Southwest



Figure 10-26. View E – New View of Modified Expanded Passenger Concourse Looking West



Figure 10-27. View F –View of New Passageway from East Plaza Looking West



10.0 Final EIR Project Supporting Documentation

Light and Glare

Similar to the Draft EIR, a new source of light or glare could occur from the elevated rail yard, although the magnitude of previously identified impacts would be reduced because the elevated portion of the above-grade passenger concourse would not be constructed. For residents in the Mozaic Apartment units nearest to the rail yard, the significant impact resulting from the light and/or glare from the elevated portion of the concourse would be avoided, although exposure to more direct light and glare could still occur in the full build-out condition after the rail yard is elevated due to the canopy structures or grand canopy that would be constructed above the rail yard and West Plaza.

10.2.3 Final EIR Project – Mitigation Measures**Construction**

Mitigation Measure AES-2 (described in Section 3.4, Aesthetics) remains applicable to the Final EIR project to reduce construction-related light and glare impacts.

Operations

The Final EIR project does not include modifications to the alignment north of LAUS or changes to previously identified impacts at William Mead Homes and Mozaic Apartments. Mitigation Measures AES-1 and AES-2 (described in Section 3.4, Aesthetics) remain applicable to the Final EIR project.

Mitigation Measure AES-3 (described in Section 3.4, Aesthetics) remains applicable to the Final EIR project to reduce long-term impacts resulting from light and glare; however, Mitigation Measure AES-3 was modified to remove reference to the above-grade passenger concourse.

10.2.4 Final EIR Project – CEQA Determination

The magnitude of long-term impacts is reduced; however the CEQA significance determination remains the same. Impacts are reduced because outrigger bents are not required, thereby avoiding potential shadow impacts, and the elevated portion of the concourse would not be visible from Key Views #4a and #4b. Furthermore, light and glare impacts resulting from elevated portion of the above-grade passenger concourse would not occur. Upon implementation of Mitigation Measures AES-1 through AES-3, significant impacts related to aesthetics would be reduced to a level less than significant.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

10.3 Air Quality and Global Climate Change**10.3.1 Final EIR Project – Approach and Methodology**

To determine potential air quality/GHG/health risk impacts based on the reduced scope and scale of the project, the construction assumptions for the Final EIR project including material quantities and associated

10.0 Final EIR Project Supporting Documentation

haul truck trips, construction equipment types and durations of use and construction employee vehicles were updated in May 2019, based on the anticipated construction activities and materials required to implement the Final EIR project. The construction emissions for the Final EIR project were recalculated using the updated equipment list and U.S. EPA and SCAQMD emission rates. The DPM emissions for all emission sources during the construction period were compiled and added together to represent worst-case emission sources for DPM.

An evaluation was conducted to determine:

- If construction emissions would change from the increase in construction emissions considered in the Draft EIR by removal of the loop track and associated roadway modifications to city streets south of US-101, removal of the above-grade passenger concourse and modification to the expanded passageway below the rail yard, removal of a construction access road on the LAUS campus, and removal of construction staging/assembly areas north and south of LAUS
- If criteria air pollutants from equipment exhaust would exceed SCAQMD LSTs for daily construction emissions
- If TACs would generate health risks
- If operational emissions would be impacted by removal of the loop track
- If GHG emissions would be impacted by the change in construction activity or the removal of the loop track.

10.3.2 Final EIR Project – Impact Evaluation

Construction

Air Quality

Similar to the Draft EIR project, construction of the Final EIR project would cause potential air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, material delivery trips, and heavy-duty haul truck trips generated from construction activities during each construction phase. In addition, earthwork activities would result in fugitive dust emissions and paving operations would release ROG_s from off-gassing.

Equipment Exhaust and Related Construction Activities. As discussed above, the construction equipment hours, haul truck trips, and employee commute trips required to construct the Final EIR project were updated in May 2019. The construction emissions for the Final EIR project were recalculated using the updated equipment list and U.S. EPA and SCAQMD emission rates. Table 10-8 shows the total exhaust emissions generated during the entire construction period and the average daily emissions for the Final EIR project. As shown in Table 10-8, the daily construction emissions would exceed the SCAQMD's NO_x, PM₁₀, and PM_{2.5} thresholds in a similar manner as the Draft EIR project.

