9.11 Transportation Analysis

Transportation Analysis

BNSF Ono Lead Track Extension Project
City of San Bernardino

Kimley»Horn
Expect More. Experience Better.

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February 2021

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Executive Summary

The BNSF Ono Lead Track Extension Project ("Project") proposes to install a fourth lead track extending the existing BNSF San Bernardino Intermodal Facility (SBD Intermodal) A Yard lead track to two existing Ono Storage Sidings. A continuous lead track would be created, closing the existing gap between the Ono Storage Sidings and improving the flow of trains in and out of the A Yard. The Project does not propose to increase rail line operations; instead it would improve the A Yard's operational efficiency by: improving the A Yard's ability to assemble and hold outbound trains, as well as move around railroad cars without obstructing mainline movements; reducing train congestion along the existing lead tracks; and reducing train idling, as they wait to enter and exit the A Yard. With the proposed improvements, the A Yard would have capacity to assemble and hold outbound trains and switch out the A Yard without fouling the mainline.

The proposed fourth lead track would be constructed within/along approximately 4.3 miles of existing BNSF corridor generally from the BNSF overpass at State Street/University Parkway on the north to the existing SBD Intermodal A Yard at West 5th Street on the south. The existing approximately 0.18-mile A Yard lead track, which runs parallel to three existing mainline tracks, would be extended by approximately 3.1 miles. Inclusive of the proposed extension, the lead track would total approximately 5.6 miles. Various improvements/modifications (i.e., stormwater drainage/ water quality, circulation/roadway, signal, sound walls, and utility) that are ancillary and related to the lead track extension are also proposed. To accommodate the proposed improvements, partial and full property acquisitions would be required outside the BNSF corridor, and City right-of-way (ROW) within the BNSF corridor would be vacated and conveyed to BNSF, the track owner. To accommodate the proposed improvements, the Project would require circulation and roadway improvements/modifications to multiple City roadways, including vacations, realignments, and cul-de-sacs. The Project also proposes to either: (a) reinstate and extend a pre-existing franchise to construct, operate, and maintain a portion of an existing lead track in the City, between 4th Street and the City's northern boundary, as the boundary existed in 1906; or (b) vacate the railroad bed and convey title of the same to the Project Applicant. Project construction is proposed to occur in one phase and is anticipated to begin in 2022 and be completed in 2024. This traffic study was prepared based on discussions with, and criteria set forth by, the City of San Bernardino ("City"). This study addresses the Project's transportation impacts.

Project Trip Estimates

The Institute of Transportation Engineer's (ITE) publication, *Trip Generation Manual, 10th Edition,* was utilized to calculate trips generated by the proposed Project. Since the Project would result in the removal of existing land uses, Project implementation would generate -50 AM peak hour vehicle trips and -61 PM peak hour vehicle trips, and -572 average daily trips (ADT).

Project Impacts and Recommended Mitigation

Project impacts were determined by evaluating the Project's effects on the existing roadway, transit, bicycle, and pedestrian facilities. **Table E1** summarizes the Project impacts.

Table E1 – Summary of Project Impacts

Impact Type	Impact Significance
Construction Traffic	Less than Significant with Mitigation Incorporated
Intersection Level of Service & Local Circulation	Less than Significant
Transit Facilities	Less than Significant
Bicycle Facilities	No Impact
Pedestrian Facilities	Less than Significant
Vehicle Miles Traveled (VMT)	Less than Significant
Safety Hazard	Less than Significant
Emergency Vehicle Access	Less than Significant

1 INTRODUCTION

Kimley-Horn and Associates, Inc. has conducted a transportation impact analysis (TIA) for the proposed BNSF Ono Lead Track Extension Project ("Project") in San Bernardino, California. Results of the TIA will be used in the preparation of an Environmental Impact Report (EIR) to assess the Project's transportation impacts.

The Project site is in the southwest portion of the County of San Bernardino (County),in the southwest portion of the City of San Bernardino; see **Exhibit 1**. The Project area extends approximately 4.3 linear miles along the BNSF corridor adjacent to/west of Interstate 215 (I-215). State Route 210 (SR-210) traverses the northern and southern segments of the Project, while Interstate 10 (I-10) is situated south of the Project area. The Project site is comprised of two dis-contiguous segments (i.e., northern and southern). The southern track segment comprises most of the Project site, and is separated from the northern track segment by approximately 1.2 linear miles; see **Exhibit 2**. The Project area's northern terminus is at the BNSF overpass at State Street/University Parkway and its southern terminus is at West 5th Street, just north of the A Yard. Within those limits, the proposed northern and southern track segments are as follows:

- Northern track segment: approximately 0.3 linear miles, milepost (MP) 76.5 to MP 76.8,
- Southern track segment: approximately 2.8 linear miles, MP 78.0 to MP 80.8, and
- Gap between northern and southern track segments: approximately 1.2 linear miles, MP 76.8 to MP 78.0, where no improvements are proposed.

1.1. Project Summary

The approximately 41-acre Project site consists of existing BNSF corridor and adjacent properties where ground disturbances (including temporary construction staging) and/or property acquisitions would occur. The BNSF corridor includes an existing three and four mainline track railroad system with associated signal poles, electrical poles, and cabinets. The adjacent properties include industrial, commercial, and residential (single- and multi-family) land uses, vacant lots, and City roadways. Approximately 43 residential dwelling units (attached and detached) and nine commercial/industrial buildings are located on the adjacent properties where ground disturbances or property acquisitions would occur. Additionally, the adjacent properties include vacant lots totaling approximately 8.9 acres.

