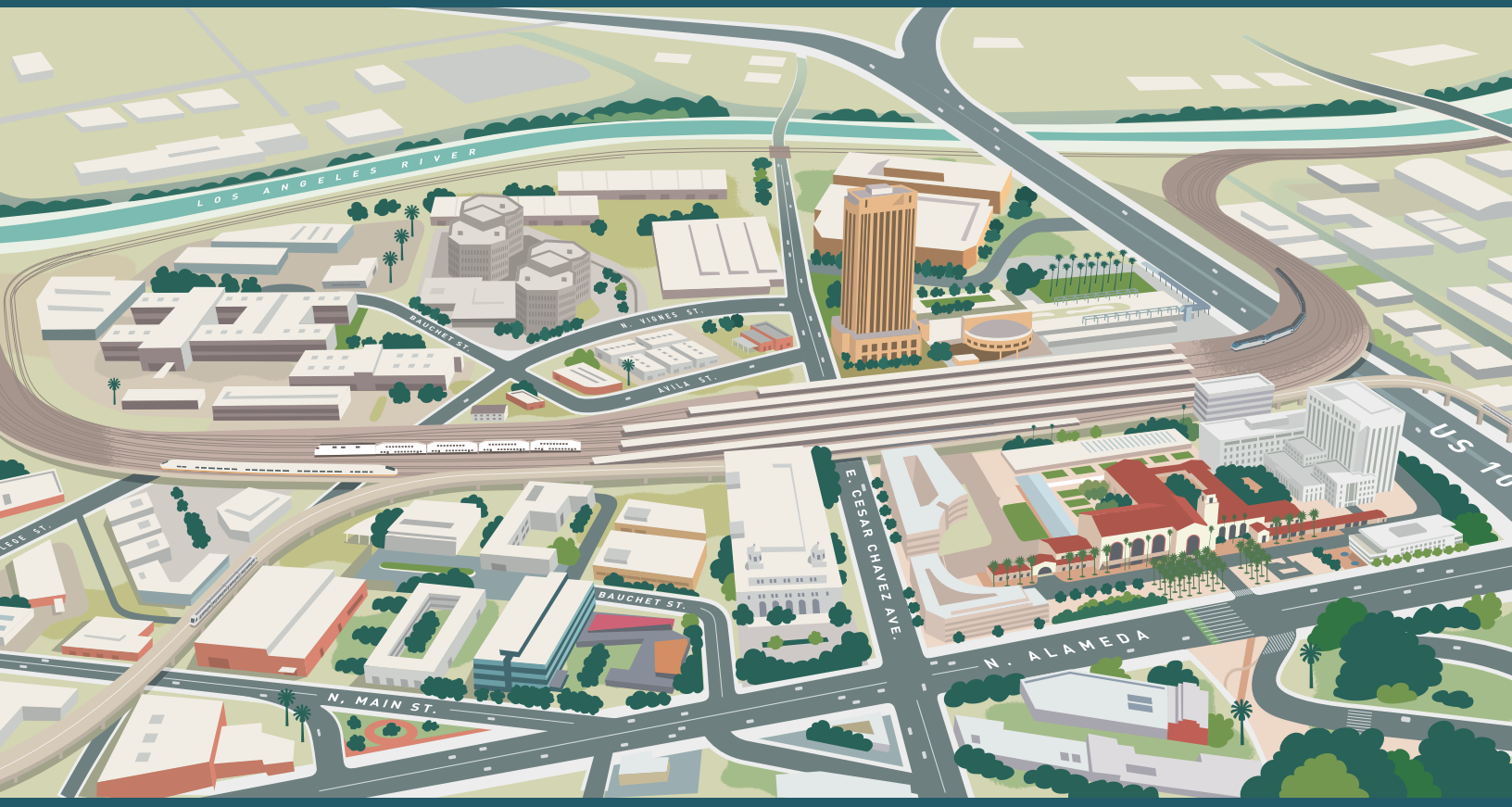
Los Angeles County
Metropolitan Transportation Authority

Link Union Station

Traffic Impact Assessment

June 2019



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CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS

ADA	Americans with Disabilities Act
ADT	average daily traffic
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CP	Control Point
D/C	demand to capacity
DASH	Downtown Area Short Hop
EB	eastbound
EIR	Environmental Impact Report
HCM	*Highway Capacity Manual*
HSR	High-Speed Rail
LADOT	Los Angeles Department of Transportation
LAUS	Los Angeles Union Station
Link US	Link Union Station
LOS	level of service
Metro	Los Angeles County Metropolitan Transportation Authority
MOU	Memorandum of Understanding
ROW	right-of-way
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SF	square feet
V/C	volume to capacity
VMT	vehicle miles traveled
WB	westbound

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ES.0 Executive Summary

This traffic impact assessment documents the project-related traffic impacts on the existing roadway system, traffic volumes and conditions, truck percentages, transit services, pedestrian and bicyclist movements, and parking availability within the study area. For the purpose of the study, the 2031 corresponds to the "opening year" when construction of the new lead tracks, elevated rail yard, and new passenger concourse, and run-through track infrastructure are complete. The following scenarios are analyzed as part of the study:

1) Existing (2016) Condition
2) 2031 no project condition
3) 2040 no project condition
4) 2031 plus project construction condition (proposed project with an above-grade passenger concourse with new expanded passageway)
5) 2031 plus project construction condition (build alternative with an at-grade passenger concourse)
6) 2031 plus project condition
7) 2040 plus project condition

A total of 32 study intersections were analyzed in the AM and PM peak hours. Additionally, portions of US-101 north of Vignes Street was analyzed as part of this traffic impact assessment. The following summarizes the key findings of the study.

ES.1 Construction

In the 2031 plus project construction condition (proposed project with an above-grade passenger concourse with new expanded passageway), the following intersections are significantly impacted:

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)
- Intersection #10: Alameda Street and Los Angeles Street eastbound (EB; PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)

In the 2031 plus project construction condition (build alternative with an at-grade passenger concourse), the following intersections are significantly impacted:

- Intersection #1: Alameda Street and Commercial Street (PM Peak)
- Intersection #2: Garey Street and Commercial Street (AM peak)
- Intersection #10: Alameda Street and Los Angeles Street EB (PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)

- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

The project would reduce the number of available parking spaces on Commercial Street (between Alameda Street and Center Street, and east of Center Street) and Bolero Lane (between Bloom Street and Leroy Street) during construction closures, as well as completion of project-related improvements. However, the impacts are minimum due to the fact that the uses these parking spaces serve would be eliminated as part of the Commercial Street realignment.

ES.2 Operation

ES.1.1 Existing Condition (2016)

All study intersections operate within Los Angeles Department of Transportation (LADOT) recommended acceptable level of service (LOS) thresholds. Most intersections operate at LOS C or better during both peak hours, except the following intersections:

- Intersection #4: Center Street and Commercial Street (PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

Northbound US-101 operates at LOS F(2) and F(1) during AM and PM peak hours, respectively. Southbound US-101 operates at LOS E and F(2) during AM and PM peak hours, respectively.

ES.1.2 2031 Conditions

Two intersections are significantly impacted by project-related traffic in the 2031 plus project condition due to operational traffic delay and would continue to exceed LADOT Transportation Impact Study Guidelines (LADOT Guidelines; LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM Peaks)

During 2031, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2031 no project condition and 2031 plus project condition.

ES.1.3 2040 Conditions

Two intersections are significantly impacted by project-related traffic in the 2040 plus project condition due to operational traffic delay and would continue to exceed LADOT Guidelines (LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)

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

In the 2040 plus project condition, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2040 no project and 2040 plus project conditions.

The project would not significantly impact the Congestion Management Program (CMP) arterial, freeway, or transit networks.

ES.3 Mitigation

The significant impacts identified during construction would be mitigated via implementation of a Traffic Management Plan that would include provisions for temporary measures, such as signing and maintenance of traffic strategies, adjusting the signal timing at the affected intersections, providing alternate routes for commuter traffic, and installation of the closed-circuit television cameras to monitor real-time traffic conditions. The detailed construction traffic management plan is proposed to be prepared during the final engineering phase of the project for review and approval by the City of Los Angeles and the California Department of Transportation at least 30 days prior to construction.

The significant impacts identified in 2031 and 2040 plus project conditions would be mitigated via implementation of a new traffic signal and adjustments to signal timing at affected intersections. A traffic signal warrant analysis was conducted for the intersection of Center Street and Commercial Street, and the intersection satisfies the warrants during the peak hours.

LADOT Guidelines (LADOT 2016) require mitigation programs for impacts that are expected to be significant under the California Environmental Quality Act (CEQA) to primarily aim to minimize the demand for trips by single-occupant vehicles by encouraging, promoting, and supporting the use of other sustainable modes of travel such as public transit, walking, and bicycling. Consistent with LADOT Guidelines, mitigation in the form of active transportation improvements is also proposed to improve connectivity between neighborhoods surrounding Los Angeles Union Station (LAUS) and facilitate cycling and walking in the project study area. These active transportation improvements would provide mitigation for significant impacts pursuant to LADOT Guidelines.

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1.0 Introduction

The Los Angeles County Metropolitan Transportation Authority (Metro) is proposing the Link Union Station project to transform Los Angeles Union Station (LAUS) from a "stub-end tracks station" into a "run-through tracks station" with a new passenger concourse that would improve the efficiency of the station and accommodate future growth and transportation demands in the region.

1.1 Project Location and Study Area

LAUS is located at 800 Alameda Street in the City of Los Angeles, California. LAUS is bounded by US-101 to the south, Alameda Street to the west, Cesar Chavez Avenue to the north, and Vignes Street to the east. Figure 1-1 depicts the regional location and general vicinity of LAUS.

Figure 1-2 depicts the project study area, which encompasses the extent of environmental study associated with potential direct, indirect, and cumulative impacts from implementation of the project. The project study area includes three main segments (Segment 1: Throat Segment, Segment 2: Concourse Segment, and Segment 3: Run-Through Segment). The existing conditions within each segment are summarized north to south below.

- Segment 1: Throat Segment – This segment, known as the LAUS throat, includes the area north of the platforms, from Main Street at the north to Cesar Chavez Avenue at the south. In the throat segment, all arriving and departing trains traverse five lead tracks into and out of the rail yard, except for one location near the Vignes Street Bridge where the tracks reduce to four lead tracks. Currently, special track work consisting of multiple turnouts and double-slip switches are used in the throat to direct trains into and out of the appropriate assigned terminal platform tracks.
- Segment 2: Concourse Segment – This segment is between Cesar Chavez Avenue and US-101 and includes LAUS, the rail yard, the Garden Tracks (stub-end tracks where private train cars are currently stored, just north of the platforms and adjacent to the existing Gold Line aerial guideway), the East Portal building, the baggage handling building with aboveground parking areas and access roads, the ticketing/waiting halls, and the pedestrian passageway with connecting ramps and stairways below the rail yard.
- Segment 3: Run-Through Segment – This segment is south of LAUS and extends east/west from Alameda Street to the west bank of the Los Angeles River and north/south from Keller Yard to Control Point (CP) Olympic. This segment includes US-101, the Commercial Street/Ducommun Street corridor, Metro Red and Purple Lines Maintenance Yard (Division 20 Rail Yard), BNSF West Bank Yard, Keller Yard, the main line tracks on the west bank of the Los Angeles River, from Keller Yard to CP Olympic, and the "Amtrak Lead Track" connecting the main line tracks with Amtrak's Los Angeles Maintenance Facility. Businesses within the run-through segment are primarily industrial and manufacturing related.

The project study area has a dense street network ranging from major highways to local city streets. The roadways within the project study area include the El Monte Busway, US-101, Bolero Lane, Leroy Street, Bloom Street, Cesar Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, Vignes Street, Main Street, Aliso Street, Avila Street, Bauchet Street, and Center Street.

1.2 Proposed Project Overview

The proposed project components are summarized north to south below.

- Throat and Elevated Rail Yard – The proposed project includes subgrade and structural improvements in Segment 1 of the project study area (throat segment) to increase the elevation of the tracks leading to the rail yard. The proposed project includes the addition of one new lead track in the throat segment for a total of six lead tracks to facilitate enhanced operations for regional/intercity rail service providers (Metrolink/Amtrak) and accommodate the planned High-Speed Rail (HSR) system within a shared track alignment. Regional/intercity and HSR trains would share the two western lead tracks in the throat segment. The rail yard would be elevated approximately 15 feet. New passenger platforms with individualized canopies would be constructed on the elevated rail yard, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed. North of CP Chavez, the proposed project also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.
- Above-Grade Passenger Concourse with New Expanded Passageway – The proposed project includes an above-grade passenger concourse with new expanded passageway in Segment 2 of the project study area (concourse segment). The above-grade passenger concourse with new expanded passageway would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The new passenger concourse would create an opportunity for an outdoor, community-oriented space and enhance Americans with Disabilities Act (ADA) accessibility at LAUS. The elevated portion of the above-grade passenger concourse would be located above the rail yard, approximately 90 feet above the existing grade with new plazas east and west of the elevated rail yard (East and West Plazas). The new expanded passageway would be located below the rail yard to provide additional passenger travel-path convenience and options. Amtrak ticketing and baggage check-in services would occur at two locations at the east and west ends of LAUS, and new carousels would be constructed within the new expanded passageway. The above-grade passenger concourse includes a canopy over the West Plaza up to 70 feet in height, with individual canopies that would extend up to 25 feet over each platform. New vertical circulation elements (VCEs) would also be constructed throughout the concourse to

enhance passenger movements throughout LAUS while meeting ADA and National Fire Protection Association (NFPA) platform egress code requirements.

- Run-Through Tracks – The proposed project includes up to 10 new run-through tracks (including a new loop track) south of LAUS in Segment 3 of the project study area (run-through segment). The run-through tracks would facilitate connections for regional/intercity rail trains and HSR trains from LAUS to the main line tracks on the west bank of the Los Angeles River. A "common" viaduct/deck over US-101 and embankment south of US-101, from Vignes Street to Center Street, would be constructed wide enough to support regional/intercity rail run-through service, and future run-through service for the planned HSR system.

The proposed project would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control, and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad right-of-way (ROW); additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

1.3 Build Alternative Overview

The primary differences between the proposed project and the build alternative are related to the lead tracks north of LAUS and the new passenger concourse. Compared to the proposed project, the build alternative includes the following:

- Dedicated Lead Tracks North of LAUS – The build alternative includes reconstruction of the throat, with two new lead tracks that would be located outside of the existing railroad ROW, facilitating a dedicated track alignment, with a total of seven lead tracks. Reconfiguration of Bolero Lane and Leroy Street would also be required.
- At-Grade Passenger Concourse – The build alternative includes an at-grade passenger concourse below the rail yard.

All other infrastructure elements are similar to the proposed project. The components of the build alternative are described north to south below.

- Throat and Elevated Rail Yard – The build alternative accommodates future HSR trains on dedicated lead tracks in the throat segment. The build alternative includes the addition of two new lead tracks for a total of seven lead tracks in the throat segment (with future HSR trains and some express/intercity services using the two western dedicated lead tracks and most regional/intercity trains using the five eastern lead tracks). The rail yard would be elevated approximately 15 feet. New passenger platforms with a grand canopy covering the elevated rail yard would be constructed, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the

planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed under the build alternative. North of CP Chavez, the build alternative also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.

- At-Grade Passenger Concourse – The build alternative includes a new at-grade passenger concourse that would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The at-grade passenger concourse would also create an opportunity for an outdoor, community-oriented space and enhanced ADA accessibility. The at-grade passenger concourse would be constructed below the elevated rail yard. Amtrak ticketing and baggage check-in services would occur at a centralized location where new carousels would be constructed at the concourse level. The at-grade passenger concourse also includes new plazas east and west of the elevated rail yard (East and West Plazas), and a grand canopy that would extend up to 70 feet above the elevated rail yard and West Plaza. New vertical circulation elements would also be constructed throughout the concourse to enhance passenger movements throughout LAUS while meeting ADA and NFPA platform egress code requirements.
- Run-Through Tracks – The build alternative includes up to 10 new run-through tracks (including a new loop track) in the run-through segment. All infrastructure south of LAUS is the same as described above for the proposed project.