10.0 Final EIR Project Supporting Documentation

Table 10-8. Daily Construction Emissions

Emission Source	CO (pounds)	ROG (pounds)	NO_x (pounds)	PM₁₀ (pounds)	PM_{2.5} (pounds)	CO_{2e} (pounds)
Off-road equipment	239,821	33,588	213,704	16,641	11,924	68,051,949
On-road equipment	17,262	1,381	64,125	6,932	2,806	27,753,088
Fugitive dust	=	=	=	450,000	94,500	=
Total	257,083	34,969	277,829	473,573	109,230	95,805,037
Average day (pounds/day)	171.4	23.3	185.2	317.5	72.8	63,870.0
SCAQMD thresholds	550	75	100	150	55	=
Exceedance	No	No	Yes	Yes	Yes	=

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; CO_{2e}=carbon dioxide equivalents; NO_x=nitrogen oxide; PM₁₀=particulate matter less than 10 microns;
PM_{2.5}=particulate matter less than 2.5 microns; ROG=reactive organic gas; SCAQMD=South Coast Air Quality Management District

Table 10-9 shows the total and annual exhaust emissions generated during the average construction year for the Final EIR project.

Table 10-9. Annual Construction Emissions

Emission Source	CO (tons)	ROG (tons)	NO_x (tons)	PM₁₀ (tons)	PM_{2.5} (tons)	CO_{2e} (tons)
Off-road equipment	119.9	16.8	106.9	8.3	6.0	34,026.0
On-road equipment	8.6	0.7	32.1	3.5	1.4	13,876.5
Fugitive dust	=	=	=	225.0	47.3	=
Total	128.5	17.5	138.9	236.8	54.6	47,902.5
Average year	21.4	2.9	23.2	39.5	9.1	7,983.8

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; CO_{2e}=carbon dioxide equivalents; NO_x=nitrogen oxide; PM₁₀=particulate matter less than 10 microns;
PM_{2.5}=particulate matter less than 2.5 microns; ROG=reactive organic gas

LST Analysis. Table 10-10 shows the construction-related emissions of CO, NO_x, PM₁₀, and PM_{2.5} compared with the LSTs for Central Los Angeles area, at a distance of 25 meters, for the Final EIR project. As required by the SCAQMD's LST Methodology, only the on-site construction emissions are included in the evaluation.

10.0 Final EIR Project Supporting Documentation

As shown in Table 10-10, the calculated emissions rates for the proposed on-site construction activities associated with the Final EIR project would exceed the LSTs for PM₁₀ and PM_{2.5} in a similar manner as the Draft EIR project.

Table 10-10. Summary of On-Site Construction Emissions, Localized Significance Thresholds

Emissions	Emissions			
	CO	NO_x	PM₁₀	PM_{2.5}
Total (pounds)	240,684.4	216,910.6	466,987.4	106,564.8
Daily (pounds)	160.5	144.6	311.3	71.0
SCAQMD thresholds	1,861	161	16	8
Exceedance	No	No	Yes	Yes

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM₁₀=particulate matter less than 10 microns; PM_{2.5}=particulate matter less than 2.5 microns; SCAQMD=South Coast Air Quality Management District

10.0 Final EIR Project Supporting Documentation

Implementation of Mitigation Measures AQ-1 and AQ-2 (described in Section 3.5, Air Quality and Global Climate Change) would reduce the exhaust and fugitive dust emissions (CO, NO_x, ROG, PM₁₀, and PM_{2.5}) generated on site during construction.

- Mitigation Measure AQ-1 requires compliance with the SCAQMD's Rule 403 (fugitive dust control measures) and would reduce on-site fugitive dust emissions by 50 percent.
- Mitigation Measure AQ-2 requires all on-site construction equipment to meet or exceed U.S. EPA's Tier 4 final emission standards for all off-road construction equipment to be fueled using 100-percent renewable diesel. This measure would reduce the on-site exhaust emissions by up to 95 percent when compared with the average construction fleet for the SCAB.

Table 10-11 shows the mitigated construction emission levels for the peak day. Annual exhaust emissions generated during the entire construction period are shown in Table 10-12. As shown in Table 10-11, similar to the Draft EIR, the peak daily construction emissions would still exceed the SCAQMD's PM₁₀ threshold after implementation of mitigation. When compared with the Draft EIR project, the change in particulate matter emissions after mitigation is 1 pound per day or less, which is not a substantial increase in the severity of the impact.

Emission Source	CO (pounds)	ROG (pounds)	NO_x (pounds)	PM₁₀ (pounds)	PM_{2.5} (pounds)	CO_{2e} (pounds)
Off-road equipment	62,353	12,929	36,022	5,962	2,831	42,804,525
On-road equipment	17,262	1,381	64,125	6,932	2,806	27,753,088
Fugitive dust	=	=	=	225,000	47,250	=
Total	79,615	14,310	100,146	237,894	52,877	70,557,613
Average day (pounds/day)	53.1	9.5	66.8	158.6	35.3	47,038.4
SCAQMD thresholds	550	75	100	150	55	=
Exceedance	No	No	No	Yes	No	=