Underground and overhead utility lines are present throughout the Project area. Two north-south oriented roadways (i.e., Cajon Boulevard and North I Street) and multiple east-west oriented roadways traverse the Project site/adjacent area.

Project Components

The Project proposes a fourth lead track extension, within/along approximately 4.3 miles of existing BNSF corridor. Stormwater drainage/water quality, circulation/roadway, signal, sound walls, and utility improvements/modifications ancillary and related to the lead track extension are necessary, as described below.

- **A fourth lead track extension** would extend the existing SBD Intermodal A Yard lead track to two existing Ono Storage Sidings. The proposed fourth lead track extension would close the existing gap between the two existing Ono Storage Sidings creating a continuous lead track,

improving the flow of trains in and out of the A Yard. The extension would consist of approximately 3.1 miles of new track, with associated roadbed improvements.

- **Stormwater drainage/water quality improvements** are proposed at numerous locations along the Project route. The conceptual design involves a total of seven potential infiltration basin sites and two additional stormwater/water quality improvement design options. Design Option 1 involves construction of seven potential infiltration basins and minor improvements, while Design Options 2a and 2b involve construction of two bio-treatment basins (basins 3 and 6) and seven storm drain connections. Design Option 1 involves more basins, deeper excavation, and proportionately greater soil export than either Design Options 2a and 2b. Since Design Option 1 would result in the greatest disturbance and earthwork activities, Design Option 1 is the most conservative approach for impact analysis. Therefore, this analysis assumes construction of Design Option 1 (i.e., all nine basins) to evaluate the Project's potential impacts. It is noted, while construction of all seven basins is evaluated in this analysis, not all seven basins would be needed/constructed.
- **Circulation/roadway improvements/modifications** to multiple City roadways, including vacations, realignments, and cul-de-sacs, as follows:
  - Relocating the existing roadway bend at J Street and 17th Street;
  - Vacating North I Street from 10th Street to 11th Street, and from 14th Street to Evans Place;
  - Closing off access to North I Street at 10th Street, Olive Street, 11th Street, 14th Street, Magnolia Avenue, 15th Street, and Evans Place, and reconstructing the easterly extents of these cross streets as cul-de-sacs;
  - Reconstructing 11th Street at Harris Street from a T-intersection to a roadway bend;
  - Vacating and relocating to the west North I Street from 7th Street to 8th Street;
  - Vacating various City right-of-way (ROW) remnants;
  - Additional street vacations and a cul-de-sac are required for the Project but are already in process by others: vacating Home Avenue from North I Street to approximately 200 feet west of North I Street and constructing a cul-de-sac at Home Avenue's new terminus; and vacating North I Street from Home Avenue to 14th Street.
- **Signal improvements/modifications** include relocating and upgrading as many as four cantilevered signals and relocating or removing seven signal bungalows.
- **Utility improvements/modifications** include relocating utility lines that are present within the Project area.
- **Partial and full property acquisitions** totaling approximately 29 acres of adjacent properties where residential and non-residential land uses are located, as needed to accommodate the proposed rail improvements and ancillary improvements/modifications. Property acquisitions would require removal of as many as 43 dwelling units and approximately 78,000 square feet of non-residential (commercial and industrial) land uses.
- **Vacate any City right-of-way** within the BNSF corridor between the SBD Intermodal A Yard and MP 80.8 and convey the same to the owner of the track.

The proposed Project improvements are further described in Chapter 3 below.

1.2. Study Approach

Kimley-Horn prepared a Transportation Impact Analysis Scoping Memorandum dated February 7, 2019, which detailed this Transportation Impact Analysis' proposed scope. The Memorandum was submitted to the City for review on February 7, 2019 and concurrence/approval was received on February 14, 2019.[1] The City of San Bernardino *Traffic Impact Study Guidelines*[2] indicate that a traffic study is conducted if a project's trip generation adds at least 500 daily trips or at least 50 AM or PM peak period trips. As concluded in Chapter 3 below, the Project would not generate 500 daily trips or 50 AM or PM peak period trips during either the construction or operations phases, therefore, a traditional traffic study is not required. After consultation with the City on the traffic study scope and because the Project would not generate 500 daily trips or 50 AM or PM peak period trips, it was concluded that intersection level of service analysis was not required for this study. This traffic study focusses on construction-related impacts, the trips associated with the land uses removed as part of the Project, and the changes to the existing transportation network (e.g. roadways, pedestrian facilities, bicycle facilities, and transit faculties).

This report analyzes the following development conditions:

- **Existing Conditions** – Based on existing traffic conditions (i.e., 2019) and existing roadway facilities.
- **Forecast Existing Plus Project Conditions** (Construction Phase) – Based on existing traffic conditions minus traffic associated with property acquisitions plus temporary Project-related construction traffic. Assumes existing roadway facilities.
- **Forecast Existing Plus Project Conditions** (Post Construction Phase/Operations) – Based on existing traffic conditions minus traffic associated with property acquisitions. Assumes proposed circulation and roadway improvements and modifications to the existing roadway network.

1.3. Traffic Operational Standards

Traffic operations efficiency at a location is measured in terms of LOS. LOS is the primary unit of measure for stating the operating quality of an intersection or roadway segment. For intersections, LOS measures the time delay experienced per vehicle. For roadway segments, LOS is calculated by comparing the number of vehicles using a roadway to its carrying capacity.