The build alternative would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control, and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad ROW; additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

Figure 1-1. Project Location and Regional Vicinity

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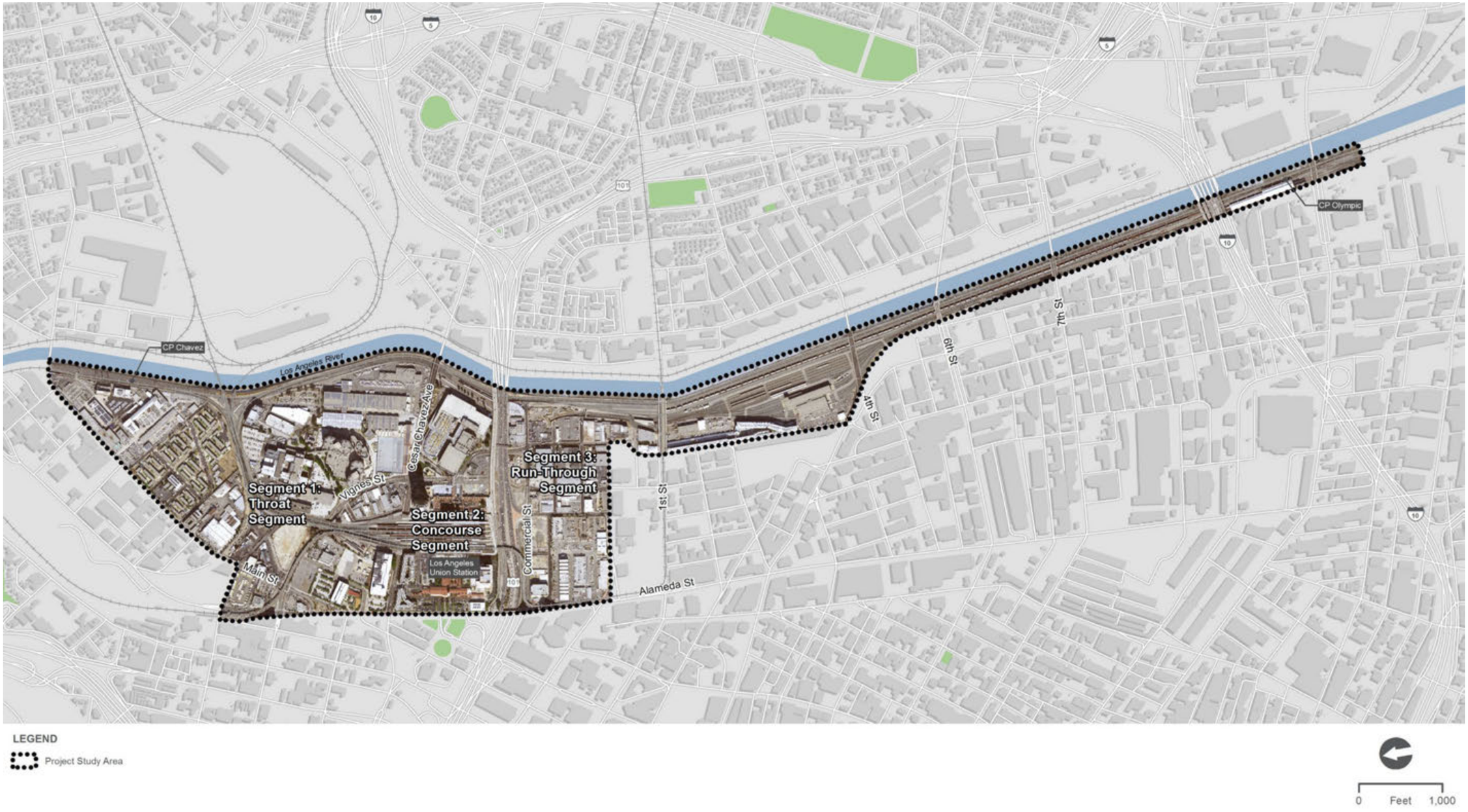
Figure 1-2. Project Study Area



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2.0 Purpose

The purpose of this Traffic Impact Assessment is to:

A) Document the project-related traffic impacts on the existing roadway system, traffic volumes and conditions, truck percentages, transit services, pedestrian and bicyclist movements, and parking availability within the study area based on changes to existing conditions (2016) and two horizon years (2031 and 2040).

B) Document the:

- methods used to complete the analysis
- thresholds applied for determining significance

C) Identify potential traffic impacts (and mitigation) associated with short-term construction and long-term operations of the proposed project and the build alternative.

D) Provide the necessary traffic-related data, analysis, and documentation to support other environmental technical studies (air quality, noise, and vibration).

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3.0 Methodology

In order to address the purpose for this Traffic Impact Assessment, the following approach was taken:

- Review Existing Conditions: Document the existing roadway system, traffic volumes and conditions, truck percentages, transit services, and pedestrian and bicyclist movements within the study area.
- Review Future Conditions: Document the future roadway system and the methodologies used to forecast future traffic volumes.
- Analyze Traffic Conditions: Perform traffic impact analysis for existing (2016)[1] condition and future 2031 and 2040 traffic for no project, plus project, and plus project construction conditions. Perform the CMP regional transportation system impact analysis. Perform on-street parking analysis to address how on-street parking availability would be impacted during construction and operation.
- Conclusion: Summarize this study and provide mitigation measures for addressing identified traffic impacts.
- Mitigation: Provide discussion for subsequent actions to follow this study.

[1] Existing traffic conditions for 2016 are based on traffic counts collected in the Base Year (2015), except for traffic counts at the intersection of Cesar Chavez Avenue/Union Station North Driveway, which were conducted in 2018.

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4.0 Study Scope and Organization

As discussed in Section 5.0, this Traffic Impact Assessment is based on traffic counts that were obtained in 2015.

4.1 Scope

In 2005, an Environmental Impact Report (EIR) was finalized for the Los Angeles Union Station Run-Through Tracks project (Run-Through Tracks project), which examined improvements to LAUS. The EIR included a traffic impact assessment that was prepared by Kaku Associates in 2003 (Kaku Associates, Inc. 2003). This traffic impact assessment prepared for the Link Union Station (Link US) project incorporates applicable data and analysis from the 2003 Kaku Study, with the most recent project-related information. This traffic impact assessment accounts for the proposed site improvements and surrounding transportation system changes since 2003. Changed conditions since 2003 include:

- Widening of Commercial Street, reconfiguration of the US-101/Commercial Street on-/off-ramps
- Operation of Metro Gold Line Light Rail Transit – including the railroad bridge overcrossing US-101
- Widening of the First Street viaduct over the Los Angeles River to accommodate the Metro Gold Line Eastside Light Rail Transit operation

This traffic impact assessment methodology is based on the Memorandum of Understanding (MOU) submitted to and approved by LADOT (Appendix A). Traffic impacts were identified by determining the deterioration in the operations and performance of the study intersections and roadway segments due to the added traffic from the proposed project for two horizon years: 2031 and 2040. For the purpose of the study, the 2031 corresponds to "opening year," when construction of the new lead tracks, elevated rail yard and new passenger concourse, and run-through track infrastructure are complete. This traffic impact assessment identifies potential project-generated traffic impacts on local streets and on the US-101 for the following six traffic scenarios (conditions):

1. Existing Condition (2016)
2. 2031 no project condition (Existing Condition plus background traffic growth from 2016 to 2031)
3. 2040 no project condition (Existing Condition plus background traffic growth from 2016 to 2040)
4. 2031 plus project construction condition (project-related traffic during concurrent construction of all major project elements including the lead tracks, passenger concourse [at-grade or above-grade], and run-through track infrastructure)
5. 2031 plus project condition (no project condition plus project-related traffic)
6. 2040 plus project condition (no project condition plus project-related traffic)

The "plus project" condition is compared to the "no project condition" to determine project-related traffic impacts in accordance with LADOT Guidelines (LADOT 2016). This traffic impact assessment includes an

evaluation of potential project impacts during the weekday AM and PM peak hours of traffic, in addition to potential impacts on the regional highway and transit systems to meet the requirement of the Los Angeles County CMP. This traffic impact assessment also includes an evaluation of how the project, once completed, would impact on-street parking.

The 2031 scenarios evaluated herein identify the greatest potential for project-related traffic impacts associated with all major project components being constructed concurrently by 2031. Although early action/interim improvements (i.e., Phase A) may be implemented prior to 2031, this traffic impact evaluation is conservative, and addresses any potential traffic impacts associated with the interim condition because the detailed construction scenarios prepared to support the environmental impact evaluation assume that all major project elements would be constructed concurrently. If run-through track infrastructure south of LAUS is constructed prior to the elevated rail yard and new passenger concourse, fewer construction-related traffic impacts and associated truck trips are anticipated than reported herein because the greatest extent of potential impacts are addressed within this Traffic Impact Assessment for both construction and operational scenarios.

4.2 Organization

The remainder of this traffic impact assessment is divided into the following sections:

- Section 5.0: Traffic Data and Traffic Analysis Methodology presents traffic counts (intersection peak hour, average daily traffic [ADT], vehicle counts, counts from other studies) and discusses LOS thresholds for traffic analysis.
- Section 6.0: Existing Conditions describes the existing roadway system, traffic volumes, traffic conditions, truck percentages, transit services, and pedestrian and bicyclist movements within the study area.
- Section 7.0: Future Traffic Projections and Roadway Characteristics describes the future roadway system and the methodologies used to forecast future traffic volumes.
- Section 8.0: Traffic Impact Analysis presents an assessment of existing and future traffic volumes and LOS.
- Section 9.0: Congestion Management Program Transportation Impact Analysis presents the results of the CMP regional transportation system impact analysis.
- Section 10.0: Signal Warrant Analysis presents the peak hour traffic signal warrant analysis for the intersection of Center Street and Commercial Street for all scenarios.
- Section 11.0: On-Street Parking Impact Analysis summarizes the results of impacts on on-street parking availability.
- Section 12.0: Conclusion identifies potential significant short-term and long-term traffic impacts and mitigation measures to reduce those impacts.
- Section 13.0: References provides a list of all references cited in this Traffic Impact Assessment.

5.0 Traffic Data and Traffic Analysis Methodology

5.1 Traffic Study Area

A secondary traffic study area expands beyond LAUS (and the project study area) and is bound by the Los Angeles River, College Street, Main Street, Los Angeles Street, and First Street. This traffic study area covers all roads likely to be impacted by construction, including any interim improvements. The project's direct impact on the local transportation network was assessed within the traffic study area. A full description of the intersections and roadways evaluated in this traffic study area are further described below in Section 5.1.

5.2 Traffic Data

Traffic counts were collected to support the project, and separate traffic counts were collected in support of the environmental documents being prepared for the planned HSR system (Burbank to Los Angeles and Los Angeles to Anaheim project sections). This Traffic Impact Assessment reconciles the individual traffic counts obtained in the study area to document the existing traffic conditions for the project and future no build conditions.

Based on discussions with LADOT and Metro during the project development phase, 32 intersections were selected for this study. The intersections are comprised of intersections from the 2003 Kaku Study, and additional intersections that may be impacted by project-specific traffic generation, realignment, or detours.

Traffic counts were performed at 31 intersections by National Data and Surveying Services for the study on September 9, 2015, and November 5, 2015. Two sets of counts were performed at Intersections #9 and #10 (the intersection of Alameda Street and El Monte Busway and the intersection of Alameda Street and Los Angeles Street, respectively); the second sets of counts are referred to as counts for Intersections #109 and #110. Additional traffic counts at these two intersections were performed by National Data and Surveying Services on June 18, 2015, and November 19, 2015, in support of Metro's Los Angeles Union Station Master Plan project.

The intersection at the Union Station North Driveway and Cesar Chavez Avenue was added to this Traffic Impact Assessment in September 2018 during subsequent stages of the traffic impact evaluation. Traffic counts at this intersection (Intersection #32) were conducted by Gibson Transportation Consulting, Inc., in August 2018, and were adjusted to reflect the full occupancy in the adjacent apartment buildings since they were partly unoccupied when the initial counts were conducted.

The traffic count data used in this traffic impact assessment is recent and reflective of current conditions. The counts conducted at 32 intersections included ADT and intersection turn movements. Counts for vehicle classification, bicyclists, and pedestrians were also performed at the study intersections in the vicinity of the project.

Traffic counts were collected at the following 32 intersections:

1. Alameda Street and Commercial Street
2. Garey Street and Commercial Street
3. Vignes Street and Commercial Street
4. Center Street and Commercial Street
5. Alameda Street and Temple Street
6. Vignes Street and Temple Street
7. Alameda Street and First Street
8. Vignes Street and First Street
9. Alameda Street and El Monte Busway (westbound [WB])/Arcadia Street
10. Alameda Street and Los Angeles Street (EB)
11. Alameda Street and Cesar Chavez Avenue
12. Alameda Street and Vignes Street/Alpine Street
13. Vignes Street and Cesar Chavez Avenue
14. Vignes Street and Ramirez Street
15. Vignes Street and Main Street
16. Alameda Street/Spring Street and College Street
17. Alameda Street and Main Street/Ord Street
18. Alameda Street and Main Street/Bauchet Street
19. Main Street and Cesar Chavez Avenue
20. Alameda Street at Northbound US-101 northbound on-ramp
21. Los Angeles Street and Arcadia Street
22. Los Angeles Street and Aliso Street
23. Los Angeles Street and Temple Street
24. Los Angeles Street and First Street
25. Judge John Aiso Street and Temple Street
26. Judge John Aiso Street/San Pedro Street and First Street
27. Mission Road and Cesar Chavez Avenue
28. Mission Road and First Street
29. Central Avenue and First Street

30. Vignes Street and Bauchet Street
31. Ramirez Street and Center Street
32. Cesar Chavez Avenue and Union Station North Driveway
109. Alameda Street and El Monte Busway (EB)
110. Alameda Street and Los Angeles Street (WB)

The traffic study area and intersection locations are illustrated on Figure 5-1, and intersection turning movement count sheets are provided in Appendix B. Traffic counts were performed at the study intersections between 6:00 and 9:00 AM for the AM peak period and between 3:30 and 6:30 PM for the PM peak period.

In addition, tube counts to document the 24-hour directional ADT were conducted at the following 12 locations:

1. Alameda Street north of Commercial Street
2. Hewitt Street south of Commercial Street
3. Commercial Street west of Garey Street
4. Garey Street south of Commercial Street
5. Commercial Street east of Garey Street
6. Vignes Street south of Commercial Street
7. Ducommun Street between Vignes Street and Center Street
8. Jackson Street between Vignes Street and Center Street
9. Temple Street between Vignes Street and Center Street
10. Center Street north of Commercial Street
11. Center Street south of Commercial Street
12. Cesar Chavez Avenue east of Alameda Street

The ADT on Alameda Street south of Commercial Street included vehicle classifications. The locations of ADTs are illustrated on Figure 5-2, and ADT count sheets are provided in Appendix B1.

5.3 Traffic Analysis Methodology

5.3.1 Intersection Level of Service Standards and Methodology

In this analysis, minimum acceptable intersection operating conditions will follow the City guidelines for all intersections. The CMP allows CMP-intersections to operate at LOS E. According to LADOT Guidelines, for non-CMP intersections, operating at LOS E or F is considered unsatisfactory (LADOT 2016). The

definitions for the range of levels of service for signalized and STOP sign-controlled intersections under the *Highway Capacity Manual* (HCM; TRB 2010) are listed in Table 5-1 and Table 5-2, respectively.

The study intersections were analyzed as an integrated network. The freeway segment was analyzed according to the Los Angeles County CMP methodology (Table 5-3).

For this study, HCM delay-based methodology utilizing Synchro software was used for calculating the intersection LOS. Since the project would be considered an infrastructure-related project such as transit, rail, bicycle, and roadway improvements, HCM delay-based methodology was utilized, as opposed to the Circular 212 Critical Movement Analysis Planning Method. Per City guidelines, HCM delay-based methodology is acceptable for infrastructure projects.

5.3.2 Freeway Level of Service Standards

Freeway main line LOS is estimated through calculation of the demand-to-capacity (D/C) ratio and associated LOS, according to Table 5-3. Table 5-3 explains the correlations between D/C ratios and LOS for freeway main line segments.