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; CO_{2e}=carbon dioxide equivalents; NO_x=nitrogen oxide; PM₁₀=particulate matter less than 10 microns; PM_{2.5}=particulate matter less than 2.5 microns; ROG=reactive organic gas; SCAQMD=South Coast Air Quality Management District

10.0 Final EIR Project Supporting Documentation

Table 10-12. Annual Construction Emissions After Mitigation

Emission Source	CO (tons)	ROG (tons)	NO_x (tons)	PM₁₀ (tons)	PM_{2.5} (tons)	CO_{2e} (tons)
Off-road equipment	31.2	6.5	18.0	3.0	1.4	21,402.3
On-road equipment	8.6	0.7	32.1	3.5	1.4	13,876.5
Fugitive dust	=	=	=	112.5	23.6	=
Total	39.8	7.2	50.1	118.9	26.4	35,278.8
Average year	6.6	1.2	8.3	19.8	4.4	5,879.8

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; CO_{2e}=carbon dioxide equivalents; NO_x=nitrogen oxide; PM₁₀=particulate matter less than 10 microns; PM_{2.5}=particulate matter less than 2.5 microns; ROG=reactive organic gas

Table 10-13 identifies the on-site construction emissions after implementation of Mitigation Measures AQ-1 and AQ-2. As shown in Table 10-13, similar to the Draft EIR, the calculated emission rates for the on-site construction activities associated with the Final EIR project would continue to exceed the LSTs for PM₁₀ and PM_{2.5} after implementation of mitigation. When compared with the Draft EIR project, the change in particulate matter emissions after mitigation is 1 pound per day or less, which is a minimal change.

Table 10-13. Summary of On-Site Construction Emissions After Mitigation, Localized Significance

	Emissions			
	CO	NO_x	PM₁₀	PM_{2.5}
Total (pounds)	63,216.5	39,227.9	231,308.7	50,221.6
Daily (pounds)	42.1	26.2	154.2	33.5
SCAQMD thresholds	1,861	161	16	8
Exceeds daily SCAQMD threshold?	No	No	Yes	Yes

Source: Appendix P of this EIR

Notes:

CO=carbon monoxide; NO_x=oxides of nitrogen; PM_{2.5}=particulate matter less than 2.5 microns; PM₁₀=particulate matter less than 10 microns; SCAQMD = South Coast Air Quality Management District

Odors. As with the Draft EIR project, construction of the Final EIR project could result in emission of odors from construction equipment and vehicles (e.g., diesel exhaust). It is anticipated that these odors would be short term, limited in extent at any given time, and distributed throughout the project study area during the duration of construction, and, therefore, would not impact a substantial number of individuals.

10.0 Final EIR Project Supporting DocumentationToxic Air Contaminants

Construction of the Final EIR project would result in emissions of DPM from heavy-duty construction equipment and trucks operating in the project study area (e.g., water trucks and haul trucks).

The DPM emissions for all emission sources during the construction period were compiled and added together to represent worst-case emissions for DPM. Due to the long-term nature of health risks, the modeling used to determine potential health risks is based on the average day emissions instead of the peak daily emissions. The equipment and vehicles included in this total are based on the updated construction assumptions associated with the Final EIR project with proposed modifications:

- Off-road vehicles and equipment 6.17 pounds per day PM₁₀
- Haul trucks (assume last mile on site) 0.11 pounds per day PM₁₀
- Total DPM (PM₁₀) 6.28 pounds per day PM₁₀

The DPM emissions from diesel-powered construction equipment and on-site diesel-powered trucks that would be used during construction of the Final EIR project are provided in Appendix P of this EIR. Total emissions of construction-related exhaust PM₁₀, as a surrogate for DPM, during the overall construction period were calculated and converted to grams per second for use in the American Meteorological Society/U.S. EPA Regulatory Model.

Table 10-14 identifies the modeled annual average DPM concentration, and the associated cancer risks, at the closest land uses to the project. When compared with the Draft EIR project, the Final EIR project would increase the DPM emissions by less than 0.4 pound per day. As shown in Table 10-14 the peak cancer risks during construction exceed the SCAQMD's threshold of 10 in 1 million. This impact is considered significant. Mitigation Measure AQ-2, which requires all off-road equipment to meet or exceed U.S. EPA's Tier 4 emissions standards and to be fueled using 100-percent renewable diesel, would reduce impacts from DPM concentrations.

Table 10-15 identifies the modeled annual average DPM concentration after incorporation of mitigation, and the associated cancer risks, at the closest land uses to the project. When compared with the Draft EIR project, after mitigation, the increase in DPM emissions would be reduced to less than 0.06 pound per day, which is not a substantial increase in the severity of the impact. The complete results are included in Appendix P of this EIR. As shown in Table 10-15, the peak cancer risks would be reduced to below the SCAQMD's threshold of 10 in 1 million.