The *Highway Capacity Manual, Sixth Edition* (HCM) (Transportation Research Board 2018) is a widely referenced source, providing techniques to measure transportation facility performance. Using the manual's procedures, the quality of traffic operations is graded using one of six LOS designations: A, B, C, D, E, or F. LOS A represents excellent (free-flow) conditions, while LOS F represents oversaturated (congested) conditions.

[1] Written Communication: Alex Qishta, P.E., Deputy DPW/City Engineer, Public Works Department – Engineering Division, City of San Bernardino, February 14, 2019.

[2] *The City of San Bernardino Traffic Impact Study Guidelines*, City of San Bernardino, 2004.

Intersections

The Highway Capacity Manual (HCM) includes procedures for analyzing side-street stop-controlled (SSSC), all-way stop-controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement and major street left-turns. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for all intersection movements. **Table 1** relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.[3]

[3] Transportation Research Board, *Highway Capacity Manual 6th Edition*, National Academy of Sciences, 2016.

Project Study Area / Alignment

Kimley»Horn

FEBRUARY 2021

BNSF Ono Lead Track Extension Transportation Analysis

Exhibit 1: Regional Vicinity Map

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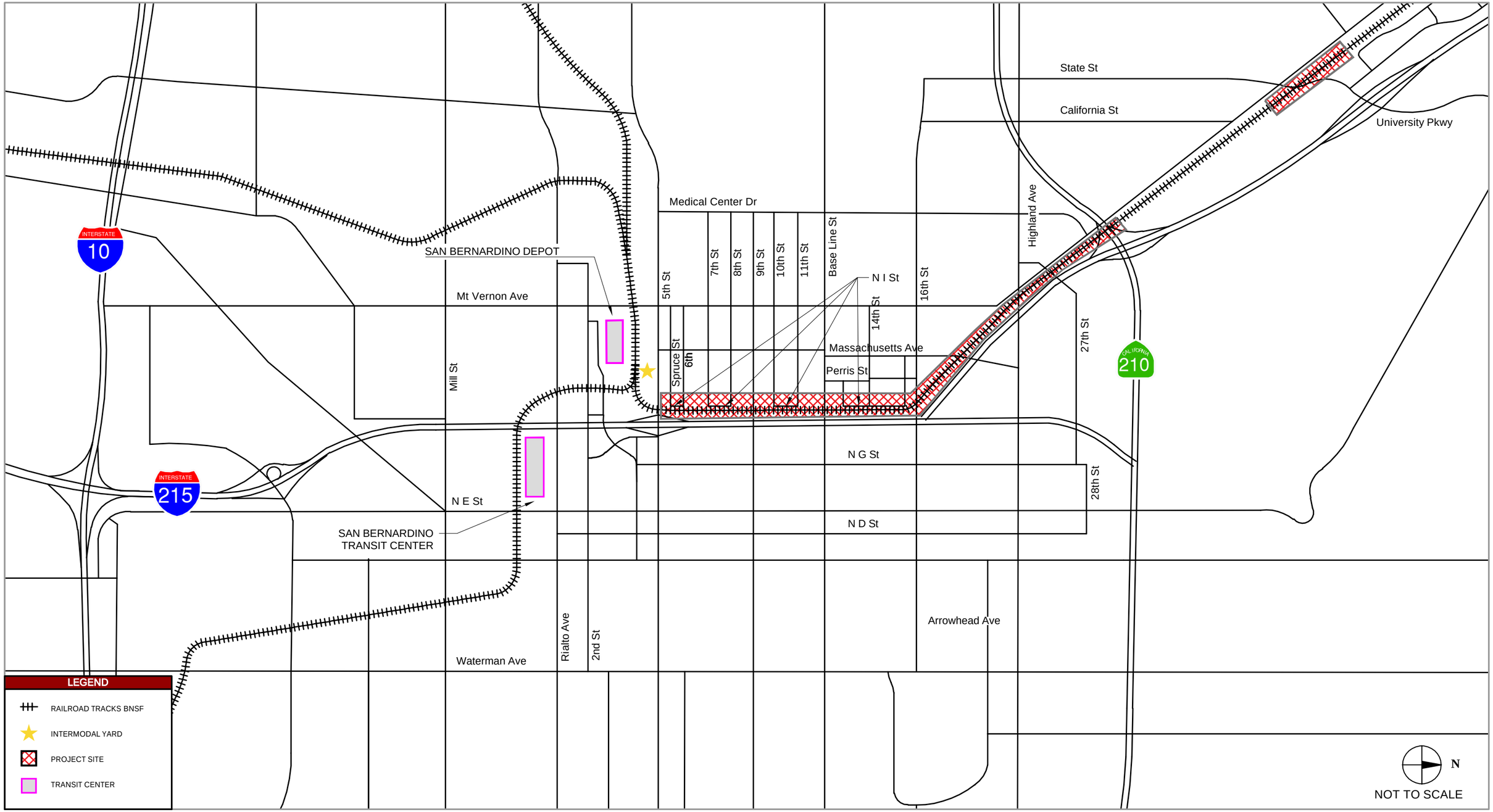
State St
California St
University Pkwy
Medical Center Dr
SAN BERNARDINO DEPOT
Mt Vernon Ave
Mill St
5th St
Spruce St
6th
7th St
8th St
9th St
10th St
11th St
Base Line St
N I St
14th St
16th St
Highland Ave
27th St
Massachusetts Ave
Perris St
N G St
28th St
N E St
N D St
SAN BERNARDINO
TRANSIT CENTER
Rialto Ave
2nd St
Waterman Ave
Arrowhead Ave
INTERSTATE 10
INTERSTATE 215
CALIFORNIA 210
LEGEND
RAILROAD TRACKS BNSF
INTERMODAL YARD
PROJECT SITE
TRANSIT CENTER
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Table 1 – Intersection Level of Service Definitions			
Level of Service	**Description**	**Signalized (Avg. control delay per vehicle sec/veh.)**	**Unsignalized (Avg. control delay per vehicle sec/veh.)**
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Roadway Segments