Figure 5-1. Traffic Study Area and Intersection Locations

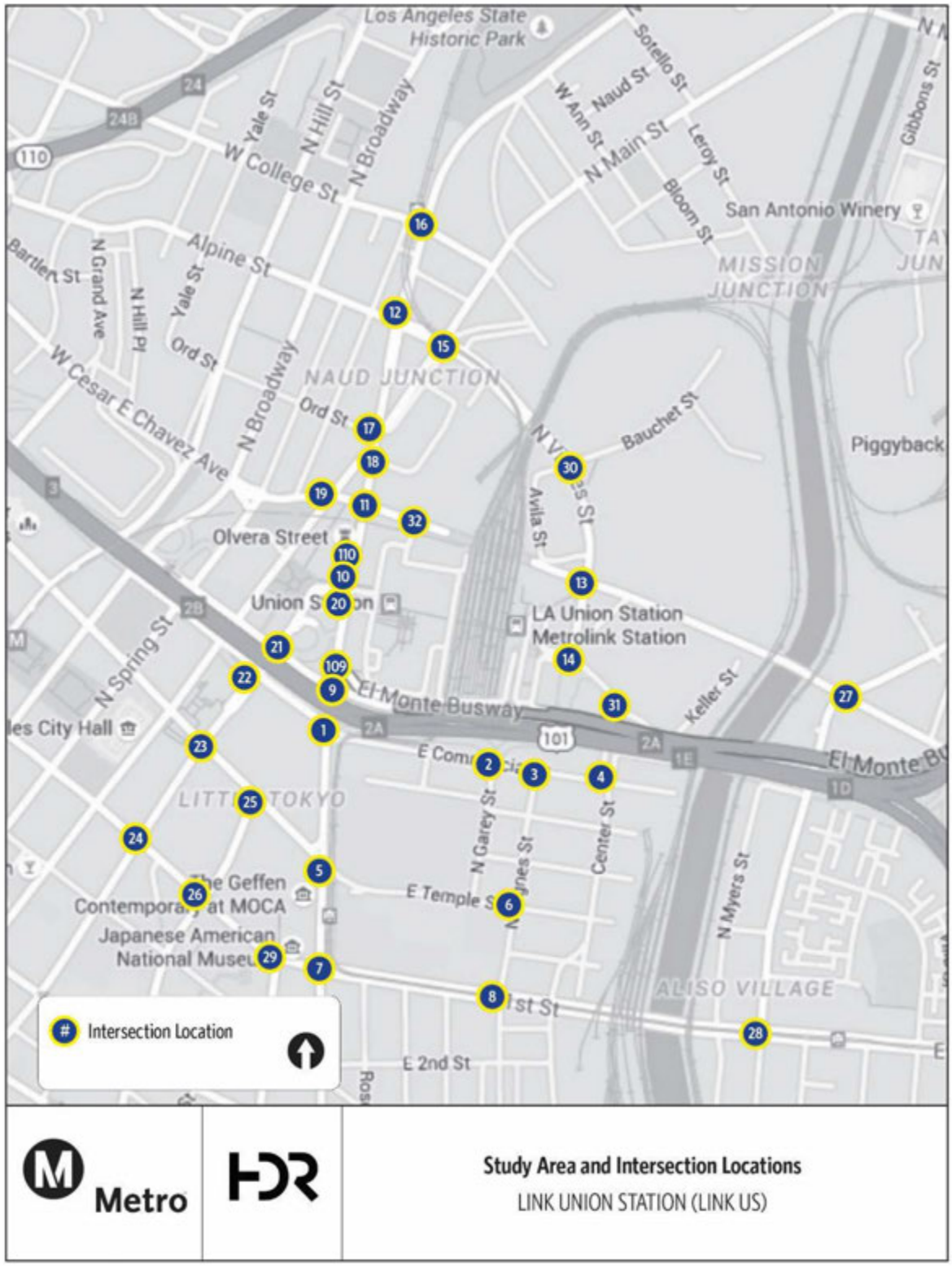

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Figure 5-2. 2015 Average Daily Traffic Locations and Volumes

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Table 5-1. Level of Service Definitions for Signalized Intersections

LOS	Definition/Interpretation	Signalized Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	> 10 and ≤ 20
C	Good operation. Occasionally drivers may have to wait for more than 60 seconds and backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	> 20 and ≤ 35
D	Fair operation. Cars are sometimes required to wait for more than 60 seconds during short peaks. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	> 35 and ≤ 55
E	Poor operation. Some long-standing vehicular queues develop on critical approaches.	> 55 and ≤ 80
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go type traffic flow.	> 80

Source: Highway Capacity Manual, ***Special Report 209. Transportation Research Board, Washington, DC (2010).***

Notes:
LOS=level of service.

Table 5-2. Level of Service Definition for STOP Sign-Controlled Intersections

Level of Service	Unsignalized Intersection Delay (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	≥ 50

Source: Highway Capacity Manual. ***Transportation Research Board, Washington, DC (2010).***

Table 5-3. Level of Service Definitions – Freeway Main line Segments	
Demand/Capacity Ratio	**Level of Service**
0.00–0.35	A
> 0.35–0.54	B
> 0.54–0.77	C
> 0.77–0.93	D
> 0.93–1.00	E
> 1.00–1.25	F(0)
> 1.25–1.35	F(1)
> 1.35–1.45	F(2)
> 1.45	F(3)

Source: Los Angeles County CMP, 2010, Exhibit D-6

5.3.3 Significant Transportation Impact (Delay Methodology)

According to LADOT Guidelines (LADOT 2016), when utilizing the HCM methodology for signalized intersections for transportation infrastructure projects, a transportation impact shall be deemed "significant" in accordance with Table 5-4.

Table 5-4. Significant Transportation Impact (Delay Methodology)		
Level of Service	**Final Delay (seconds)**	**Project-Related Increase in Delay (seconds)**
C	> 20–35	≥ 6.0
D	> 35–55	≥ 4.0
E	> 55–80	≥ 2.5
F	> 80	≥ 2.5

"Final delay" means the future delay per vehicle at an intersection, considering impacts with project, ambient, and related project growth, but without proposed traffic mitigation. "Project-related increase in delay" means the change in delay between final delay and future delay with ambient and related project growth, but without project and proposed traffic mitigation.

5.3.4 Los Angeles County Congestion Management Program Methodology

The CMP guidelines for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the project is expected to add 50 or more peak hour trips during either the AM or PM weekday peak hours of adjacent street traffic
- All CMP main line freeway monitoring locations where the project is expected to add 150 or more trips in either direction during either the AM or PM weekday peak hours

For purposes of the CMP, a significant impact occurs when the project increases traffic demand on a CMP facility by 2 percent of capacity (volume to capacity [V/C] ≥ 0.02), causing LOS F(V/C > 1.00); if the facility is already at LOS F, a significant impact occurs when the project increases traffic demand on a CMP facility by 2 percent of capacity (V/C ≥ 0.02). The study section of the US-101 is a CMP location, and this significant impact threshold is applicable for this facility.

5.3.5 Senate Bill 743 – Vehicles Miles Traveled

Senate Bill 743 was approved in 2013 and will change the evaluation of traffic impacts under CEQA. The bill required the Office of Planning and Research to modify the CEQA Guidelines to replace existing approaches for studying transportation impacts. These existing approaches are focused on auto delay and congestion, which are typically measured using LOS. These metrics will no longer be considered an environmental impact under CEQA upon certification of revised CEQA Guidelines. Rather, Senate Bill 743 requires the Office of Planning and Research to establish criteria for determining the significance of transportation impacts that promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In response, the Office of Planning and Research published a document titled *Updating Transportation Impacts Analysis in the CEQA Guidelines: Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743*. These preliminary updates identify vehicles miles traveled (VMT) as the primary metric for evaluating transportation impacts. The Office of Planning and Research published a revised Technical Advisory in April 2018. The revised Technical Advisory identifies VMT (per capita, per employee, or other appropriate efficiency measure) as new metrics for evaluating transportation impacts.

Senate Bill 743 preserves local government authority to make planning decisions. Therefore, LOS and congestion can still be measured for planning purposes; however, studies based on these metrics will no longer be required as part of the CEQA process.

The City of Los Angeles is in the process of developing methodologies and criteria for implementing VMT analyses for new development projects, which are anticipated to be adopted and in effect by January 2019. In the meantime, the proposed project and the build alternative were compared to the goals of Senate Bill 743, and because both predominantly involve transit improvements that would enhance regional accessibility to and through LAUS, the project can be expected to increase transit ridership and,

therefore, reduce regional VMT. The project is anticipated to result in a less than significant impact due to the reduction of regional VMT and greenhouse emissions.

6.0 Existing Conditions

This section describes key roadway segments and intersections, reports existing daily roadway and peak hour intersection traffic volume information, and presents the LOS analysis for existing conditions.

6.1 Existing Street Network

The primary street network in the traffic study area is described below. Figure 6-1 presents the primary street network within the study area and existing lane geometry at each study intersection.

6.1.1 East-West Roadways

Cesar Chavez Avenue is a major arterial north of LAUS with two through lanes in each direction east of Alameda Street and three through lanes in each direction west of Alameda Street. It has one left-turn pocket at all major connecting intersections (Cesar Chavez Avenue intersects with the major streets: Alameda Street and Vignes Street). Cesar Chavez Avenue crosses the Los Angeles River via a bridge. North of Cesar Chavez Avenue, there are no river-crossing east-west roadways until Main Street, which is 0.8 mile away. Cesar Chavez Avenue crosses underneath the northern section of the rail yard at LAUS. No on-street parking is allowed on Cesar Chavez Avenue.

El Monte Busway runs just north of US-101 and abuts the south side of LAUS. It connects to both US-101 and I-10, and terminates at Alameda Street with on- and off-ramps at Alameda Street. The El Monte Busway off-ramp also provides exits for westbound traffic from US-101. The on-ramp can be used only by buses and vehicles with a FasTrak transponder (carpools of three or more can use the busway free of charge).

US-101 is the closest freeway to the project. In general, it has a north-south orientation. However, it runs east-west through the project study area with four lanes in each direction. There are two sets of southbound on- and off-ramps in the study area, one of which is the recently completed reconfiguration of the US-101/Commercial Street ramp, located at the intersection of Commercial Street and Garey Street. The other set of southbound on- and off-ramps are west of the project, located at the intersection of Los Angeles Street and Aliso Street. With respect to the northbound on- and off-ramps, there are three on-ramp and two off-ramp locations. A set of northbound on- and off-ramps is located at Vignes Street, south of Ramirez Street. The other two on-ramps are located on Los Angeles Street and Alameda Street.

Arcadia Street is one half of a one-way street coupled with Aliso Street. Arcadia Street is aligned as the westbound extension of the El Monte Busway; it distributes US-101 traffic to Downtown through Los Angeles Street, Main Street, Spring Street, Broadway, and Hill Street.

Aliso Street is one half of a one-way street coupled with Arcadia Street. Aliso Street runs eastbound merging into Commercial Street, terminating at its intersection with Alameda Street/ Commercial Street. Aliso Street is located south of US-101 and operates as the frontage road for on-ramp and off-ramp traffic collection

and distribution through local streets that connect to Downtown such as Los Angeles Street, Main Street, Spring Street, Broadway, and Hill Street.

Commercial Street, a two-way street, runs south of LAUS. West of Garey Street and the US-101 ramps, Commercial Street is classified as a major collector and has two through lanes in each direction; Commercial Street becomes Aliso Street west of Alameda Street. East of Garey Street and the US-101 ramps, Commercial Street narrows to one through lane in each direction. Commercial Street serves as an on- and off-ramp for US-101 and intersects with the major streets: Alameda Street and Center Street. No on-street parking is allowed on Commercial Street.

Temple Street is a major arterial and has two through lanes in each direction west of Alameda Street, but is a minor arterial and narrows down to one through lane in each direction east of Alameda Street. Temple Street terminates at the railroad yard by the Los Angeles River.

First Street is a major arterial with two through lanes in each direction, and intersects with Alameda Street. The Gold Line Light Rail Transit operates in the median of First Street. No on-street parking is allowed on First Street.

6.1.2 North-South Roadways

Because both US-101 and the El Monte Busway traverse the project study area in an east-west orientation, only a limited number of north-south-oriented roadways are able to provide north-south access through overcrossing or undercrossing bridges. For example, San Pedro Street, Central Avenue, and Garey Street terminate south of US-101. Vignes Street terminates on either side of US-101.

Alameda Street is a major arterial bordering the west side of LAUS. It has three through lanes and a left-turn pocket in each direction. It intersects with Cesar Chavez Avenue, LAUS, a northbound US-101 on-ramp, the northbound US-101/Arcadia Street off-ramp, Aliso Street, Commercial Street, Temple Street, and First Street. Farther north, Alameda Street becomes Spring Street and curves northeast toward the Lincoln Heights community. No on-street parking is allowed on Alameda Street within the project study area.

Los Angeles Street is a major arterial west of Alameda Street with two through lanes and one left-turn pocket in each direction. It has interchanges with US-101, both northbound and southbound, and also intersects with First Street and Temple Street, and with Alameda Street at LAUS. No on-street parking is allowed on Los Angeles Street.

Center Street/Ramirez Street is a major arterial that runs east of LAUS with one through lane in each direction. Center Street intersects with Commercial Street. North of Commercial Street, Center Street becomes Ramirez Street and then joins Vignes Street at LAUS. On-street parking is allowed on Center Street, south of Commercial Street.

Vignes Street provides access to LAUS and terminates as on- and off-ramps to US-101. It then resumes as a major collector at Commercial Street south of US-101 to beyond First Street.

Mission Road is the first arterial east of the Los Angeles River that connects the communities east of the river to LAUS via Cesar Chavez Avenue.

LAUS is located approximately 0.3 mile west of the Los Angeles River. With the river running north-south within the project vicinity, only a limited number of east-west roadways (Cesar Chavez Avenue, First Street, and US-101) are able to provide access as bridges to the communities east of the river.

6.2 Existing Traffic Volumes and Operating Conditions

6.2.1 Existing Traffic Conditions

Arterial Annual Daily Traffic

Alameda Street: For existing (base year 2015), the ADT shows 32,542 vehicles travelling daily on Alameda Street north of Commercial Street, comprised of a northbound volume of 17,107 vehicles and a southbound volume of 15,435 vehicles. It should be noted that there is a significant difference between the AM and PM periods, with the AM period (12 midnight to 12 noon) having a volume of 13,760 vehicles (42.3 percent ADT) and the PM period having a volume of 18,782 vehicles (57.7 percent ADT).

Commercial Street: The ADT for Commercial Street west of Garey Street totals 11,841 vehicles, of which the eastbound ADT is 6,319 vehicles and the westbound ADT is 5,522 vehicles. Meanwhile, the ADT shows 8,427 vehicles on Commercial Street east of Garey Street, comprised of 4,077 vehicles heading eastbound and 4,350 vehicles heading westbound. Garey Street south of Commercial Street has an ADT of 2,993 vehicles, consisting of 2,084 vehicles heading northbound and 909 vehicles heading southbound. The reduction on Commercial Street from 11,841 vehicles west of Garey Street to 8,427 vehicles east of Garey Street indicates that many motorists who use Commercial Street turn at the US-101 "eastbound" (US-101 southbound) on-ramp or onto Garey Street.

Hewitt Street: The ADT on the north-south-oriented Hewitt Street between Commercial Street and Ducommun Street is 1,463 vehicles, of which the northbound ADT is 642 vehicles and the southbound ADT is 821 vehicles. It appears likely that Hewitt Street is used by motorists to avoid heavier traffic volumes at the intersection of Commercial Street and Garey Street.

Center Street: The ADT north of Commercial Street is 11,985 vehicles, which consists of 6,916 vehicles northbound and 5,069 vehicles southbound. Meanwhile, the ADT shows 15,636 vehicles south of Commercial Street, comprised of 7,595 vehicles northbound and 8,041 vehicles southbound. The reduction from an ADT of 15,636 vehicles south of Commercial Street to an ADT of 11,985 vehicles north of Commercial Street indicates that Commercial Street is accessed by motorists from Center Street.

Vignes Street: The ADT on Vignes Street between Ducommun Street and Commercial Street is 3,404 vehicles, which consists of 2,026 vehicles northbound and 1,378 vehicles southbound. This segment is likely to be used by motorists as an alternative route to Center Street or Garey Street.

Temple, Jackson, and Ducommun Streets: There are three segments between Vignes Street and Center Street that have an ADT of 1,176 vehicles on Temple Street, 232 vehicles on Jackson Street, and 317 vehicles on Ducommun Street. These low traffic volumes indicate that these segments serve as minor streets in the local roadway network.

Cesar Chavez Avenue: The ADT on Cesar Chavez Avenue east of Alameda Street is 26,094 vehicles, comprised of an ADT of 11,981 vehicles eastbound and an ADT of 14,113 vehicles westbound. These volumes indicate a 45 percent eastbound and 55 percent westbound directional split.

ADT count information is depicted on Figure 5-2, in Section 5.0.

Existing Peak Hour Traffic Volumes

The AM and PM peak hour intersection turn movements are shown on Figure 6-2. As shown, the existing peak hour volumes were balanced between adjacent intersections and adjusted accordingly.

Vehicle Classification and Truck Percentages

Vehicle classification counts were conducted through both ADT (automatic counts dated September 9, 2015, and September 17, 2015) and intersection turn movement counts (manual counts dated June 18, 2015; September 9, 2015; November 5, 2015; and November 19, 2015). Manual counts were used to ensure accuracy, particularly for identifying the number of axles on a truck during AM and PM peak hours. ADT counts were used for their ability to cover a 24-hour period.