Table 10-16 identifies the chronic hazard index for the maximally exposed individual under the unmitigated and mitigated conditions. A chronic hazard index is calculated by dividing the annual average concentration of a toxic pollutant by the chronic reference exposure level for that pollutant. For DPM, the chronic reference exposure level is 5.0. As shown in Table 10-16, the chronic hazard index at this location is lower than the SCAQMD significance threshold of less than 1.0.

10.0 Final EIR Project Supporting Documentation

Table 10-14. Modeled Cancer Risks During Construction – Unmitigated

Receptor	Land Use Type	Modeled Annual DPM Concentrations ($\mu\text{g}/\text{m}^3$)	Cancer Risks (per million)
<u>William Mead Homes</u>	<u>Residential</u>	<u>0.048</u>	<u>17.6</u>
<u>William Mead Homes</u>	<u>Residential</u>	<u>0.043</u>	<u>15.8</u>
<u>Mozaic Apartments</u>	<u>Residential</u>	<u>0.246</u>	<u>90.8</u>
<u>Mission Road Residences</u>	<u>Residential</u>	<u>0.017</u>	<u>6.3</u>
<u>Mission Road Residences</u>	<u>Residential</u>	<u>0.014</u>	<u>5.2</u>
<u>One Santa Fe Apartments</u>	<u>Residential</u>	<u>0.002</u>	<u>0.7</u>
<u>Utah Street Elementary School</u>	<u>School</u>	<u>0.010</u>	<u>0.2</u>
<u>Mendez High School</u>	<u>School</u>	<u>0.011</u>	<u>0.2</u>
<u>Ann Street Elementary School</u>	<u>School</u>	<u>0.065</u>	<u>1.0</u>
<u>La Petite Academy</u>	<u>Daycare/preschool</u>	<u>0.026</u>	<u>1.1</u>
<u>First 5 LA Headquarters</u>	<u>Commercial worker</u>	<u>0.026</u>	<u>0.3</u>
<u>Twin Towers Correctional Facility</u>	<u>Commercial worker</u>	<u>0.172</u>	<u>1.9</u>
<u>Los Angeles County Men's Central Jail</u>	<u>Commercial worker</u>	<u>0.109</u>	<u>1.2</u>
<u>Metro Offices</u>	<u>Commercial worker</u>	<u>0.524</u>	<u>5.7</u>
<u>Terminal Annex</u>	<u>Commercial worker</u>	<u>0.182</u>	<u>2.0</u>

Source: Appendix P of this EIR

Notes:

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; DPM=diesel particulate matter

Table 10-15. Modeled Cancer Risks During Construction – Mitigated

<u>Receptor</u>	<u>Land Use Type</u>	<u>Modeled Annual DPM Concentrations ($\mu\text{g}/\text{m}^3$)</u>	<u>Cancer Risks (per million)</u>
<u>William Mead Homes</u>	<u>Residential</u>	<u>0.005</u>	<u>1.8</u>
<u>William Mead Homes</u>	<u>Residential</u>	<u>0.004</u>	<u>1.6</u>
<u>Mozaic Apartments</u>	<u>Residential</u>	<u>0.025</u>	<u>9.3</u>
<u>Mission Road Residences</u>	<u>Residential</u>	<u>0.002</u>	<u>0.6</u>
<u>Mission Road Residences</u>	<u>Residential</u>	<u>0.001</u>	<u>0.5</u>
<u>One Santa Fe Apartments</u>	<u>Residential</u>	<u>0.000</u>	<u>0.1</u>
<u>Utah Street Elementary School</u>	<u>School</u>	<u>0.001</u>	<u>0.0</u>
<u>Mendez High School</u>	<u>School</u>	<u>0.001</u>	<u>0.0</u>
<u>Ann Street Elementary School</u>	<u>School</u>	<u>0.007</u>	<u>0.1</u>
<u>La Petite Academy</u>	<u>Daycare/preschool</u>	<u>0.002</u>	<u>0.1</u>
<u>First 5 LA Headquarters</u>	<u>Commercial worker</u>	<u>0.002</u>	<u>0.0</u>
<u>Twin Towers Correctional Facility</u>	<u>Commercial worker</u>	<u>0.018</u>	<u>0.2</u>
<u>Los Angeles County Men's Central Jail</u>	<u>Commercial worker</u>	<u>0.011</u>	<u>0.1</u>
<u>Metro Offices</u>	<u>Commercial worker</u>	<u>0.054</u>	<u>0.6</u>
<u>Terminal Annex Alameda Street</u>	<u>Commercial worker</u>	<u>0.019</u>	<u>0.2</u>

Source: Appendix P of this EIR

Notes:

$\mu\text{g}/\text{m}^3$ micrograms per cubic meter; DPM=diesel particulate matter

Table 10-16. Chronic Hazard Index During Construction

<u>Receptor</u>	<u>Chronic Hazard Index</u>	
	<u>Unmitigated</u>	<u>Mitigated</u>
<u>Maximally exposed individual</u>	<u>0.049</u>	<u>0.005</u>

Source: Appendix P of this EIR

Operations

Air Quality and Toxic Air Contaminants

Although the loop track was planned to provide some added value related to operational flexibility, the loop track itself would not increase LAUS capacity, as the number and length of platform tracks are unchanged, and the track bottleneck located at Mission Tower would restrict its use and utility. With removal of the loop track from the project, future projected daily train movements through LAUS (Table 2-8 of this EIR) would not be impacted. In addition, the Final EIR project does not include modifications that would change the daily trip generation at LAUS from what was considered in the Draft EIR. Therefore, the operational air quality and TAC impacts to determine potential health risks considered in the Draft EIR remain valid to the Final EIR project. The data contained in Tables 3.5-12 through 3.5-29 and Tables 3.5-33 through 3.5-40 of the Draft EIR also remain applicable to the Final EIR project.

Construction and Operation

Global Climate Change

As discussed in Section 4.2.1, the construction equipment hours, haul truck trips, and employee commute trips required to construct the Final EIR project were updated in May 2019. Table 10-9 shows the annual GHG emissions that would be generated during construction of the Final EIR project. Up to 47,902 tons of CO₂e would be generated during the 6-year construction time frame; this is equivalent to 43,456 MT of CO₂e. Amortized over a 30-year period, the approximate life of the project, the yearly contribution to GHG from project construction would be 1,448.5 MT of CO₂e per year. The additional construction equipment required to build the Final EIR project would increase the annual amortized GHG emissions by 121 MT, from 946 to 1,067 MT of CO₂e, which is not a substantial increase in the severity of the impact.

Although the loop track was planned to provide some operational flexibility, the loop track itself would not increase LAUS capacity, as the number and length of platform tracks are unchanged, and the track bottleneck located at Mission Tower would restrict its use and utility. With removal of the loop track from the project, future projected daily train movements through LAUS (Draft EIR Table 2-8) would not be impacted. In addition, the Final EIR project does not include modifications that would change the daily trip generation at LAUS from what was considered in the Draft EIR. Therefore, the operational GHG emissions listed in Draft EIR Tables 3.5-41 and 3.5-43 remain applicable to the Final EIR project. As identified in Table 10-17, the total annual GHG emissions from construction and operation of the Final EIR project would be approximately 11,421 MT of CO₂e per year, which exceeds the SCAQMD's 3,000 MT CO₂e interim significance threshold for commercial, residential, and mixed-use projects.

Table 10-17. 2040 Greenhouse Gas Emissions

Source	Pollutant Emissions (MT per year)					
	Bio-CO ₂	NBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
<u>Construction emissions amortized over 30 years</u>	<u>0.0</u>	<u>1,447.3</u>	<u>1,447.3</u>	<u>0.1</u>	<u>0.0</u>	<u>1,448.5</u>
<u>Operational Emissions</u>						
<u>Area sources</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<u>Energy sources</u>	<u>0.0</u>	<u>4,272.0</u>	<u>4,272.0</u>	<u>0.11</u>	<u>0.023</u>	<u>4,281.7</u>
<u>Mobile sources</u>	<u>0.0</u>	<u>843.2</u>	<u>843.2</u>	<u>0.03</u>	<u>0.0</u>	<u>844.0</u>
<u>Waste sources</u>	<u>127.2</u>	<u>0.0</u>	<u>127.2</u>	<u>7.51</u>	<u>0.0</u>	<u>315.0</u>
<u>Water usage</u>	<u>15.1</u>	<u>485.5</u>	<u>500.6</u>	<u>1.56</u>	<u>0.039</u>	<u>551.3</u>
<u>Total operational emissions</u>	<u>142.3</u>	<u>5,600.6</u>	<u>5,742.9</u>	<u>9.22</u>	<u>0.06</u>	<u>5,992.0</u>
<u>Rail Emissions</u>						
<u>Without project</u>	<u>0.0</u>	<u>6,168.2</u>	<u>6,168.2</u>	<u>0.0</u>	<u>0.0</u>	<u>6,168.2</u>
<u>With project</u>	<u>0.0</u>	<u>10,149.0</u>	<u>10,149.0</u>	<u>0.0</u>	<u>0.0</u>	<u>10,149.0</u>
<u>Net increase</u>	<u>0.0</u>	<u>3,980.8</u>	<u>3,980.8</u>	<u>0.0</u>	<u>0.0</u>	<u>3,980.8</u>
<u>Total project operational emissions</u>	<u>142.3</u>	<u>9,581.4</u>	<u>9,723.7</u>	<u>9.2</u>	<u>0.1</u>	<u>9,972.8</u>
<u>Total project emissions with construction</u>	<u>142.3</u>	<u>11,028.7</u>	<u>11,171.0</u>	<u>9.3</u>	<u>0.1</u>	<u>11,421.3</u>