Roadway segment LOS is based on: (1) the volume of traffic for a designated roadway section (i.e., segment) during a typical day, and (2) that segment's practical vehicular capacity. These two measurements are used to determine the segment's volume-to-capacity (V/C) ratio.

The volume-to-capacity ratio is then converted to LOS. LOS A identifies the best operating conditions along a roadway section and is characterized by free-flow traffic, low volumes, and few or no restrictions on maneuverability. LOS F characterizes forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go conditions. Refer to **Table 2**.[4]

[4] Transportation Research Board, *Highway Capacity Manual 6th Edition*, National Academy of Sciences, 2016.

Table 2 – Roadway Level of Service Criteria		
Level of Service	**Volume-to-Capacity Ratio**	**Description**
A	0.00-0.60	Represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
B	0.61-0.70	LOS is in the range of stable flow. The traffic stream begins to be noticeable and freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.
C	0.71-0.80	LOS is in the range of stable flow. The beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
D	0.81-0.90	LOS represents high density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.
E	0.91-1.00	LOS represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow cause breakdowns in traffic movement.
F	>1.00	LOS F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations.

Thresholds of Significance

City of San Bernardino

The City of San Bernardino Traffic Impact Analysis Guidelines (Fehr & Peers, August 2020) provide general instruction for analyzing potential transportation impacts of proposed development projects. These guidelines address preparation of both LOS- and VMT-based traffic impact analyses (TIA).

Based on the City's Guidelines, an LOS-based TIA is required if the Project meets any of the following criteria:

- Any project with initial traffic generation estimates showing that the project is likely to add 250 or more daily two-way trips, and/or likely to add 50 or more AM or PM peak period two-way trips to the existing circulation system, without consideration of pass-by trip reductions. Phased projects must be evaluated as a whole assuming full build-out conditions for purposes of determining the need for a traffic study.
- Any project where variations from the standards and guidelines provided in this [the] manual are proposed.
- Any project that is located in the vicinity (within a 1.5-mile radius from the project site) of any key intersections that currently operate at a level of service (LOS) D or worse and project traffic is likely to significantly worsen this condition.
- Any project that generates more than 40 percent of its total traffic in the form of truck traffic using passenger car equivalents (PCE).

- Any project that intensifies the usage, density, or traffic generation of the site above the level currently allowed by zoning codes, requiring a Conditional Use Permit, General Plan Amendment, or other discretionary permit.
- When determined by the City Traffic Engineer that existing or proposed traffic conditions in the project vicinity have unique characteristics that warrant evaluation.
- The proposed Project does not meet the criteria outlined above; therefore, it does not require preparation of an LOS-based TIA.

For purposes of SB 743 compliance, a VMT analysis should be conducted for land use projects as deemed necessary by the Public Works Department and would apply to projects that have the potential to increase the average VMT per service population (e.g., population plus employment) compared to the City boundary. There are three types of screening that lead agencies can apply to effectively screen projects from project-level assessment. They include:

1. Transit Priority Area (TPA) Screening: Projects located within a transit propriety area (half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor) may be presumed to have a less than significant impact absent substantial evidence to the contrary.
2. Low VMT Area Screening: Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area.
3. Project Type Screening: Local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel. Projects generating less than 110 daily vehicle trips can also be screened from project-level analysis.

Caltrans

Consistent with the OPR Technical Advisory, Caltrans has selected VMT as the primary metric in CEQA transportation analysis for projects on the state highway system because VMT increases may be associated with transportation projects, and VMT reductions are needed to achieve California's long-term GHG emissions reduction targets and other state goals relating to state highway system operations, public health, and environmental protection.[5] Caltrans' *Transportation Analysis Framework* (TAF) guides the preferred approach for analyzing the VMT attributable to proposed projects (induced travel) in various project settings. Their *Transportation Analysis under CEQA* (TAC) provides information to support Caltrans' CEQA practitioners in making CEQA significance determinations for transportation impacts of projects on the state highway system.

[5] Caltrans. 2020. *Q & A: VMT CEQA Significance Determinations for State Highway System Projects Implementation Timeline Memorandum*. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-04-13-qanda-implementationtimingmemo-a11y.pdf.

Significance Criteria Under CEQA

State CEQA Guidelines Appendix G includes the following questions concerning transportation, which have been utilized as thresholds of significance in this analysis:

- Would the project conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?
- Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Would the project result in inadequate emergency access?