Vehicle classification counts were conducted at all study intersections. The following four intersections are in the direct vicinity of the project and were also included in the machine counts for ADT on Alameda Street south of Commercial Street:

- Intersection 1 – Alameda Street at Commercial Street
- Intersection 2 – Garey Street/US-101 southbound ramps at Commercial Street
- Intersection 3 – Vignes Street at Commercial Street
- Intersection 4 – Center Street at Commercial Street

Figure 6-1. Existing Street Network and Lane Geometry at Study Area Intersections

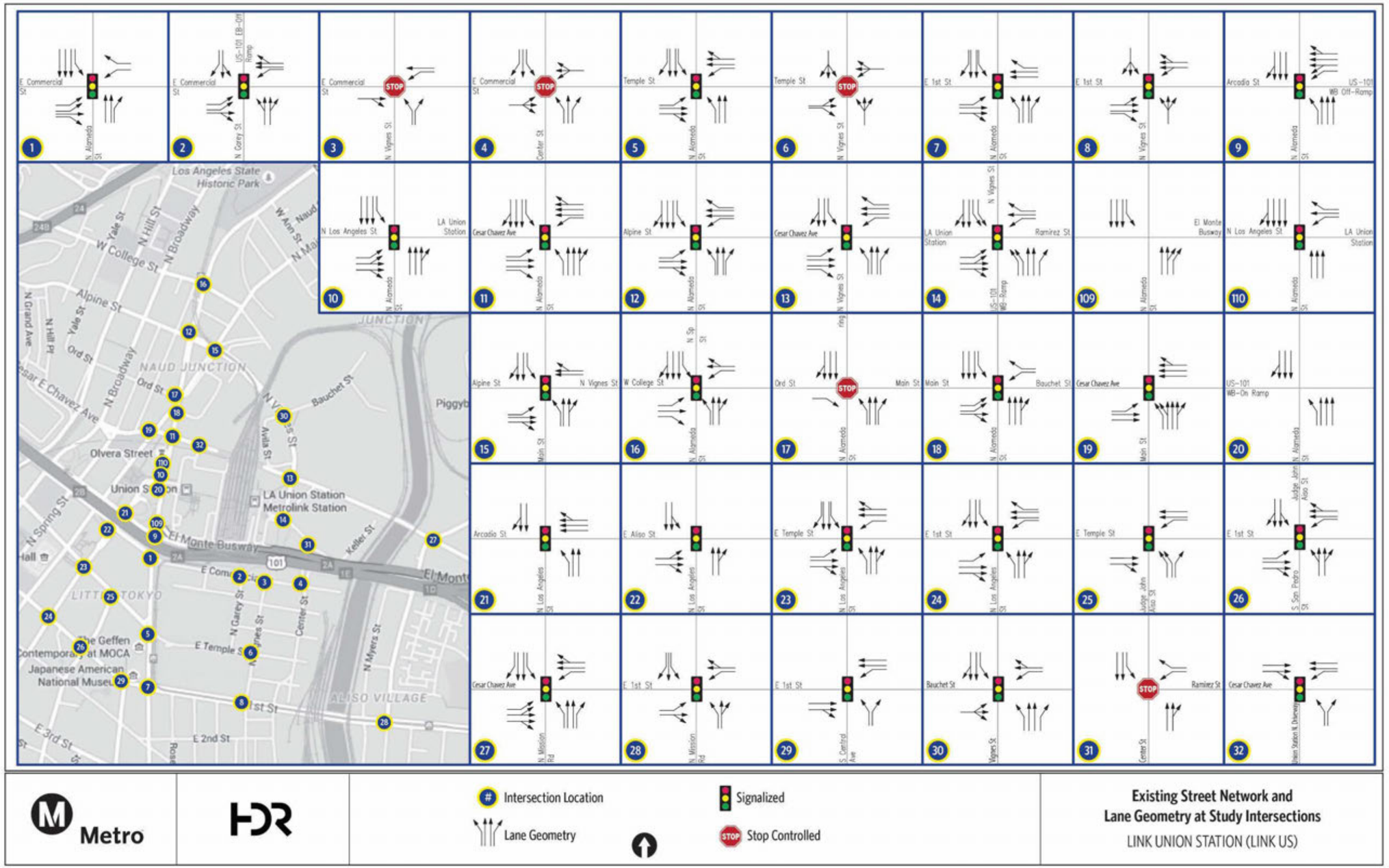

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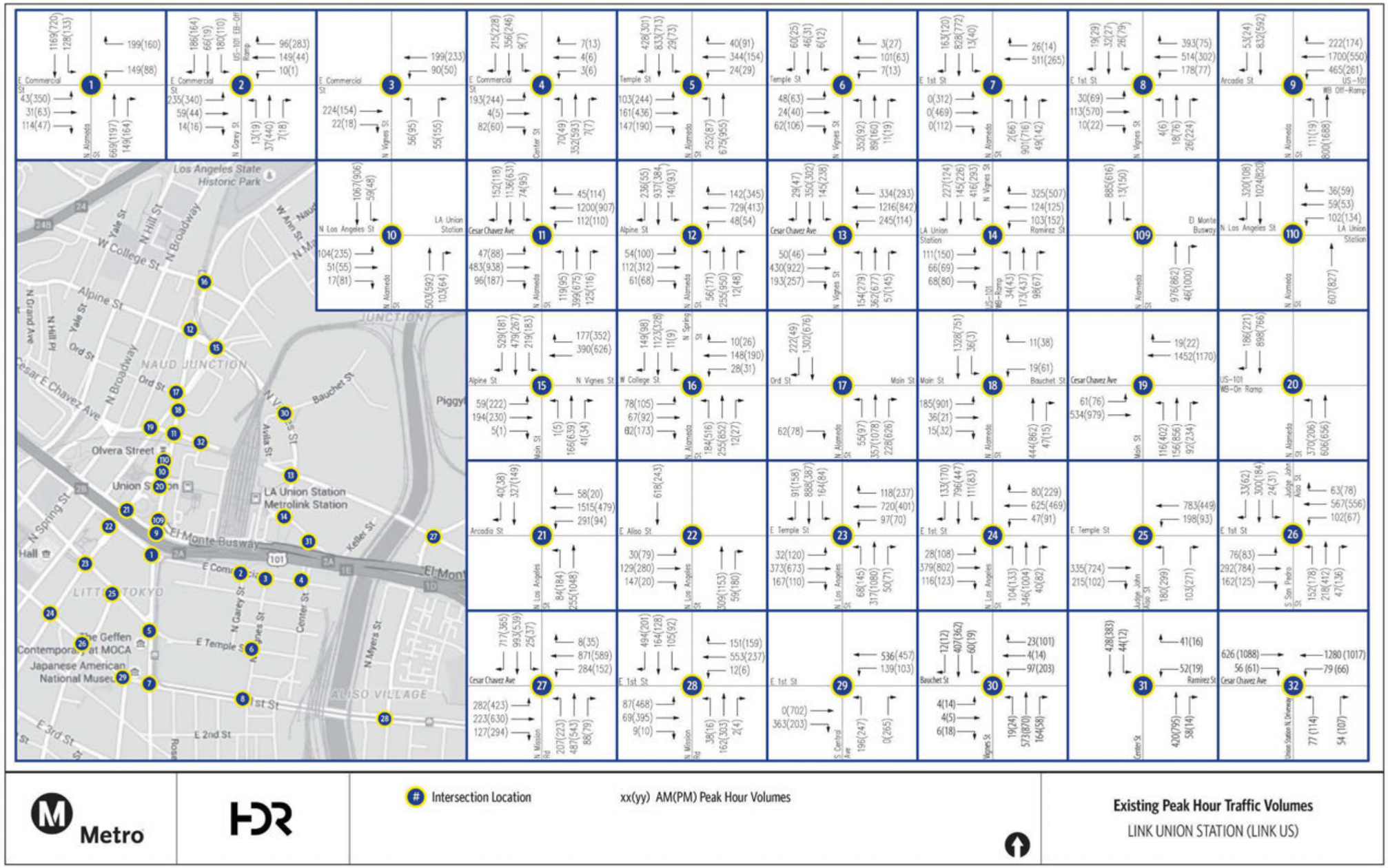
Figure 6-2. Existing Peak Hour Traffic Volumes



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Vehicles classified include cars, trucks, and buses. The two-axle truck and bus percentages of the four intersections during AM peak hours and PM peak hours are depicted in Table 6-1. Additional information, including turn movements and ADT truck and bus percentages, can be found in Appendix C.

Table 6-1. Vehicle Classification on Commercial Street

Peak Period	Car (%)	Truck and Bus (%)
AM Peak		
At Alameda Street	92.0	8.0
At Garey Street/US-101 southbound ramp	89.6	10.4
At Vignes Street	91.0	9.0
At Center Street	84.6	15.4
PM Peak		
At Alameda Street	95.3	4.7
At Garey Street/US-101 southbound ramp	96.5	3.5
At Vignes Street	89.2	10.8
At Center Street	89.9	10.1

During both AM and PM peak hours, the combined truck and bus percentages are generally less than 10 percent on Commercial Street within the study area. An exception is the intersection at Garey Street/US-101 southbound ramp in the AM peak hour (Intersection 2), the intersection at Vignes Street in the PM peak hour (Intersection 3), and the Center Street/Commercial Street intersection (Intersection 4) where the truck and bus percentage is higher than 10 percent during both AM and PM peak hours.

6.2.2 Existing Intersection Level of Service

Table 6-2 summarizes the existing LOS during the AM and the PM peak hours for the study intersections. Intersection LOS worksheets are presented in Appendix D. In the AM peak hour, 31 of the 32 intersections operate at LOS C or better, while 30 of the 32 operate at LOS C or better in the PM peak hour. It should be noted that if the intersections are so congested that the actual demand cannot be processed by the signal, then the performance of the intersections may be poorer than the LOS calculations indicate. It should therefore be noted that the observed LOS could be worse than the one based on the calculations in the analysis.

Table 6-2. Existing Peak Hour Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	29.9	0.56	C	33.9	0.84	C
2	Garey Street and Commercial Street	31.4	0.38	C	34.2	0.47	C
3	Vignes Street and Commercial Street a	9.6	0.37	A	9.9	0.39	A
4	Center Street and Commercial Street a	16.0	0.68	C	33.0	1.00	D
5	Alameda Street and Temple Street	13.9	0.65	B	15.4	0.71	B
6	Vignes Street and Temple Street a	14.5	0.69	B	9.7	0.40	A
7	Alameda Street and First Street	17.8	0.53	B	17.3	0.59	B
8	Vignes Street and First Street	21.7	0.49	C	27.4	0.56	C
9	Alameda Street and El Monte Busway/Arcadia Street	19.5	0.83	B	14.5	0.60	B
10	Alameda Street and Los Angeles Street EB	12.4	0.31	B	12.7	0.33	B
110	Alameda Street and Los Angeles Street WB	4.2	0.33	A	5.6	0.29	A
11	Alameda Street and Cesar Chavez Avenue	15.3	0.74	B	14.9	0.67	B
12	Alameda Street and Vignes Street/Alpine Street	11.8	0.56	B	14.1	0.60	B
13	Vignes Street and Cesar Chavez Avenue	19.0	0.75	B	20.4	0.85	C
14	Vignes Street and Ramirez Street	23.4	0.41	C	25.9	0.51	C
15	Vignes Street and Main Street	17.5	0.57	B	41.9	0.97	D
16	Alameda Street/Spring Street and College Street	16.0	0.59	B	17.0	0.68	B
17	Alameda Street and Main Street/Ord Street a	0.6	0.33	A	0.7	0.40	A
18	Alameda Street and Main Street/Bauchet Street	5.7	0.40	A	8.8	0.56	A
19	Main Street and Cesar Chavez Avenue	7.6	0.42	A	19.0	0.62	B
20	Alameda Street and Northbound US-101 b						
21	Los Angeles Street and Arcadia Street	7.2	0.57	A	5.1	0.50	A
22	Los Angeles Street and Aliso Street	9.4	0.29	A	11.3	0.59	B
23	Los Angeles Street and Temple Street	15.0	0.59	B	16.5	0.70	B
24	Los Angeles Street and First Street	14.8	0.53	B	19.4	0.80	B

Table 6-2. Existing Peak Hour Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
25	Judge John Aiso Street and Temple Street	8.2	0.38	A	7.9	0.41	A
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	0.42	B	15.0	0.63	B
27	Mission Road and Cesar Chavez Avenue	46.4	1.08	D	23.9	0.85	C
28	Mission Road and First Street	28.3	0.77	C	31.1	0.83	C
29	Central Avenue and First Street	8.9	0.32	A	11.0	0.48	B
30	Vignes Street and Bauchet Street	10.7	0.28	B	19.1	0.48	B
31	Ramirez Street and Center Street	1.8	0.19	A	0.6	0.34	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.5	0.53	B	14.2	0.50	B

Notes:
[a] Non-signalized intersection
[b] Freeway on-ramp, neither signalized nor STOP-sign controlled
EB=eastbound; LOS=level of service; V/C=volume to capacity; WB=westbound

6.2.3 Existing Volumes and Traffic Conditions on US-101

Freeway traffic data from the 2010 CMP were utilized for this analysis to assess the existing operating conditions on US-101 north of Vignes Street (postmile 0.46). D/C ratios were estimated assuming a capacity of 2,000 vehicles per hour, per lane. Table 6-3 shows the existing US-101 main line segment north of Vignes Street LOS results. As shown, this freeway segment operates at an unacceptable LOS of E or worse, during both AM and PM peak hours.

Table 6-3. Existing Freeway Main line Level of Service

Freeway Analysis Location	Peak	Northbound				Southbound			
		Demand	Capacity	D/C	LOS	Demand	Capacity	D/C	LOS
US-101 North of Vignes Street (postmile 0.46)	AM	10,900	8,000	1.36	F(2)	7,500	8,000	0.94	E
	PM	10,800	8,000	1.35	F(1)	11,000	8,000	1.38	F(2)

Source: Los Angeles County CMP, 2010, Appendix B, 2009 CMP Freeway Monitoring Stations and Levels of Service
Notes:
D/C=Demand to Capacity; LOS=level of service

6.3 Existing Public Transit Usage

The study area is currently served by an extensive transit system including bus, rail, and high-occupancy vehicle facilities. The project is situated in and around the Patsaouras Transit Plaza, which is a major hub of transit activity in Downtown Los Angeles. Numerous bus routes start, stop, or terminate at the Patsaouras Transit Plaza, currently located on the east side of LAUS. These include long-haul, express, and local municipal buses provided by LADOT, Metro, and other agencies. Buses include the Los Angeles International Airport FlyAway provided by Los Angeles World Airports, with scheduled ground transportation between Los Angeles International Airport and LAUS. Express buses are provided by Orange County Transportation Authority, Foothill Transit, LADOT, and other surrounding agencies. Local buses include LADOT Downtown Area Short Hop (DASH) and other local service providers. Along with bus routes, the Patsaouras Transit Center provides connection to Metro Red and Purple Lines, Gold Line, Metrolink, and Amtrak trains.

On weekdays, approximately 1,046 buses are dispatched from the Patsaouras Transit Plaza. On Saturdays and Sundays, approximately 556 and 655 buses are dispatched, respectively. Thus, in a week, a total of 6,441 buses are dispatched. Under an estimation that each bus carries approximately 30 passengers, the Patsaouras Transit Plaza accommodates approximately 190,000 individual trips per week, approximately 31,000 individual trips per weekday, and approximately 17,000 individual trips per weekend day, which, as a whole, reduces the number of motorists using roadways in the project vicinity.

In the project study area, LADOT DASH Route D is the only bus route using Center Street. During construction, possible detour bus routes for Route D would be via Alameda Street and Cesar Chavez Avenue. Other DASH bus routes that traverse the area include Routes A and B. Detailed bus routes are shown on Figure 6-3. Bus schedule and detailed information can be found in Appendix E. Additionally, El Monte Busway is a shared-use bus corridor and high-occupancy vehicle lane that travels west along US-101.

6.4 Pedestrians and Bicyclists

The study area intersections currently experience a high number of pedestrian and bicyclist activities during both AM and PM peak hours. As part of this study, pedestrian and bicyclist counts were collected and included in the intersection analysis as applicable.

Pedestrian and bicyclist activities were observed at each study intersection by National Data and Surveying Services while manual counts were conducted during AM and PM peak periods for the following intersections:

- At the intersection of Alameda Street and Commercial Street, the amount of pedestrian activity was notably high on each crosswalk of the intersection during both AM and PM peak hours. During the AM peak hour, there were 0 to 224 pedestrians per hour, with the south leg having the highest volume. During the PM peak hour, the counts ranged from 0 to 144 pedestrians per hour, with the south leg again having the highest volume. Bicyclists were observed at this intersection, and counts

were similar for both AM and PM peak hours; the counts for each movement ranged from 0 to 9 bicyclists.

- At the intersection of Garey Street and Commercial Street, there were few pedestrians during both AM and PM peak hours. Of the observed pedestrians, only the south leg had volumes ranging from 7 to 15 pedestrians during the AM and PM peak periods. Bicyclists were observed at each approach for AM and PM peak hours; however, only 1 bicyclist was observed at the westbound approach.
- At the intersection of Center Street and Commercial Street, the number of pedestrians was low on all legs for AM and PM peak hours. The pedestrian counts for all the legs that had crosswalks observed 11 pedestrians during the AM peak hour and 28 pedestrians during the PM peak hour. Bicyclists were observed at this intersection, and numbers were similar during AM and PM peak hours; the counts for each movement ranged from 5 to 26 bicyclists.

The above pedestrian and bicyclist volumes demonstrate that the intersection of Alameda Street and Commercial Street experiences higher pedestrian and bicyclist volumes than other nearby intersections and is used during both morning and evening peak hours. Pedestrian and bicyclist count data can be found in Appendix F.

There are existing bicycle lane facilities along Main Street, Los Angeles Street, First Street, and Third Street. Metro is also implementing the *Connect US Action Plan* (formerly the Union Station and First/Central Station Linkages Study; Metro 2015) to improve historical and cultural connections in Downtown Los Angeles by enhancing pedestrian and bicycle travel options. Central to the study is improving access to LAUS. The *Connect US Action Plan* includes a neighborhood-level assessment of arterial and collector streets with an emphasis on bicycle and pedestrian mobility. Under the *Connect US Action Plan*, Alameda Street between Cesar Chavez Avenue and US-101 would be modified to further emphasize bicycle and pedestrian mobility by reducing one vehicular travel lane in each direction in order to widen the sidewalk for pedestrian and bicycle use.