Source: Appendix P of this EIR

Notes:

Bio-CO₂= biogenic carbon dioxide; CH₄=methane; CO₂=carbon dioxide; CO₂e=carbon dioxide equivalents; MT=metric tons; NBio-CO₂=non-biogenic carbon dioxide; N₂O=nitrous oxide

This analysis includes the localized idling emissions associated with the regional/intercity rail operations within LAUS. Therefore, this analysis does not evaluate the system-wide change in rail emissions or the associated changes in regional VMT.

In 2015, Metro emitted 457,400 MT of CO₂e from its operations. By removing private vehicles from the road, the agency also prevents GHG emissions from entering the atmosphere. During the same period, Metro saved approximately 464,493 MT of CO₂e from being emitted by displacing vehicle driving. As a result, Metro's net GHG emissions in 2015 were a net reduction of 7,093 MT of CO₂e. The addition of 5,992 MT of CO₂e from the operation of LAUS would increase Metro's operation emissions to approximately 463,400 MT. Therefore, Metro would continue to offset over 100 percent of its operating GHG emissions through regional VMT reductions.

10.0 Final EIR Project Supporting Documentation

Metrolink is currently developing the SCORE Program, which would upgrade the regional rail system to meet the current and future needs of the traveling public. By adding tracks and grade separations and upgrading signal systems across the entire Metrolink system, trains would operate more frequently and reliably, making regional travel by train easier and creating an even more appealing alternative to driving. Link US is the centerpiece of the SCORE Program, providing critical capacity increases that are required to realize over 26 percent of the significant reductions in basin-wide VMT and GHG emissions that would result from the SCORE Program. Between 2026 and 2078, Link US's estimated contribution to the VMT and GHG reductions are 898 million miles and 13.5 million MT of CO_{2e}, respectively. The long-term VMT and GHG reductions would offset the Final EIR project-related annual GHG emissions of 11,421 MT of CO_{2e}.

Although not required for the project's climate change impacts, Mitigation Measures AQ-2 and AQ-3 (described in Section 3.5, Air Quality and Climate Change) would reduce the construction and operational GHG emissions of the Final EIR project. Mitigation Measure AQ-2 would reduce the off-road GHG emissions by 30 percent. Mitigation Measure AQ-3 would reduce the locomotive emissions by 51 percent in 2031 and 56 percent in 2040. Table 10-18 identifies the mitigated GHG emissions for the Final EIR project. With the addition of the SCORE Program benefits, the GHG emissions for the Final EIR project would be reduced to less than zero.

Table 10-18. Cumulative Greenhouse Gas Emissions (2040) - Mitigated

Source	Pollutant Emissions (MT per year)					
	Bio-CO ₂	NBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO _{2e}
Construction emissions amortized over 30 years	0.0	1,065.6	1,065.6	0.1	0.0	1,066.8
Operational Emissions						
Area sources	0.0	0.0	0.0	0.0	0.0	0.0
Energy sources	0.0	4,272.0	4,272.0	0.11	0.023	4,281.7
Mobile sources	0.0	843.2	843.2	0.03	0.0	844.0
Waste sources	127.2	0.0	127.2	7.51	0.0	315.0
Water usage	15.1	485.5	500.6	1.56	0.039	551.3
Total operational emissions	142.3	5,600.6	5,742.9	9.22	0.06	5,992.0
Rail Emissions						
No project	0.0	6,168.2	6,168.2	0.0	0.0	6,168.2
Proposed project	0.0	6,082.9	6,082.9	0.0	0.0	6,082.9
Net increase	0.0	-85.3	-85.3	0.0	0.0	-85.3
Total operational emissions	142.3	5,515.3	5,657.6	9.2	0.1	5,906.7

10.0 Final EIR Project Supporting Documentation**Table 10-18. Cumulative Greenhouse Gas Emissions (2040) - Mitigated**

Source	Pollutant Emissions (MT per year)					
	Bio-CO ₂	NBio-CO ₂	CO ₂	CH ₄	N ₂ O	CO ₂ e
Total emissions with construction	142.3	6,580.9	6,723.2	9.3	0.1	6,973.5

Notes:

Bio-CO₂= biogenic carbon dioxide; CH₄=methane; CO₂=carbon dioxide; CO₂e=carbon dioxide equivalents; MT=metric tons;
 NBio-CO₂=non-biogenic carbon dioxide; N₂O=nitrous oxide

10.3.3 Final EIR Project – Mitigation Measures**Construction**

The construction emissions from the Final EIR project continue to exceed the SCAQMD thresholds. Therefore, Mitigation Measures AQ-1 and AQ-2 (described in Section 3.5, Air Quality and Climate Change) remain applicable to the Final EIR project.