1.4. Report Organization

The remainder of the report is divided into the following chapters:

- Chapter 2: Existing Conditions – describes existing conditions of the roadway network, railway system, transit system, pedestrian facilities, and bicycle facilities.
- Chapter 3: Forecast Existing Plus Project Conditions (Construction Phase) – describes the Project's impacts during the construction phase.
- Chapter 4: Forecast Existing Plus Project Conditions (Post Construction/Operations) – describes the Project's trip generation and impacts during the operations phase.
- Chapter 5: Multimodal Evaluation – describes the Project's impacts concerning bicycle, pedestrian, and transit plans and polices.
- Chapter 6: Other Transportation-Related CEQA Issues – describes additional transportation-related CEQA thresholds (i.e. safety hazards and emergency vehicle access).
- Chapter 7: Summary of Project Impacts – summarizes the Project's transportation impacts.

2 EXISTING CONDITIONS

This chapter describes the existing transportation network and resources within the Project site vicinity, including the existing roadway network, railway system, transit service, pedestrian facilities, and bicycle facilities.

2.1. Roadway Network

This section describes the principal study area roadways.

I-215

I-215 is an eight-lane freeway within the study area. It runs parallel to the study area from Highland Avenue to 5th Street. I-215 primarily runs north-south and connects multiple major cities in the greater Los Angeles region. I-215 connects with CA-210 to the north and I-10 to the south. The posted speed limit in/near the study area is 65 miles per hour.

5th Street

5th Street is an east-west four-lane arterial roadway within the study area. It connects with I-215 to the east and North Mt. Vernon Avenue to the west. 5th Street has two lanes in each direction and includes exclusive left- and right-turn lanes at major intersections. 5th Street serves study area residential and commercial land uses. The posted speed limit on 5th Street near the study area is 40 miles per hour.

7th Street

7th Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and North Mt. Vernon Avenue to the west. 7th Street terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. 7th Street serves study area residential land uses. There is no posted speed limit on 7th Street.

8th Street

8th Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and North Mt. Vernon Avenue to the west. 8th Street terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. 8th Street serves study area residential and industrial land uses. There is no posted speed limit on 8th Street.

9th Street

9th Street is an east-west four-lane arterial roadway within the study area. It connects with I-215 to the east and North Mt. Vernon Avenue to the west. 9th Street serves study area residential and industrial land uses. On-street parking exists along both sides of the road, except between J Street and H Street. The posted speed limit on 9th Street near the study area is 30 miles per hour.

10th Street

10th Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and North Mt. Vernon Avenue to the west. 10th Street terminates at North I Street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential and industrial land uses. There is no posted speed limit on 10th Street.

11th Street

11th Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and North Mt. Vernon Avenue to the west. 11th Street terminates at North I Street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential and commercial land uses. There is no posted speed limit on 11th Street.

13th Street

13th Street is an east-west two-lane local street within the study area. It connects with Montgomery Street to the east and K Street to the west. 13th Street terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential and industrial land uses. There is no posted speed limit on 13th Street.

14th Street

14th Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and North Mt. Vernon Avenue to the west. 14th Street terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on 14th Street.

15th Street

15th Street is an east-west two-lane local street within the study area. It connects North I Street to the east and Garner Avenue to the west. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on 15th Street.

17th Street

17th Street is an east-west two-lane local street within the study area. It connects with J Street to the east and Massachusetts Avenue to the west. On-street parking exists on the south side of the road from Perris Street to Massachusetts Avenue. It serves study area residential and commercial land uses. There is no posted speed limit on 17th Street.

Base Line Street

Base Line Street is an east-west four-lane arterial roadway within the study area. It connects with I-215 to the east and North Mt. Vernon Avenue to the west. On-street parking exists along both sides of the road, except between Perris Street and H Street. Base Line Street serves study area residential and commercial land uses. The posted speed limit on Base Line Street near the study area is 40 miles per hour.

Evans Street

Evans Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and Garner Avenue to the west. Evans Street terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on Evans Street.

Harris Street

Harris Street is a north-south two-lane local street within the study area. It runs adjacent to I-215 and connects 6th Street to 8th Street, 11th Street to Orange Street, and is a dead-end street north of 16th Street. On-street parking

exists along both sides of the road. It serves study area residential, commercial, and industrial land uses. There is no posted speed limit on Harris Street.

Highland Avenue

Highland Avenue is an east-west four-lane arterial roadway within the study area. It connects with I-215 to the east and North Mt. Vernon Avenue to the west. Highland Avenue has two lanes in each direction and includes exclusive left and right turn lanes at major intersections. Highland Avenue serves study area residential, commercial, and industrial land uses. The posted speed limit on Highland Avenue near the study area is 35 miles per hour.

Home Avenue

Home Avenue is an east-west two-lane local street within the study area. It connects with North I Street to the east and Perris Street to the west. On-street parking exists along both sides of the road. It serves residential and commercial land uses within the study area. There is no posted speed limit on Home Avenue.

J Street

J Street is a north-south two-lane local street within the study area. It connects with 17th Street to the north and 16th Street to the south. On-street parking exists on both sides of the road. It serves study area residential land uses. There is no posted speed limit on J Street.

Montgomery Street

Montgomery Street is a north-south two-lane local street within the study area. It connects with 13th Street to the north and Reece Street to the south and is a dead-end street south of 10th Street. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on Montgomery Street.