6.4.1 Approach to Identification of Baseline Condition

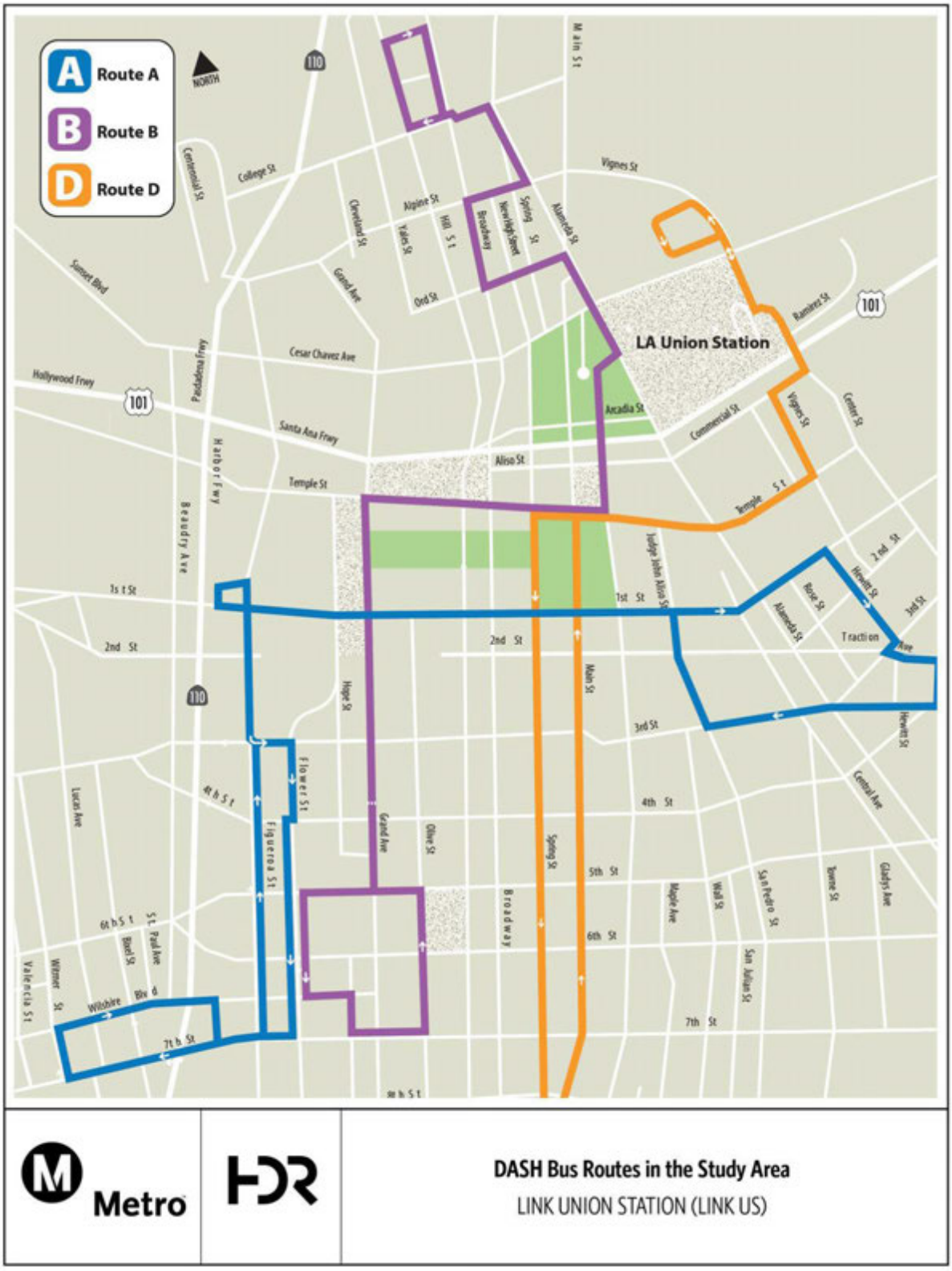
Based on the significant impact criteria as per the LADOT's guidelines (Section 5.3.3), the project related impacts and deterioration in the operational performance of study intersections due to the added delay are measured by the difference in delay between the 'with project' and the 'no project' conditions during the 'opening year' of a project. Because the project related traffic would be generated only after the project is constructed and fully operational, the 'Baseline' condition is during the 'opening year' of the project and not the 'existing year'. The existing year is not the baseline because the project will not be built and operational during the existing year; therefore, the existing plus project condition would never occur. The traffic counts were conducted in 2015 and were used to estimate the baseline volumes for the opening year by adding annual growth rate and traffic from the other planned projects located in the vicinity of the proposed project to the traffic counts.

In order to fulfill the existing plus project condition as part of this traffic impact analysis of the project, the level of service analysis for all study intersections for the existing plus project scenario was included in

Appendix G. As identified in the appendix, the results of the analysis for the existing plus project condition would not result in any new significant impacts or substantially greater project related impacts as those identified utilizing LADOT's guidelines and the opening year of the project as the analysis baseline.

It should be noted that for the 2031 opening year and 2040 horizon year conditions, the analysis consists of the comparison of LOS and delay between the corresponding 'no project' and 'with project' conditions. The project related impacts for the 2031 opening year with project and 2040 horizon year with project are the same as the existing with project conditions.

Figure 6-3. Downtown Area Short Hop Bus Routes in the Study Area



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7.0 Future Traffic Projections and Roadway Characteristics

This section describes the methodology for performing traffic forecasts and the actual traffic volumes projected for 2031 and 2040 conditions at key roadway segments and intersections.

Two future years were evaluated: (1) 2031 and (2) 2040. Forecasts for five future conditions were developed:

- 2031 no project condition
- 2040 no project condition
- 2031 plus project construction condition
- 2031 plus project condition
- 2040 plus project condition

No project conditions forecasts reflect traffic increases due to background growth in the region. Plus project conditions forecasts reflect the traffic under no project conditions plus expected traffic volume changes due to construction and operation. Cumulative plus project construction conditions forecasts reflect traffic of the cumulative base plus expected traffic volume changes due to construction of the project.

7.1 Traffic Forecasting Methodology

Trip distribution is the process of identifying the probable origins, destinations, and directions or traffic routes that will be utilized by project-related traffic. The potential interaction between the project and surrounding regional access routes is considered to identify the route where the traffic will distribute.

For the purpose of this Traffic Impact Assessment, the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) model was used as the basis for ambient traffic growth in Downtown Los Angeles per the MOU approved by LADOT. The City of Los Angeles sub-area model is built upon the latest version of the SCAG 2016 RTP/SCS regional traffic model. The model includes all traffic analysis zones in the City of Los Angeles. The City of Los Angeles provided a list of proposed projects that are approved or in the process of approval to use as cumulative projects in the analysis.

The following steps were taken to develop the 2031 and 2040 traffic forecasts using the SCAG model data:

1) The list of cumulative projects was compared against the land use assumptions in the SCAG model.
2) It was determined that the majority of cumulative projects were in the SCAG model land use assumptions.

3) Based on projected growth in the study area and direction from LADOT[2], a 0.2 percent per year growth rate was applied to the Existing Conditions traffic volume to generate ambient traffic growth.

4) Three specific projects that required trip generation estimates were identified and added to the cumulative traffic forecasts for 2031 and 2040.

A cumulative project list was obtained from LADOT for an area within a 3-mile radius of the project, and the analysis was compared to the SCAG land use data. Three projects were identified that were not included in the SCAG/City model. Associated trip generation rates and estimates for AM and PM peak hour trips were added to the project cumulative year traffic to account for these projects. The trip generation rates and estimates for the three specific projects are included in Table 7-1.

Table 7-1. Cumulative Projects Trip Generation Estimates

Project	Location	Description	Estimated Trip Generation						
			Daily Vehicular Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
1	441 Bauchet Street	Los Angeles County Men's Central Jail	—	64	75	139	69	208	277
2	129 W. College Street	College Station	—	169	290	459	307	201	508
3	800 N. Alameda Street	High-Speed Rail a	32% of 40,960 = 13,107	1,305	870	2,175	870	1,305	2,175

Notes:
[a] Trip generation from the planned HSR system is based on data shared by the California High-Speed Rail Authority.

[2] Confirmed at a meeting with LADOT on May 25, 2016.

7.2 Characteristics of 2031 and 2040 Roadway System

For the 2031 no project condition, it is assumed that there will be no major changes to the roadway network aside from those proposed in the 2016 RTP/SCS.

For the 2031 no project condition, it is assumed that the *Connect US Action Plan* (Metro 2015) will already be implemented, as well as the LAUS Forecourt and Esplanade Improvements project. The modifications to Alameda Street would reduce the number of lanes from Cesar Chavez Avenue to Arcadia Street/El Monte Busway. The northbound and southbound through lanes would be reduced from three lanes to two lanes. In addition to the lane reductions, Los Angeles Street across from LAUS would be closed and vacated for an exclusive pedestrian plaza. With this closure, LAUS would have a combined intersection for entrances and exits. An illustration of the LAUS Forecourt and Esplanade Improvements concept is shown on Figure 7-1.

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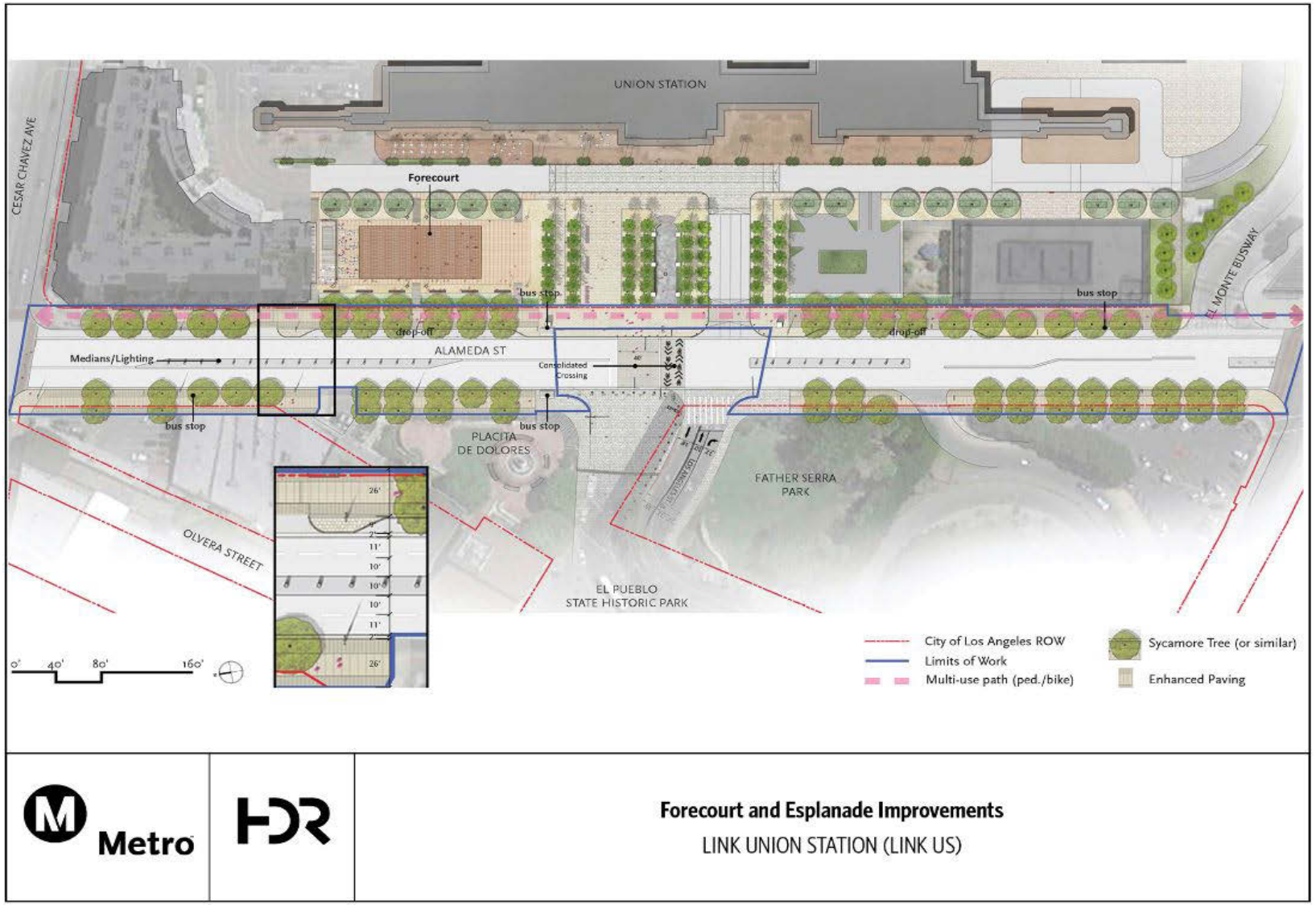
Figure 7-1. Alameda Street Improvements (Los Angeles Union Station Forecourt and Esplanade Improvements Project)



Source: Metro 2015

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The 2040 no project condition is therefore different from Existing Conditions with respect to the roadway network and traffic distribution with the completion of the LAUS Forecourt and Esplanade Improvements project. Below is a summary of concept plans with the lane configurations for the Alameda Street road improvements.

Intersection #3: Vignes Street and Commercial Street:

- Westbound and northbound left turns are prohibited with the proposed raised median along Commercial Street.

Intersection #9: Alameda Street and Arcadia Street:

- Eliminate one through lane (future configuration will be one through/right and one through lane southbound).
- Northbound through/right lane becomes trap right (onto El Monte Busway), two northbound lanes until Cesar Chavez Avenue.

Intersections #10 and #110: Alameda Street and Los Angeles Street:

- East/west will be split phase, southbound protected left. Eastbound left turn prohibited. Intersections 10 and 110 are merged into one intersection (east leg).
- No right-turn on red is noted for most of the right turns (to eliminate pedestrian conflicts); the crosswalk would run concurrent with the westbound through/left phase.

Intersection #11: Alameda Street at Cesar Chavez Avenue:

- Southbound through/right lane becomes right-turn-only lane, two southbound receiving lanes south of the intersection.
- Northbound right-turn-only lane, two through lanes.

Intersection #20: Alameda Street and US-101 Northbound On-ramp:

- Eliminate one through lane (future configuration will be one through/right and one through lane southbound).
- Northbound two through lanes.

7.3 2031 and 2040 No Project Traffic Projections

The no project traffic conditions have been estimated using the methodology identified in Section 7.1, Traffic Forecasting Methodology.

The no project scenario consists of the cumulative base traffic conditions that reflect the background growth and the related cumulative projects that were identified and were not included in the regional growth

model. The cumulative traffic growth rate in the study area is assumed to increase at 0.2 percent per year from 2016 to 2031 and 2040. The resulting peak hour traffic volumes under 2031 no project and 2040 no project conditions are illustrated on Figure 7-2 and Figure 7-3, respectively. Below are the planned increases in new transit services in the near future:

1) Regional Connector project is expected to be completed by 2021.
    a. It will connect Gold Line to Red/Purple Lines.
    b. Future frequency of trains will reduce to 2 minutes on combined Red/Purple Lines during peak.
2) Crenshaw/Los Angeles International Airport transit project is expected to be completed by 2019.
3) Los Angeles World Airport People Mover project is expected to be completed by 2019.