Operations

The Final EIR project would not change the long-term emissions from LAUS. Therefore, Mitigation Measure AQ-3 (described in Section 3.5, Air Quality and Climate Change) remains applicable to the project.

10.3.4 Final EIR Project – CEQA Determination

The construction emissions associated with the project would continue to exceed the SCAQMD's daily criteria pollutant and LSTs after implementation of Mitigation Measures AQ-1 and AQ-2. Similar to the CEQA determination in the Draft EIR, impacts would remain significant and unavoidable. The Final EIR project would not result in new exceedances of the SCAQMD thresholds, and the change in particulate matter emissions after mitigation is 1 pound per day or less, which is not a substantial increase in the severity of the impact.

The operational emissions associated with the Final EIR project would be reduced to below the SCAQMD's daily criteria pollutant, localized significance, and health risk thresholds. In addition, the long-term GHG emissions would be reduced to less than zero. Similar to the CEQA determination in the Draft EIR, upon implementation of Mitigation Measure AQ-3, significant impacts would be reduced to a level less than significant.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

10.4 Noise and Vibration

10.4.1 Final EIR Project – Approach and Methodology

An evaluation was conducted to determine:

- If construction noise and vibration impacts on sensitive receptors (previously identified Category 2 and 3 land uses) would change from the increase in construction noise and vibration considered in the Draft EIR with removal of the above-grade passenger concourse, construction access road on the LAUS campus, and construction staging/assembly areas north and south of LAUS
- If operational noise and vibration levels would change due to removal of the loop track

10.4.2 Final EIR Project – Impact Evaluation

Construction

Construction impacts associated with the Final EIR project remain consistent with the impacts of the Draft EIR project because similar construction activities would occur within the same general vicinity of sensitive receptors in the study area, with the exception of the locations that have a reduction in project footprint. These locations include the construction access road on the LAUS campus, the construction staging/assembly areas north and south of LAUS, and areas south of Commercial Street. The changes in temporary noise and/or vibration impacts are considered below.

Throat Segment (North of Los Angeles Union Station)

The Final EIR project includes removal of a staging area located on Vignes Street north of LAUS. This staging area is far enough away from previously identified sensitive receptors (i.e., William Mead Homes) that any reduction in noise/vibration levels and associated impacts would be nominal. Nighttime construction activities in close proximity to William Mead Homes could still exceed 70 dBA L_{eq} at distances of up to 300 feet, which would exceed FTA's 8-hour nighttime noise standard, as discussed in the Draft EIR. Additionally, as discussed in the Draft EIR, the Final EIR project would also require use of an impact pile driver (within 300 feet) and a vibratory roller (within 140 feet) from sensitive receptors that could exceed the frequent impact threshold for Category 2 land uses (72 velocity in dBs) at William Mead Homes, similar to the Draft EIR project. The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

Concourse Segment (Los Angeles Union Station Campus)

At the Mozaic Apartments, sensitive receptors would experience similar noise and vibration levels to those identified in the Draft EIR because similar construction equipment would be required to elevate the rail yard and construct the modified expanded passageway. Nighttime construction activities in close proximity to Mozaic Apartments could still exceed 70 dBA L_{eq} at distances of up to 300 feet, which would exceed FTA's 8-hour nighttime noise standard. Additionally, the Final EIR project would still require use of an impact pile driver (within 300 feet) and a vibratory roller (within 140 feet) from sensitive receptors that

10.0 Final EIR Project Supporting Documentation

could exceed the frequent impact threshold for Category 2 land uses (72 velocity in dBs) at Mozaic Apartments. The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

At the First 5 LA Headquarters (La Petite Academy), construction noise and vibration levels are anticipated to be reduced compared with the analysis in the Draft EIR because construction vehicles and trucks would not be using the adjacent access road.

Run-Through Segment (South of Los Angeles Union Station)

South of LAUS, construction noise and vibration would still occur with implementation of run-through track infrastructure; although there would be a significant reduction of construction activity than what was considered in the Draft EIR. In conjunction with removal of project elements south of LAUS (no Commercial Street realignment and no Center Street lowering), the buildings located on the south side of Commercial Street from Garey Street to Center Street would remain in place because acquisition of these properties and demolition of the buildings is not required to implement the Final EIR project without a loop track.