Mount Vernon Avenue

Mount Vernon Avenue is a north-south four-lane major highway within the study area. This route is part of Historical Route 66. It connects with I-215 to the north and I-10 to the south. On-street parking exists along both sides of the road. It serves various land uses, including residential, commercial, and industrial land uses within the study area. The posted speed limit on Mount Vernon Avenue near the study area is 35 miles per hour and changes to 25 miles per hour in a school zone north of Base Line Street.

Magnolia Avenue

Magnolia Avenue is an east-west two-lane local street within the study area. It connects with North I Street to the east and Garner Avenue to the west. Magnolia Avenue terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on Magnolia Avenue.

North I Street

North I Street is a north-south two-lane local street within most of the study area. From 7th to 8th Street, North I Street becomes a one-lane road. North I Street runs adjacent to I-215 and connects 7th to 8th Street, 10th to 11th Street, and Home Avenue to Evans Street. There is no on-street parking along the road from 7th to 8th Street and Home Avenue to Evans Street, but on-street parking is allowed along both sides of the

road from 10th to 11th Street. It serves residential, commercial, and industrial land uses within the study area. There is no posted speed limit on North I Street.

Reece Street

Reece Street is an east-west two-lane local street within the study area. It connects with Montgomery Street to the east and Perris Street to the west. On-street parking exists along both sides of the road. It serves study area residential and commercial land uses. There is no posted speed limit on Reece Street.

West Olive Street

West Olive Street is an east-west two-lane local street within the study area. It connects with North I Street to the east and J Street to the west. West Olive Street terminates west of J Street and continues at North L Street connecting North L Street to Garner Avenue. West Olive Street also terminates at North I street on the west side of I-215 and continues along the east side of I-215. On-street parking exists along both sides of the road. It serves study area residential land uses. There is no posted speed limit on West Olive Street.

2.2. Railway Facilities

The BNSF San Bernardino Intermodal Facility is an intermodal yard that is served by existing railroad tracks entering from the north and south. The SBD Intermodal Facility handles various types of freight, including consumer products (e.g., food and automobile products), and agricultural and industrial products. The Facility is comprised of separate yards, including the SBD Intermodal Yard/A Yard at the Project area's southern extent.

The BNSF ROW consists of an existing three and four track railroad system within the Project study area with associated signal poles, electrical poles, and cabinets. The Project rail line is part of BNSF's east-west California freight rail network.

2.3. Transit Facilities

Omnitrans, Victor Valley Transit (VVT), Riverside Transit Agency (RTA), Pass Transit, Mountain Transit, and Metrolink provide transit service within the City of San Bernardino and other cities in this region. There are no transit facilities along North I Street within the Project area.

Omnitrans

Omnitrans provides bus transit services within the City of San Bernardino. The nearest Omnitrans service to the Project area is provided along Routes 3, 4, 10, 11, and 14, which provide services to 5th Street, 9th Street, 16th Street, Base Line Street, Massachusetts Avenue, Mt Vernon, and Highland Avenue. Two of the main transit centers that service Omnitrans are the San Bernardino Depot, located directly south of the BNSF San Bernardino Intermodal Facility and the San Bernardino Transit Center located less than one mile southeast of the Project area. North I Street is not served by transit service. Existing Omnitrans facilities near the Project area are shown in **Exhibit 3.**

Routes 3 & 4 operate from the San Bernardino Transit Center to Highland Avenue and Waterman Avenue. Transfer points near the Project area include the 5th Street at North Mt. Vernon Avenue intersection, and the 9th Street at North Mt. Vernon Avenue intersection.

Route 10 operates from the San Bernardino Transit Center to Fontana Metrolink. The transfer point near the Project area include the Base Line Street at Massachusetts Avenue intersection.

Route 11 operates from the San Bernardino Transit Center to Cal State University. The transfer point near the Project area is the 16th Street at Massachusetts Avenue intersection.

Route 14 operates from the San Bernardino Transit Center to Fontana Metrolink. The transfer point nearest the Project area is the 5th Street at North Mt. Vernon Avenue intersection.

VVT

Victor Valley Transit (VVT) provides bus transit services within the City of San Bernardino. The nearest VVT service to the Project area is along Route 15. Existing VVT facilities near the Project area are shown in **Exhibit 4.**

Route 15 operates from the San Bernardino Transit Center to East Buena Vista Street and Portales Court. This route runs north and south of the Project area with the nearest bus stop at the San Bernardino Depot and San Bernardino Transit Center.

RTA

Riverside Transit Agency provides bus transit services within the City of San Bernardino. The nearest RTA service is provided along Route 200. Existing RTA facilities near the Project area are shown in **Exhibit 4.**

Route 200 operates from the San Bernardino Transit Center to Disneyland. This route runs south of the Project area with the nearest stop at the San Bernardino Transit Center.

Pass Transit

Pass Transit provides bus transit services within the City of San Bernardino. The nearest Pass Transit service is provided along Route 120. Existing Pass Transit facilities near the Project area are shown in **Exhibit 4.**

Route 120 operates from San Bernardino Transit Center to Beaumont Walmart. This route runs south of the Project area with the nearest stop being the San Bernardino Transit Center.