Figure 7-2. 2031 No Project Peak Hour Traffic Volumes

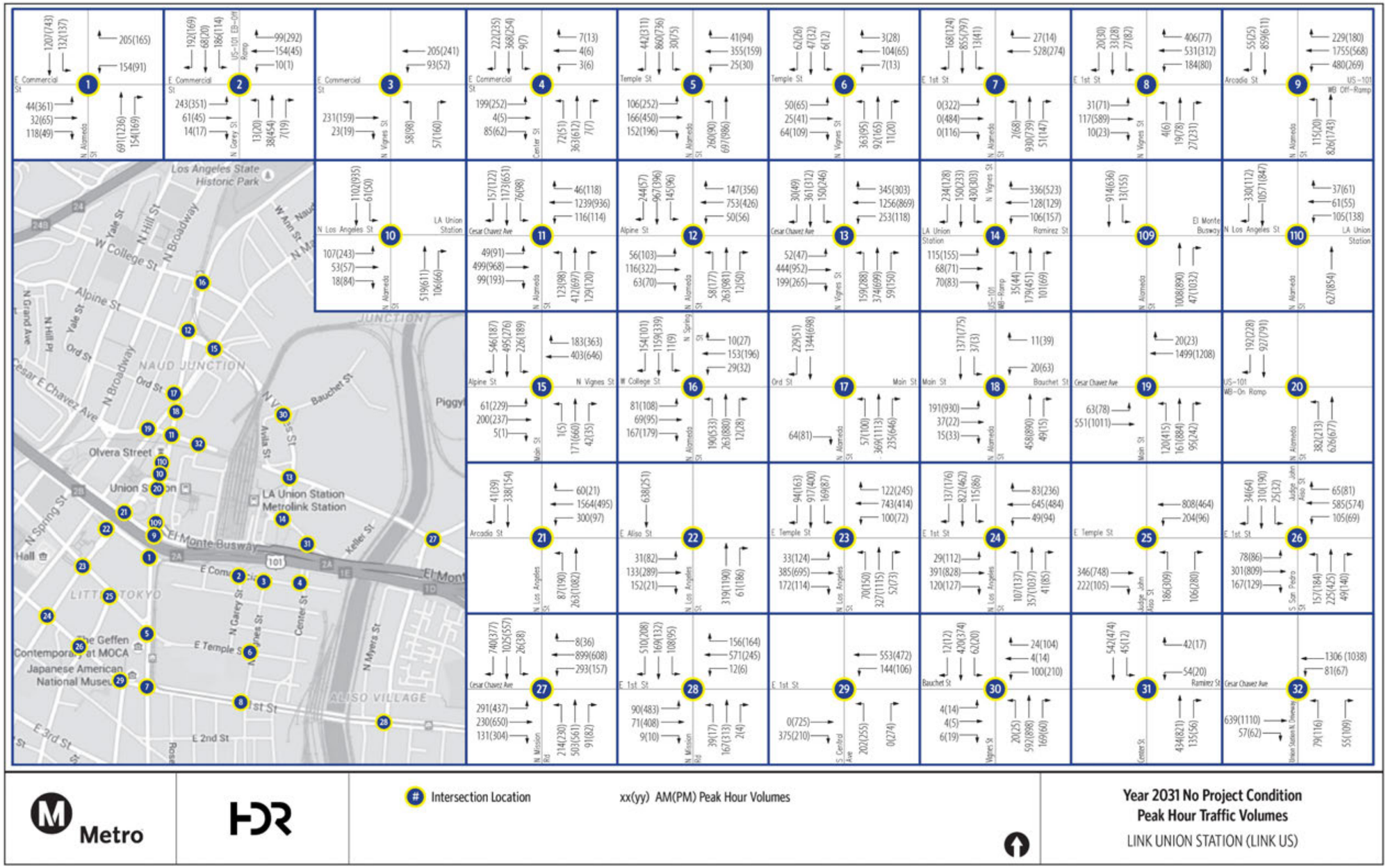

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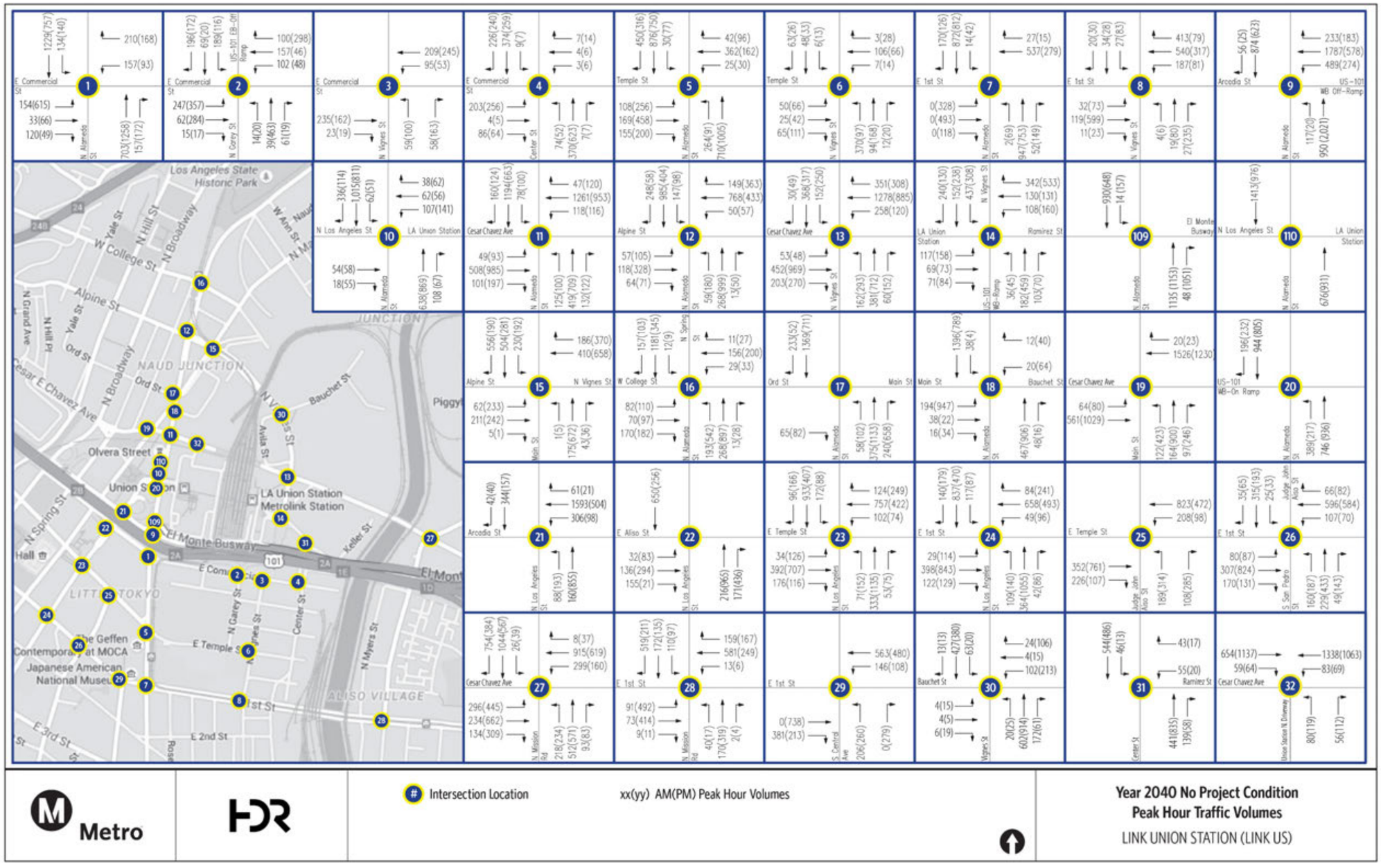
Figure 7-3. 2040 No Project Peak Hour Traffic Volumes



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7.4 Project Construction Traffic Generation

Construction of the proposed project or the build alternative would require large amounts of workers, materials, and equipment working simultaneously in multiple locations. The additional traffic generated during construction would consist of construction equipment, construction employee vehicles and construction material deliveries, and haul of landfill materials in trucks.

7.4.1 Project Phases A and B (Simplified Project Phases)

Project Phases A and B are two construction sub-phases that correspond to the interim condition (Phase A: 2026) and the full build-out condition (Phase B: 2031). Detailed construction phasing scenarios were developed to support the traffic, air quality, and noise analyses; however, this simplified project phasing approach summarizes how regional/intercity rail run-through service could be implemented as early as 2026 via early action/interim improvements, and how the remaining project elements, including reconstruction of the throat with new lead tracks, an elevated rail yard with new platforms and canopies, and the new passenger concourse, could be implemented as early as 2031. A summary of the construction activities in each segment of the project study area associated with Phases A and B is provided below and shown on Figure 7-4 and Figure 7-5, respectively.

Phase A/Interim Condition:

- Conduct property acquisitions in Segment 1: Throat Segment through Segment 3: Run-Through Segment
- Relocate utilities in Segment 1: Throat Segment and Segment 3: Run-Through Segment
- Construct special track work and modify signal/communication infrastructure in Segment 1: Throat Segment
- Construct local street modifications south of LAUS, including realignment of Commercial Street and lowering of Center Street in Segment 3: Run-Through Segment
- Construct a run-through track ramp from the southern extent of Platform 4 in Segment 2: Concourse Segment.
- Construct a common viaduct/deck over US-101 wide enough to accommodate up to ten run-through tracks (including the northern loop track) south of LAUS in Segment 3: Run-Through Segment.
- Construct a common embankment from Vignes Street to Center Street in Segment 3: Run-Through Segment.
- Construct regional/intercity rail embankments and viaducts east of Center Street to facilitate main line connections for the loop track and regional/intercity rail run-through tracks in Segment 3: Run-Through Segment. Metro and the project stakeholders are also considering design

approaches that would accommodate future interoperability for multiple rail service providers from LAUS to the main line tracks on the west bank of the Los Angeles River.

- Construct a retaining wall/sound wall in Segment 1: Throat Segment.
- Construct two run-through tracks in Segment 3: Run-Through Segment that would connect to the existing Platform 4 in Segment 2: Concourse Segment.

Phase B/Full Build-Out Condition:

- Construct new compatible lead tracks and reconstruct throat in Segment 1: Throat Segment
- Construct new bridges over Vignes Street and Cesar Chavez Avenue in Segment 1: Throat Segment
- Construct elevated rail yard and new passenger concourse in Segment 2: Concourse Segment
- Construct remaining run-through tracks for regional/intercity rail operations in Segment 3: Run-Through Segment

Two detailed construction phasing plans were developed for the environmental impact evaluation because the proposed project with an above-grade passenger concourse with new expanded passageway and the build alternative with an at-grade passenger concourse require different construction sequencing and durations, truck traffic, and equipment use.

Project Phases A and B are encompassed within Construction Phases 1–4 (both scenarios), but do not directly relate because the detailed construction phasing plans described below are based on a conservative estimate of typical construction activities based on a concurrent construction schedule for all major project features (i.e., construction of the new lead tracks, elevated rail yard, run-through tracks, and new passenger concourse together).

Construction traffic, project access, and construction staging are discussed in subsequent sections and additional information is provided in Appendix H.

All phases were developed to provide adequate platform space and associated tracks to maintain rail operations for existing Gold Line and regional/intercity rail service, as well as safe and adequate passenger movement throughout the construction process.

The underlying assumptions and approach to the construction phasing plans applicable to both construction scenarios are:

- The difference in timeframes to construct shared and dedicated tracks in the throat segment is relatively minor in terms of the overall project construction schedule. Lead tracks would be constructed in a similar fashion for both scenarios.
- No less than three track leads from the north, and eight platform tracks would be available at all times to maintain operational objectives during construction.
- Full closure of the rail yard is possible between 12 AM and 5 AM.

- The East Portal Building would provide continuous passenger access during construction.
- The construction duration is based on a 5 days per week, 8 hours per day schedule. Where permissible, nighttime construction would be implemented in certain locations.
- Double berthing (two tracks utilizing one platform) would be maximized to the extent feasible.
- The at-grade passenger concourse requires a "top-down" construction method, and the above-grade passenger concourse with new expanded passageway requires a "bottom-up" construction method.
- Shoring walls would be placed 10 feet from centerline of the existing track.
- Construction work zones areas would be contained to help manage staging, distribution of materials, and movement of personnel to specific areas.
- Impacts to existing roadways and traffic signal operations would be minimized to the extent possible.
- Ancillary roadway improvements (e.g., widening, restriping, and curb/gutter) and drainage/water quality improvements would be constructed throughout all construction phases, as needed.
- On average, project construction would affect up to 10 acres of the project footprint per day.

The overall construction phasing process relates to the following project areas:

- Throat Segment
- Concourse Segment
- Run-Through Segment

The following sections include discussion of the general construction activities that would occur within each segment of the project study area with reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with construction of an at-grade passenger concourse or above-grade passenger concourse with new expanded passageway.

Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario

Reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with an above-grade passenger concourse with new expanded passageway, would be completed in 22 steps that comprise four main construction phases (Phases I through IV). Generally, the construction methodology for the proposed project with an above-grade passenger concourse is the reverse of that for the build alternative with an at-grade passenger concourse (east to west and bottom to top). All construction activities would be conducted in a manner to minimize service disruptions to existing rail/transit service providers during construction.

Phase I Construction (Steps 1–6)

Figure 7-6 depicts the Phase I Construction Work Area. Major work elements in this phase include realignment of Commercial Street, lowering of the existing Commercial Street/Center Street intersection, construction of the East and West Plazas, and construction of the run-through track structures south of LAUS. Phase I construction activities planned within each of the main segments are summarized below.

- *Segment 1: Throat Segment* – Phase I includes removal of the southern portion of the lead tracks in the throat area, removal of the garden tracks, construction of a shoofly and crossovers to facilitate temporary at-grade leads to the rail yard, minor track work at CP Mission, and special track work.
- Segment 2: Concourse Segment:
  - *Rail Yard Area* – Phase I includes construction of new temporary leads and connections to existing platform tracks.
  - *Concourse Area* – Phase I includes construction of the East and West Plazas.
- *Segment 3: Run-Through Segment* – Phase I includes roadway work to realign Commercial Street and lower the existing Commercial Street/Center Street intersection, construction of the US-101 viaduct as a combined structure, construction of an embankment to support run-through tracks south of Commercial Street, and construction of the Center Street viaduct.

Phase II Construction (Steps 7–12)

Figure 7-7 depicts the Phase II Construction Work Area. Major work elements in this phase include reconstruction of the throat (east to west), construction of the eastern portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platforms 7 through 5 (east to west), construction of the loop track and new run-through tracks, and construction of the new above-grade passenger concourse with new expanded passageway. Phase II construction activities planned within each of the main areas are summarized below.

- *Segment 1: Throat Segment* – Phase II includes removal of existing track and reconstruction of the eastern portion of the throat area with new lead tracks on an embankment from the southern end of CP Mission through CP Terminal to the rail yard. Phase II also includes special track work, rail signal and communication work, and construction of the easterly portions of the Vignes Street and Cesar Chavez Avenue Bridges.
- Segment 2: Concourse Segment:
  - *Rail Yard Area* – Phase II includes the removal of Platforms 7, 6, and 5, and the southern portions of Platforms 4 through 2. As part of Phase II, Platforms 7, 6, and 5 would be reconstructed (east to west) with the corresponding vertical circulation elements connecting to the new passenger concourse above.
  - *Concourse Area* – Phase II includes major construction of the elements of the above-grade passenger concourse over the rail yard, the new expanded passageway below the rail yard, and

the associated vertical circulation elements. As each platform is reconstructed east to west, the existing ramp from the pedestrian passageway to that platform would be closed to the public and reopened for use as the next platform is being reconstructed. Passenger access between new platforms and the newly constructed above-grade passenger concourse and new expanded passageway would be via the new vertical circulation elements.

- *Segment 3: Run-Through Segment* – Phase II includes continuation of the run-through track structure construction south of LAUS. East of Center Street, Phase II also includes replacement of existing tracks at the BNSF West Bank Yard at a lower elevation, track work along the existing two-track main line, and rail signal and communication work to support regional/intercity rail infrastructure requirements.

Phase III Construction (Steps 13–17)

Figure 7-8 depicts the Phase III Construction Work Area. Major work elements in this phase include continuation of reconstruction of the throat (east to west), construction of the western portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platform 4, and construction of run-through tracks south of LAUS. Phase III construction activities planned within each of the main areas are summarized below.

- *Segment 1: Throat Segment* – Phase III includes removal of existing track and reconstruction of the center portion of the throat area with new lead tracks on an embankment. Phase III also includes special track work, rail signal and communication work, and construction of the center portion of the Cesar Chavez Avenue Bridge.
- Segment 2: Concourse Segment:
  - *Rail Yard Area* – Phase III includes removal and replacement of Platform 4, and removal of Platforms 3 and 2. Phase III also includes associated track work and rail signal and communication work.
  - *Concourse Area* – Phase III includes continuation of construction of the above-grade passenger concourse that would extend above Platform 4.
- *Segment 3: Run-Through Segment* – Phase III includes continuation of construction of new run-through tracks on previously constructed structures.

Phase IV Construction (Steps 18–22)

Figure 7-9 depicts the Phase IV Construction Work Area. Major work elements in Phase IV are associated with completing reconstruction of the throat (east to west) to facilitate construction of the final three platforms in the elevated rail yard (Platforms 3 through 1) and the new above-grade passenger concourse with new expanded passageway. Phase IV also includes construction and removal of a temporary track shoofly for the Gold Line to facilitate construction of the final portion of the Cesar Chavez Avenue Bridge while keeping the Gold Line in operation. Phase IV also includes construction of the westerly portion of the

Vignes Street Bridge. Phase IV construction activities planned within each of the main areas are summarized below.

- *Segment 1: Throat Segment* – Phase IV includes construction of the westerly portion of Vignes Street Bridge and Cesar Chavez Avenue Bridge, new embankment, track work, tie-ins to existing tracks, and rail signal and communication work.
- Segment 2: Concourse Segment:
  - *Rail Yard Area* – Phase IV includes construction and removal of a track shoofly for the Gold Line and construction of permanent Platforms 3, 2, and 1 (including extension of Platform 1). Phase IV also includes associated track work and retaining walls.
  - *Concourse Area* – Phase IV includes construction of the remaining portion of the new passenger concourse with new expanded passageway and completion of the West Plaza.
- *Segment 3: Run-Through Segment* – Phase IV includes final connections and track work, as new platforms and run-through tracks are brought online.

Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario

Reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with an at-grade passenger concourse, would be completed in 17 steps that comprise 4 main construction phases (Phases I through IV). All construction activities would be conducted in a manner to minimize service disruptions to existing rail/transit service providers during construction.