With the exception of the One Santa Fe Apartments, no sensitive receptors south of US-101 were identified in the Draft EIR. Due to the shift in run-through track alignment north of Commercial Street, temporary noise and vibration levels would occur at non-noise or vibration sensitive commercial and industrial buildings along Commercial Street that would be kept in place rather than displaced under the Draft EIR alignment. Temporary noise and vibration levels for commercial and industrial land uses without outdoor uses, as well as for community members on Ducommon Street, would decrease from what was previously considered in the Draft EIR for Segment 3 of the project study area (Draft EIR Table 3.6-13), due to the presence of intervening buildings that would help attenuate construction-related noise and vibration. Based on the construction noise levels reported in Draft EIR, Table 3.6-13, the project modifications are anticipated to generate noise levels that vary between 75 and 79 dBA L_{eq} at commercial and industrial land uses on Commercial Street, which is located approximately 100 feet from various construction activities. For commercial and industrial land uses along Ducommon Street, located about 400 feet from construction activities, noise levels would vary between 63 and 67 dBA L_{eq} . Pile driving for abutments north of US-101 would generate levels of about 75 dBA L_{eq} for these same areas along Commercial Street and 70 dBA L_{eq} for the same areas along Ducommon Street. The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

Operations

Although the loop track was planned to provide some operational flexibility, the loop track itself would not increase LAUS capacity, as the number and length of platform tracks are unchanged, and the track bottleneck located at Mission Tower would restrict its use and utility. With removal of the loop track from the project, future projected daily train movements through LAUS (Draft EIR Table 2-8) would not be impacted. Therefore, the estimate of future daily train movements through LAUS and associated idling

10.0 Final EIR Project Supporting Documentation

times and operational noise and vibration levels considered in the Draft EIR are consistent with the Final EIR project.

No changes to train speeds or the track alignment are proposed that would result in modifications to long-term vibration levels at LAUS or areas north of LAUS. South of LAUS, although noise or vibration-sensitive receptors were not identified in the Draft EIR (with exception of Santa Fe Apartments), the Final EIR project avoids demolition of buildings on Commercial Street from Garey Street to Center Street and includes a modified run-through track alignment north of Commercial Street, closer to US-101. The operational noise and vibration impacts south of LAUS for the Final EIR project are as follows:

- Noise – The run-through track alignment south of LAUS would shift approximately 125 to 150 feet north. The permanent increase in noise levels for commercial and industrial land uses, without outdoor uses, as well as for community members on Ducommon Street, are anticipated to be lower because intervening buildings (that are not noise or vibration sensitive) would remain in place. In addition, the modified track alignment would be located closer to US-101 and farther from the buildings on Ducommon Street. With the presence of intervening buildings along Commercial Street, operational noise would be attenuated at commercial and industrial land uses, without outdoor uses, as well as for community members on Ducommon Street, thereby resulting in an approximate 1- to 2-dB reduction in this area throughout operations as compared with the Draft EIR analysis.
- Vibration – Vibration levels for land uses/buildings on Ducommon Street are anticipated to be lower than previously considered in the Draft EIR as a result of the modified run-through track alignment.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.

10.4.3 Final EIR Project – Mitigation Measures**Construction**

The Final EIR project would still occur in close proximity to noise- and vibration-sensitive land uses. Mitigation Measures NV-2 and NV-3 (described in Section 3.6, Noise and Vibration) remain applicable to the project.

Operations

The Final EIR project does not include modifications to the alignment north of LAUS or changes to previously identified impacts at William Mead Homes. Mitigation Measure NV-1 (described in Section 3.6, Noise and Vibration) remains applicable to the Final EIR project.

10.0 Final EIR Project Supporting Documentation

10.4.4 Final EIR Project – CEQA Determination

Upon implementation of Mitigation Measure NV 1, noise levels at the moderately and severely impacted units for the Final EIR project would be reduced by 12 dBs and 7 dBs at impacted locations, respectively. Based on these reductions, upon implementation of mitigation, significant operational noise impacts would be reduced to a level less than significant.

Upon implementation of Mitigation Measures NV-2 and NV-3, significant impacts from construction-related noise and vibration associated with the Final EIR project would be reduced; however, impacts from construction-related noise would remain significant and unavoidable, similar to the Draft EIR. Noise levels would remain above 80 dBA L_{eq} (within 100 feet) during daytime hours throughout much of project study area, and nighttime construction activities in close proximity to William Mead Homes and Mozaic Apartments could exceed 70 dBA L_{eq} at distances of up to 300 feet, which would exceed FTA's 8-hour nighttime noise standard. Impacts resulting from construction vibration are determined to be less than significant.

The Final EIR project would not result in new, significant environmental effects or a substantial increase in the severity of previously identified effects disclosed in the Draft EIR.