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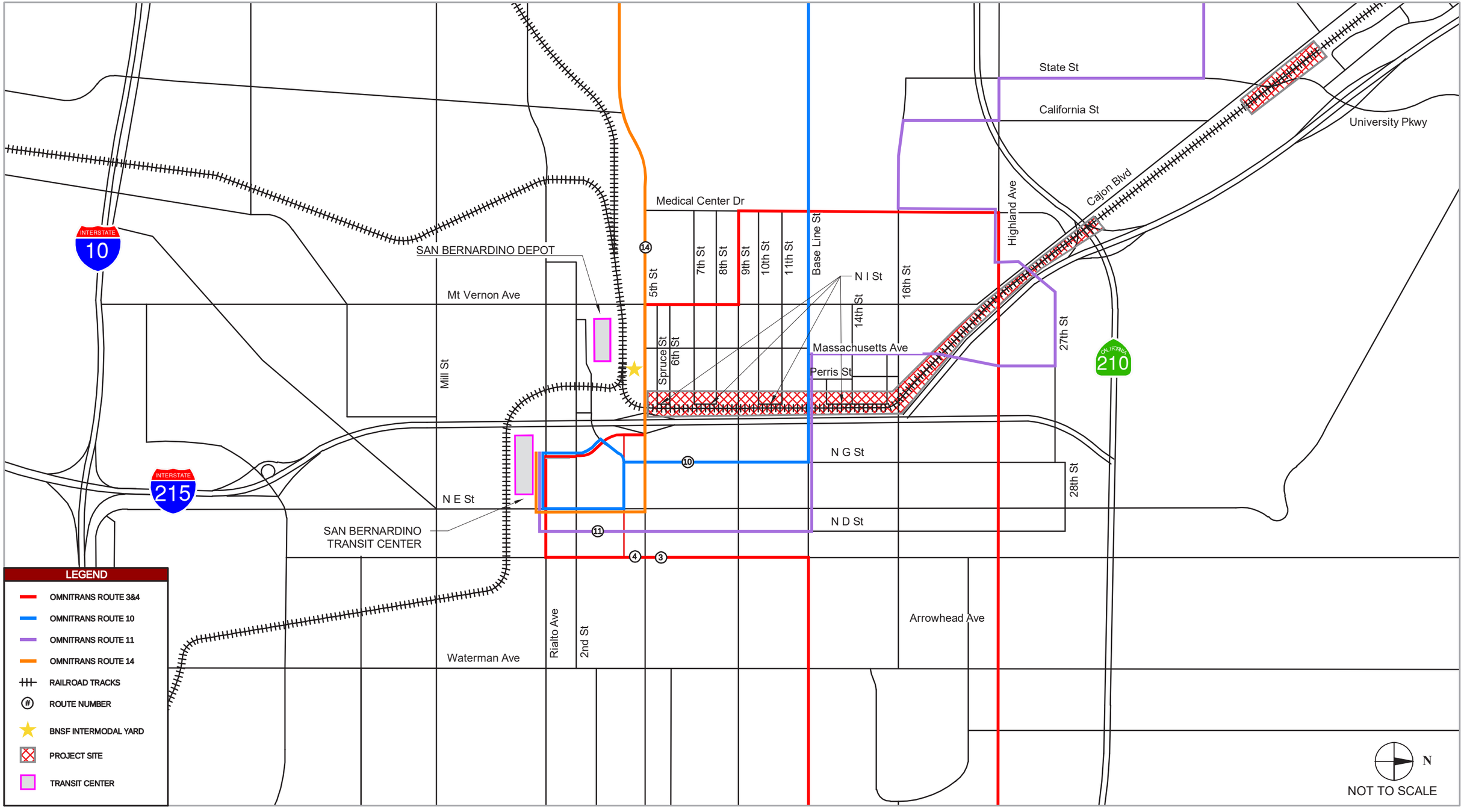

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BNSF Ono Lead Track Extension Transportation Analysis