Phase I Construction (Steps 1–4)

Figure 7-10 depicts the Phase I Construction Work Area. Major work elements in this phase include construction of a temporary passenger gantry, removal of existing tracks and platforms and construction of temporary platforms, realignment of Commercial Street, lowering of the existing Commercial Street/Center Street intersection, and construction of the run-through structures south of LAUS. Phase I construction activities planned within each of the main areas are summarized below.

- *Segment 1: Throat Segment* – Phase I includes reconstruction of the northern portion of the lead tracks in the throat area from CP Chavez to CP Mission, construction of a retaining wall/sound wall to support new lead tracks, removal of the garden tracks, special track work, and rail signal and communication work.
- Segment 2: Concourse Segment:
  - *Rail Yard Area* – Phase I includes construction of a temporary platform (Platform 8) and a temporary overhead passenger gantry (pedestrian bridge) with stairways, escalators, and/or elevators. The temporary passenger gantry would be constructed above the rail yard to facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas during construction of the elevated rail yard below. Phase I also includes removal of the southernmost portion of Platforms 7 and 6, removal of Platforms 5 and 4, construction of

temporary Platforms 5 and 4, and removal of Platforms 3 and 2, along with the removal of the Garden Tracks, and associated track work.

- *Concourse Area* – Phase I includes closure of passenger and vehicular access in the existing concourse and pedestrian passageway. Throughout construction, the existing pedestrian ingress/egress areas would be redirected to new access points at the East Portal Building and the parking lot west of Gold Line Platform 1, which would connect via the temporary passenger gantry. Construction of the East and West Plazas would commence during this phase.

- *Segment 3: Run-Through Segment* – Phase I includes roadway work to realign Commercial Street and lower the existing Commercial Street/Center Street intersection, construction of the US-101 viaduct as a combined structure, construction of an embankment south of the newly realigned Commercial Street, and construction of the Center Street viaduct. East of Center Street, Phase I also includes replacement of existing tracks at the BNSF West Bank Yard at a lower elevation, construction of embankments/viaducts leading to Keller Yard and the BNSF West Bank Yard, track work in the vicinity of the existing two-track main line, and rail signal and communication work to support regional/intercity rail infrastructure requirements.

Phase II Construction (Steps 5–7)

Figure 7-11 depicts the Phase II Construction Work Area. Major work elements in this phase are associated with reconstruction of the Gold Line Platform 1. Phase II construction activities planned within each of the main segments are summarized below.

- *Segment 1: Throat Segment* – Phase II includes continuation of special track work, removal and reconstruction of new lead tracks on an embankment, and rail signal and communication work in the throat area. The first phase of construction on the Cesar Chavez Avenue Bridge would also commence during Phase II.

- Segment 2: Concourse Segment:

  - *Rail Yard Area* – Phase II includes construction of a temporary shoofly and platform to maintain Gold Line operations from temporary Platform 3. This phase also includes the removal and reconstruction of the existing Gold Line Platform 1 and associated track work including two new universal crossovers north and south of the existing platform. After construction of the new Gold Line Platform 1, the temporary shoofly and temporary Platform 3 would be removed.

  - *Concourse Area* – Phase II includes continuation of the East and West Plaza construction. No other construction activities would occur within the concourse area as part of Phase II. The existing concourse and pedestrian passageway under the rail yard would be closed to the public during Phase II. The temporary passenger gantry would facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas.

- *Segment 3: Run-Through Segment* – Phase II includes continuation of construction of the run-through track structures south of LAUS.

Phase III Construction (Steps 8–12)

Figure 7-12 depicts the Phase III Construction Work Area. Major work elements in this phase include reconstruction of the throat (west to east), construction of the western portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platforms 2 through 5 (west to east), construction of the loop track and new run-through tracks, and construction of the new passenger concourse. Phase III construction activities planned within each of the main areas are summarized below.

- *Segment 1 – Throat Segment:* Phase III includes reconstruction of the southern portion of the throat area with new lead tracks on an embankment. Phase III also includes special track work, rail signal and communication work, and construction of the westerly portions of the Vignes Street and Cesar Chavez Avenue Bridges.
- Segment 2: Concourse Segment:
    - *Rail Yard Area* – Phase III includes construction of new Platforms 2 and 3, removal of temporary Platforms 4 and 5, construction of Platform 4, removal of Platform 6, and construction of Platform 5. All associated track work in the rail yard would also be reconstructed west to east concurrent with construction of the new platforms, usually two tracks at a time. Rail signal and communication work would also be completed during this phase.
    - *Concourse Area* – The existing concourse and pedestrian passageway under the rail yard would be closed to the public during Phase III. The temporary passenger gantry would facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas. Excavation, slabs, utilities, and interior work on the concourse would begin, and construction on the East and West Plazas would continue.
- *Segment 3: Run-Through Segment* – Phase III includes continuation of the loop track and run-through track construction. Track work at the BNSF West Bank Yard and along the main line would also be conducted in this phase to support regional/intercity rail infrastructure requirements.

Phase IV Construction (Steps 13–17)

Figure 7-13 depicts the Phase IV Construction Work Area. Major work elements in this phase include removal of Platform 7 and temporary Platform 8 to facilitate construction of the final two platforms in the elevated rail yard (Platforms 6 and 7) and construction of the at-grade passenger concourse. Phase IV construction activities planned within each of the main areas are summarized below.

- *Segment 1 – Throat Segment:* Phase IV includes continuation of construction of the Vignes Street and Cesar Chavez Avenue Bridges, new embankment, track work, tie-ins to existing tracks, and rail signal and communication work.
- Segment 2: Concourse Segment:
    - *Rail Yard Area* – Phase IV includes removal of Platform 7 and temporary Platform 8 to facilitate construction of the final two platforms in the elevated rail yard (Platforms 6 and 7) and removal of the temporary passenger gantry.

- *Concourse Area* – Phase IV includes completion of new foundations and walls, new amenities, and the new at-grade passenger concourse. Construction work on the East and West Plazas would also be completed during this phase.

- *Segment 3: Run-Through Segment* – Final connections and track work would be required during this phase.

Potential Staging Areas and Regional Facilities

- *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* – Southwest corner of Commercial Street and Center Street at the Urgent Gear building
- *Staging Area 4* – North side of Commercial Street on the east and west sides of the US-101 ramps
- *Staging Area 5* – South side of Commercial Street between Garey Street and Vignes Street
- *Staging Area 6* – South side of Commercial Street between Hewitt Street and Garey Street
- *Staging Area 7* – Southeast corner of Vignes Street and Ramirez Street at the Denny's restaurant lot
- *Staging Area 8* – Southwest corner of Vignes Street and Ramirez Street adjacent to the Patsaouras Transit Plaza
- *Staging Area 9* – South side of station yard and proposed run-through track structure abutment from existing LAUS access road serving the Metropolitan Water District of Southern California building and Amtrak baggage handling building

Construction Site Access

There are several potential site access points that could be utilized during various stages of construction for the proposed on-site improvements at LAUS and the proposed track throat area to the north. The following are the potential site access points:

- 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

South side of station yard: access via existing LAUS access road serving Metropolitan Water District building and Amtrak baggage handling building

An illustration of the potential staging areas and regional facilities is shown on Figure 7-14.

Figure 7-4. Project Phase A

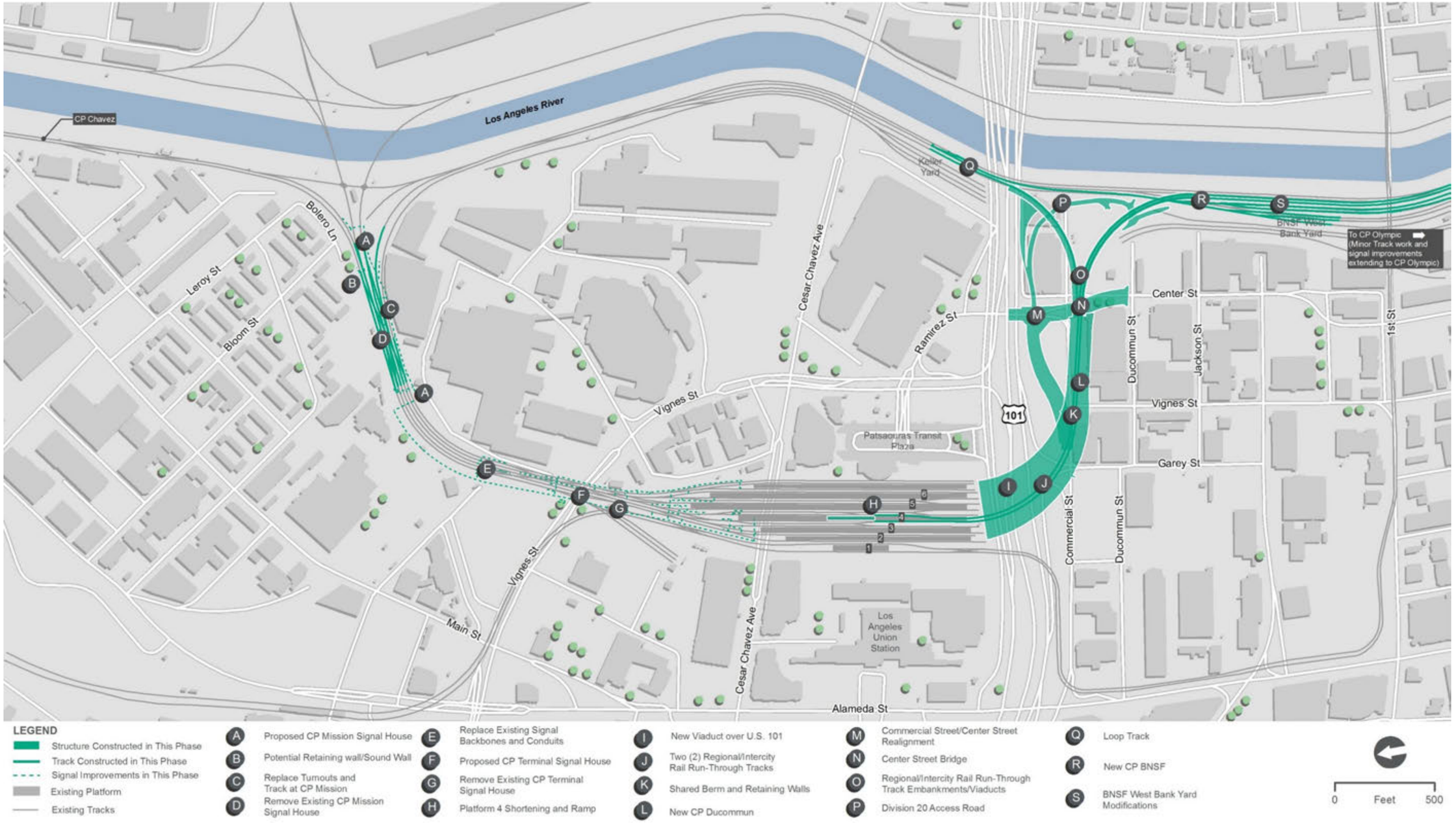

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Figure 7-5. Project Phase B

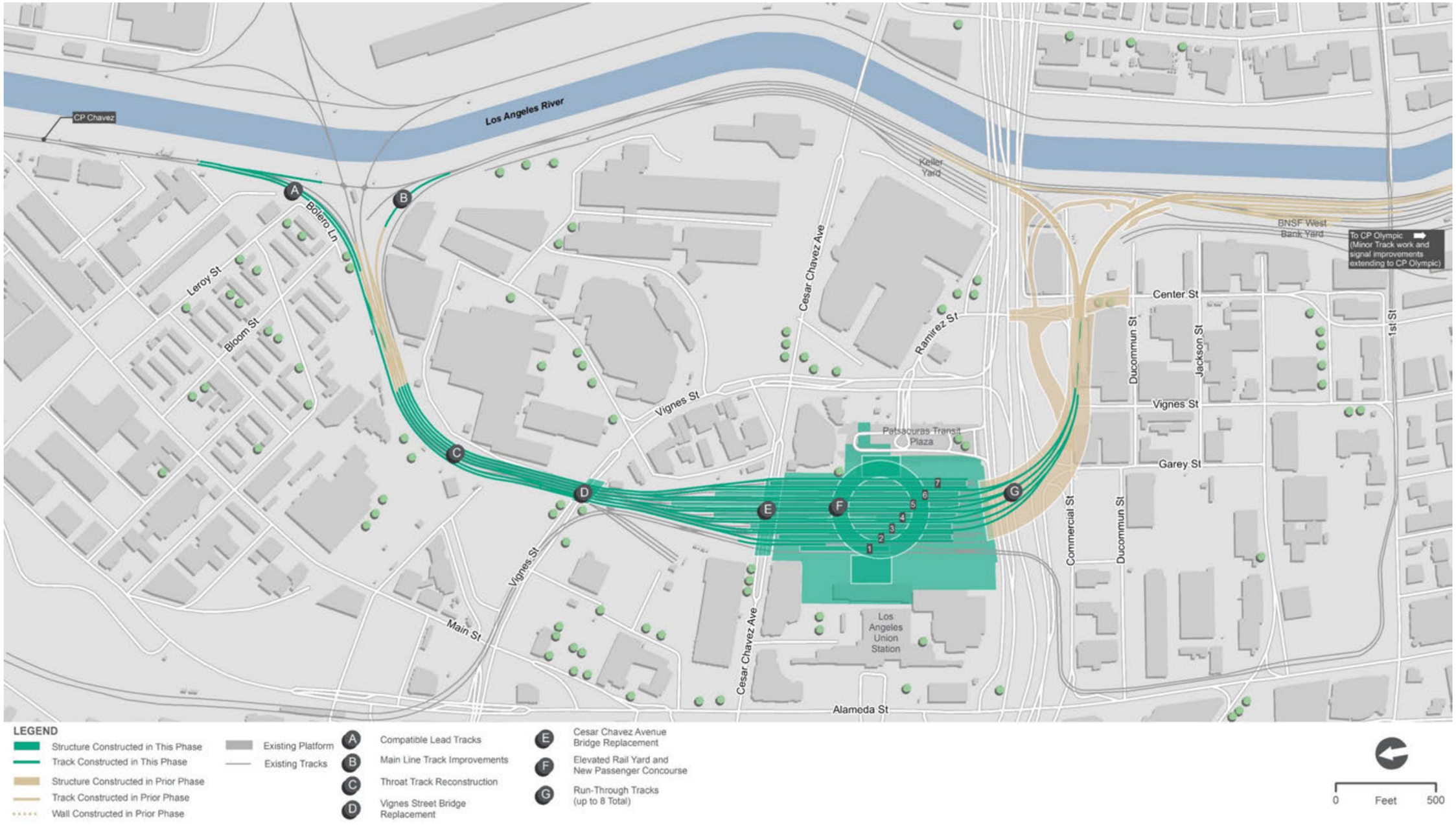

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Figure 7-6. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase I Construction Steps 1-6)

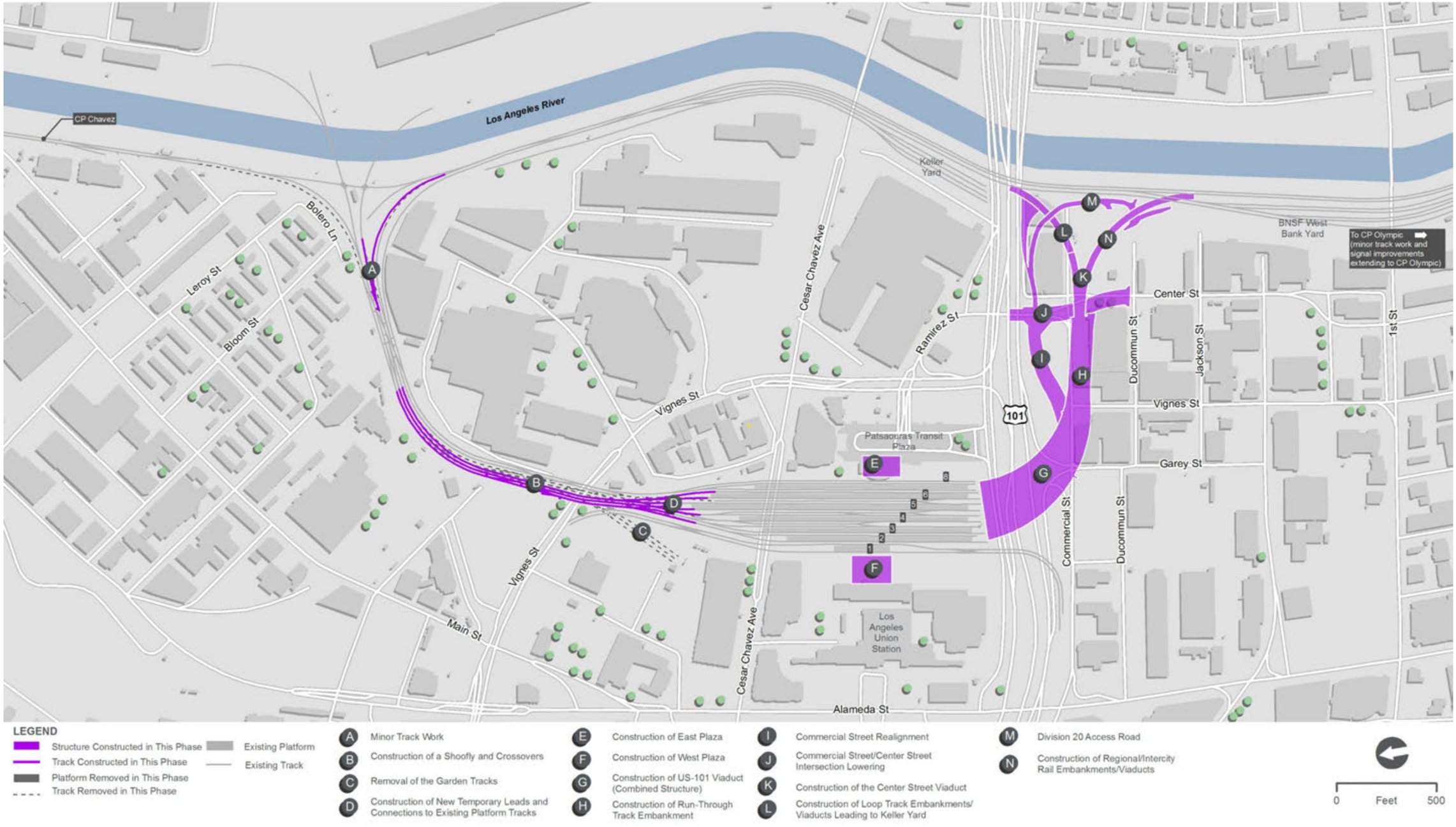

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Figure 7-7. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase II Construction Steps 7-12)

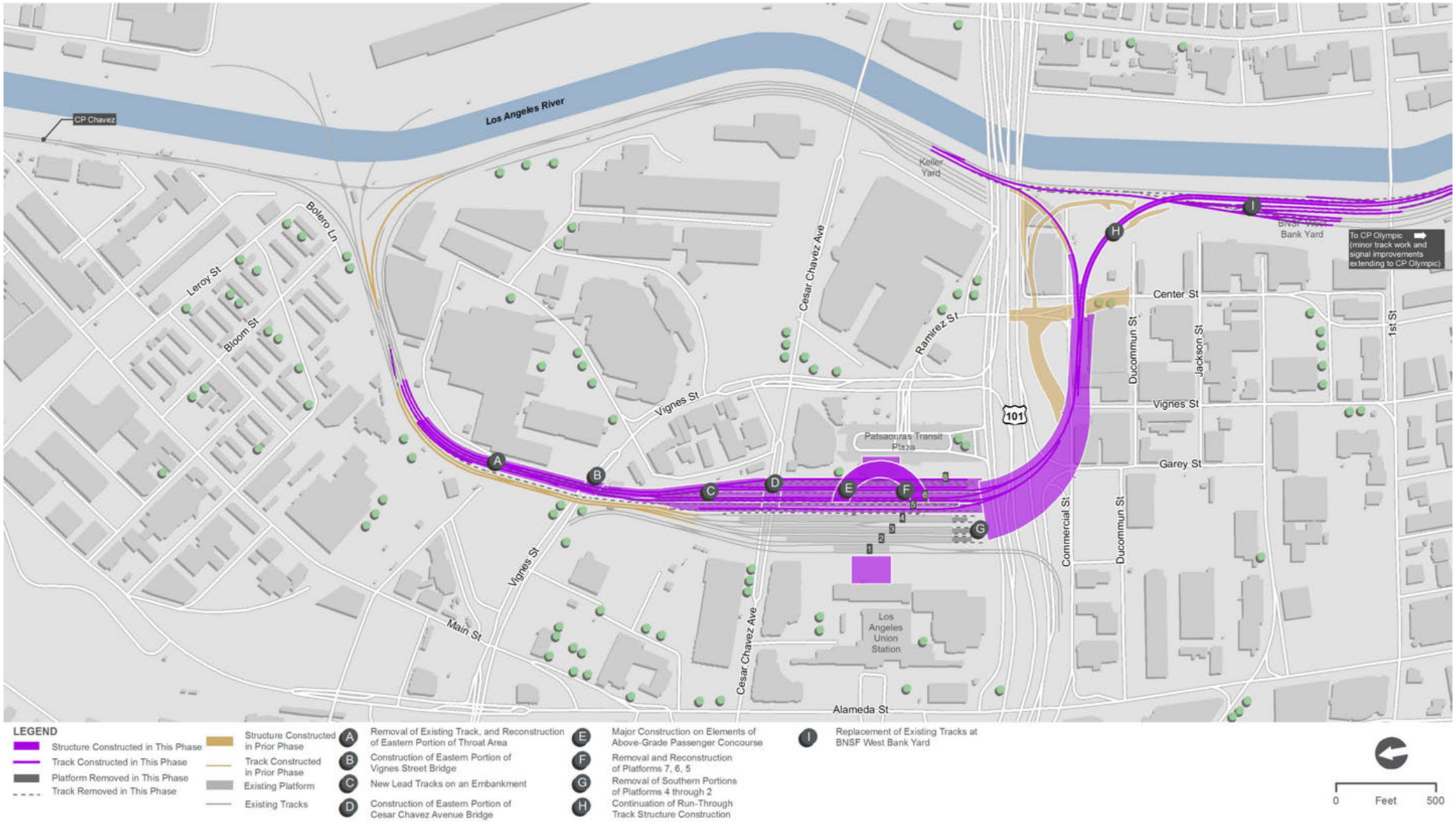

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Figure 7-8. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase III Construction Steps 13-17)

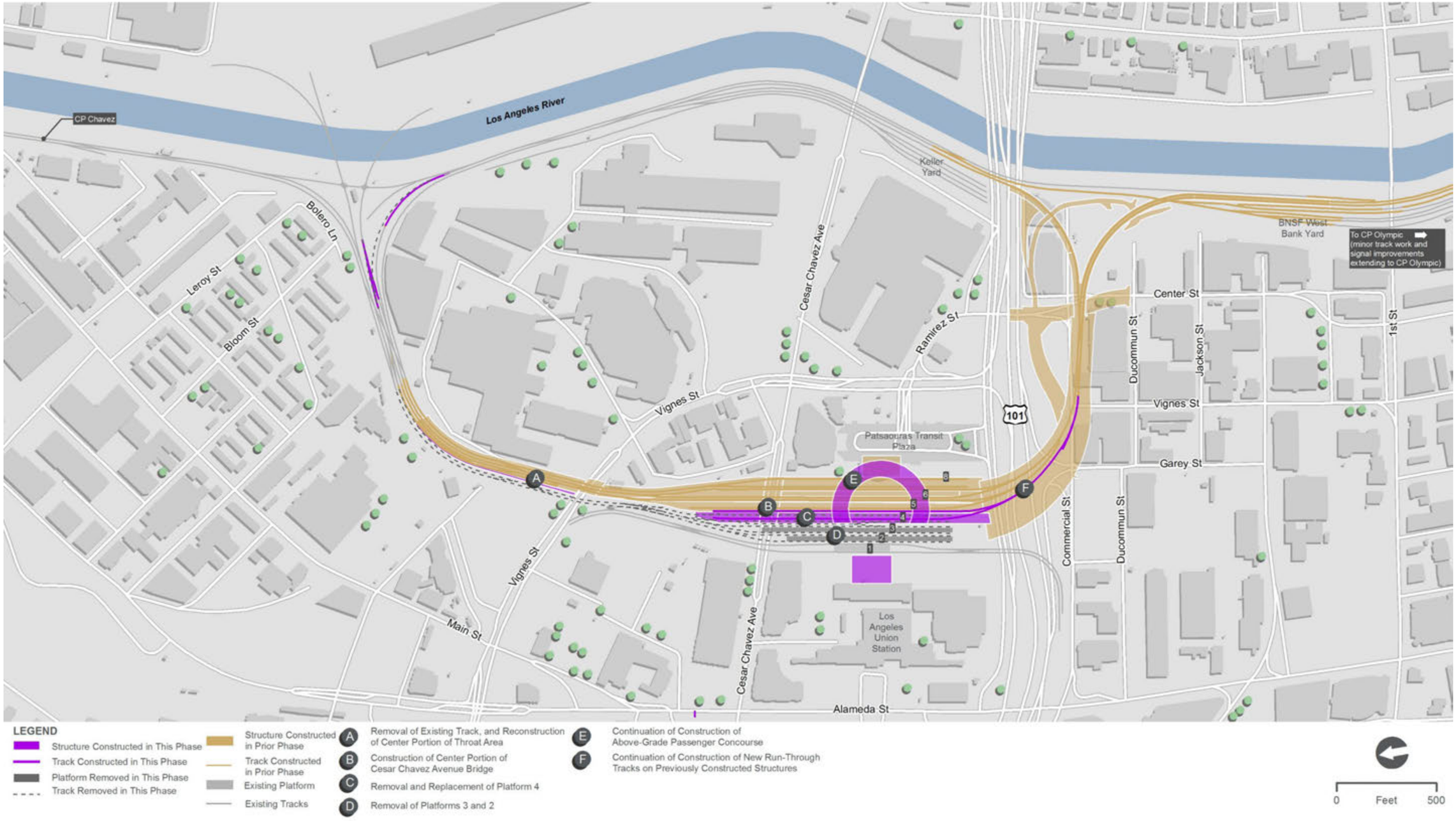

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Figure 7-9. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase IV Construction Steps 18-22)

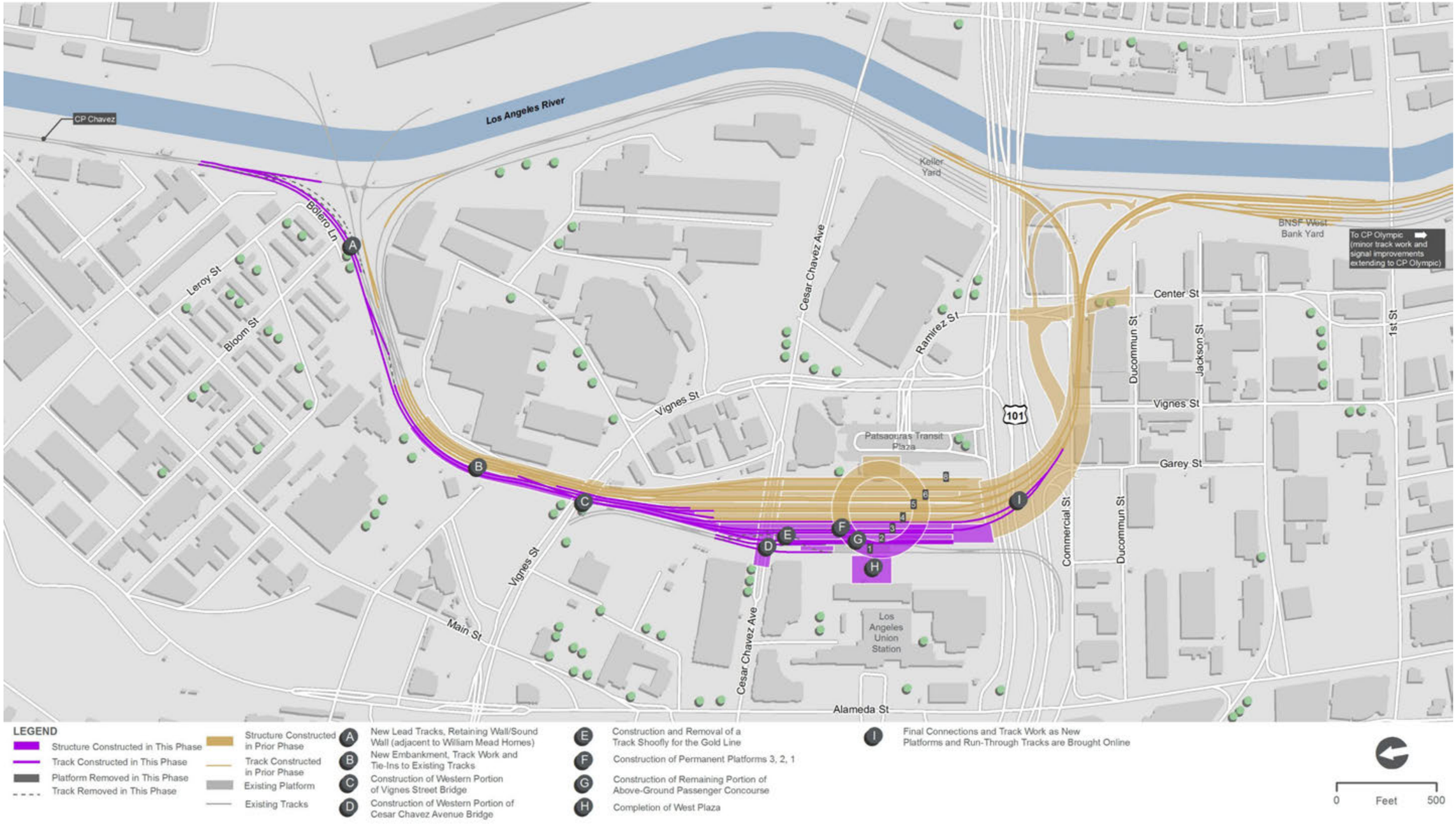

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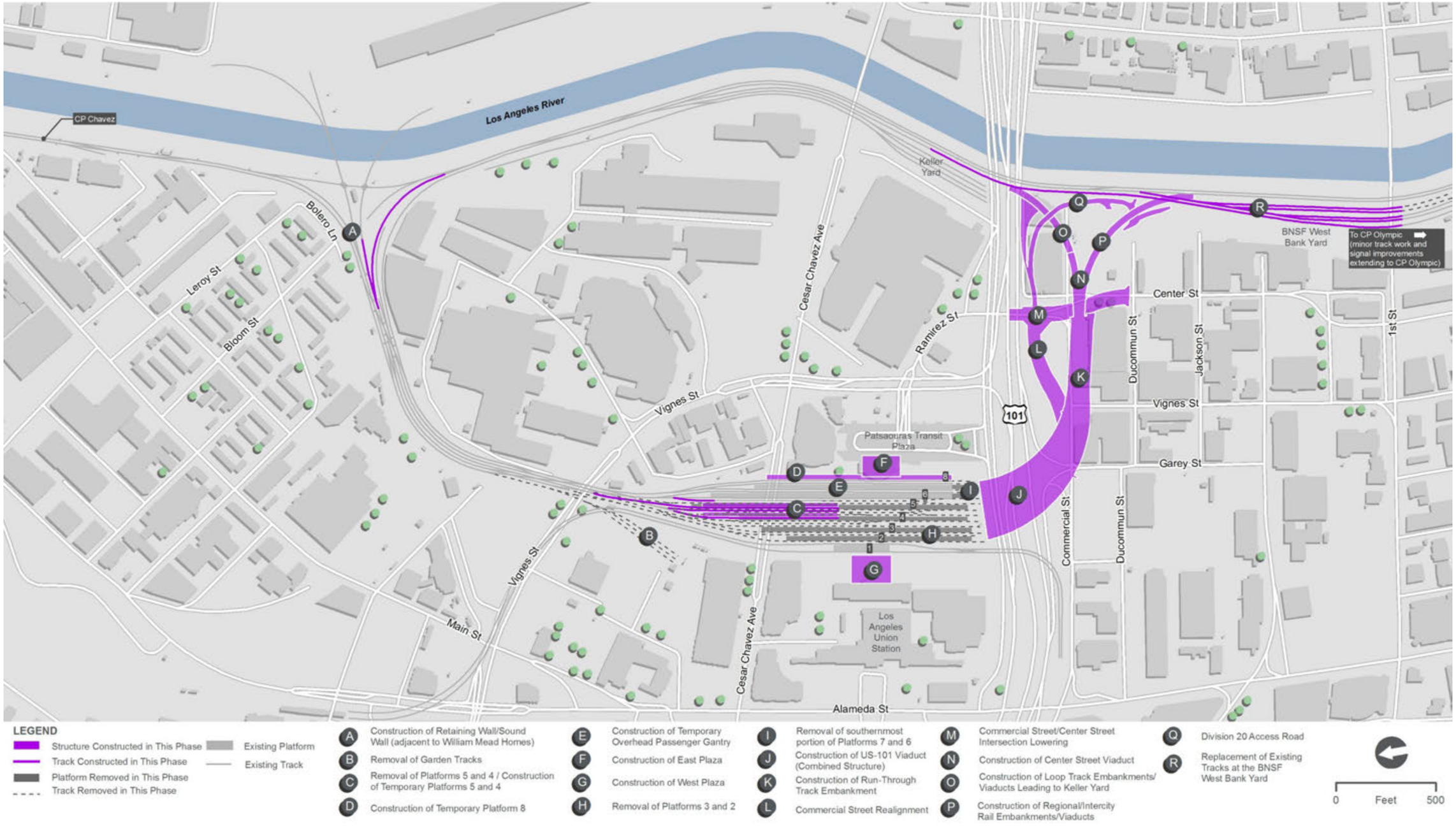
Figure 7-10. Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario (Phase I Construction Steps 1-4)



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