Exhibit 3: Omnitrans Bus Routes

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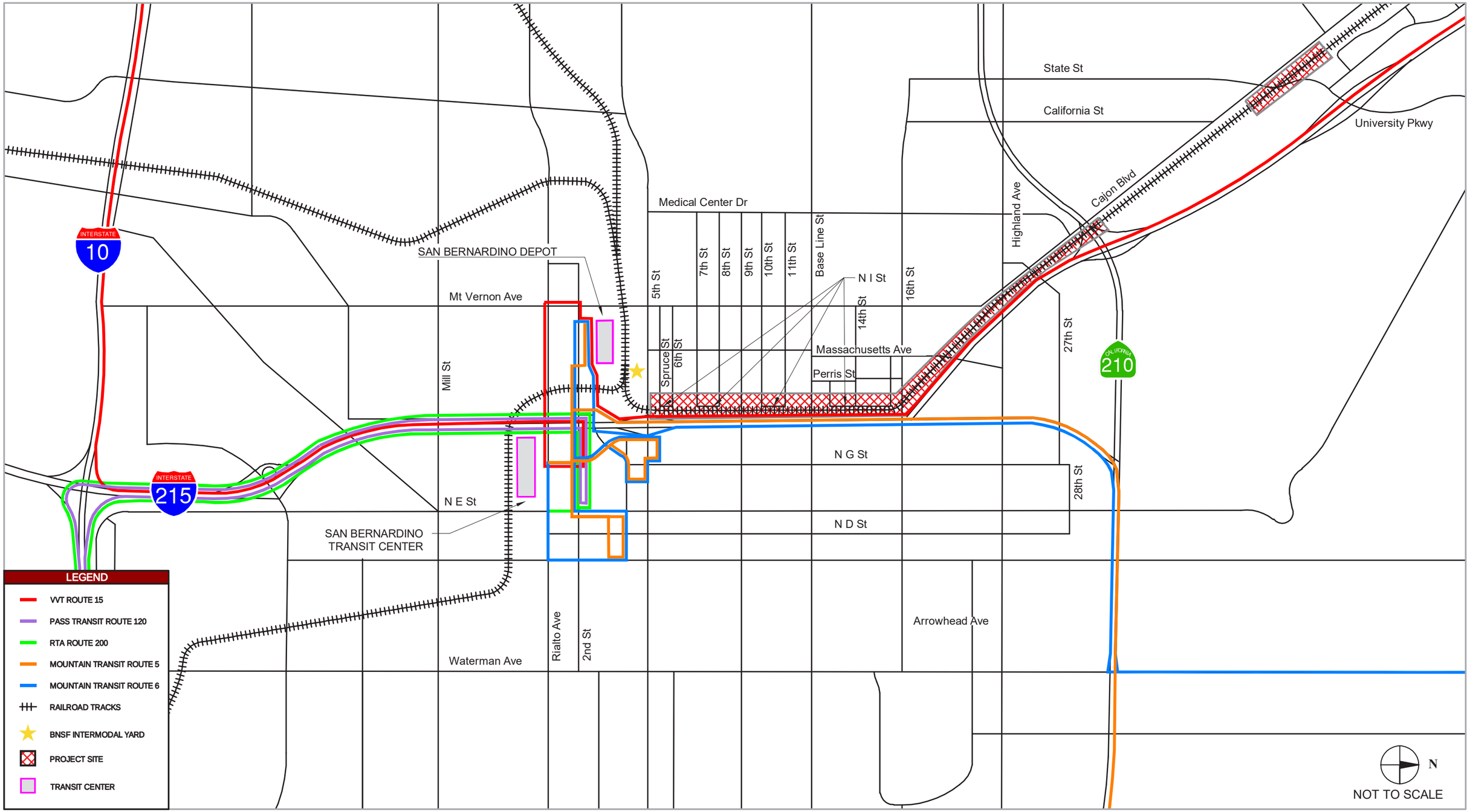

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BNSF Ono Lead Track Extension Transportation Analysis

Exhibit 4: Non-Omnitrans Bus Routes

Mountain Transit

Mountain Transit provides bus transit services throughout the rural San Bernardino Mountain communities of Big Bear Valley, Crestline, Lake Arrowhead, and Running Springs. The nearest Mountain Transit service to the Project area is along Routes 5 and 6. Existing Mountain Transit facilities near the Project area are shown in **Exhibit 4**.

Route 5 operates from San Bernardino to Running Springs/Big Bear Valley. This route runs north and south of the Project area with the nearest stop at the San Bernardino Depot and San Bernardino Transit Center.

Route 6 operates from San Bernardino to Lake Arrowhead. This route runs north and south of the Project area with the nearest stop at the San Bernardino Depot and San Bernardino Transit Center.

Metrolink

Metrolink provides transit services within the City of San Bernardino. Two of the main transit centers that service Metrolink are the San Bernardino Depot, located directly south of the BNSF San Bernardino Intermodal Facility and the San Bernardino Transit Center, located less than a mile south east of the Project area. North I Street is not served by any transit service. Existing Metrolink facilities near the Project area are shown in **Exhibit 5**.

The **Island Empire-Orange County Line** operates from the San Bernardino Depot to Oceanside, southwest of the Project area.

The **San Bernardino Line** operates from the San Bernardino Transit Center, southeast of the Project area, through the San Bernardino Depot, and to the L.A. Union Station, west of the Project area.

2.4. Bicycle Facilities

Exhibit 6 depicts the City's existing and proposed bicycle facilities and indicates there are two bicycle routes (Cajon Boulevard and Baseline Street) and two local multi-purpose trails (Highland Avenue and Mount Vernon Avenue) near the Project site. However, none of the bicycle facilities are within the Project footprint.

2.5. Pedestrian Facilities

Sidewalks are provided along the west side of North I Street, and along the east and west sides of Montgomery Street within the study area. The following gaps in pedestrian facilities exist in the Project area:

- East side of North I Street,
- North I Street between 7th Street and 8th Street, and between Home Avenue and 14th Street,
- South side of 10th Street from Montgomery Street to North I Street
- West side of Harris Street from West Orange Street to 11th Street, and Harris Street north of 16th Street,
- Home Avenue from North I Street to midblock of Home Avenue,
- 16th Street from Harris Street to J Street, and
- J Street from 16th Street to 17th Street.

2.6. Truck Routes

The City of San Bernardino's General Plan6 classifies roadway segments as Freeways/Highways, Major Arterials, Secondary Arterials, Collector Streets, and Local Streets. Scenic Highways and Routes are also included in the circulation system. Although the City of San Bernardino does not designate truck routes, Freeways/Highways, Major Arterials, and Secondary Arterials are typically wider and may provide multiple vehicle lanes, allowing for easier truck movability. As shown in **Exhibit 7**, Freeways/Highways, Major Arterials, and Secondary Arterials located in the Project area include: I-215, CA-210, State Street/ University Parkway, Medical Center Drive, Mount Vernon Avenue, H Street, North G Street, North E Street, 5th Street, 9th Street, Base Line Street, Highland Road, and Cajon Boulevard.

[6] City of San Bernardino, *City of San Bernardino General Plan*, November 2005.

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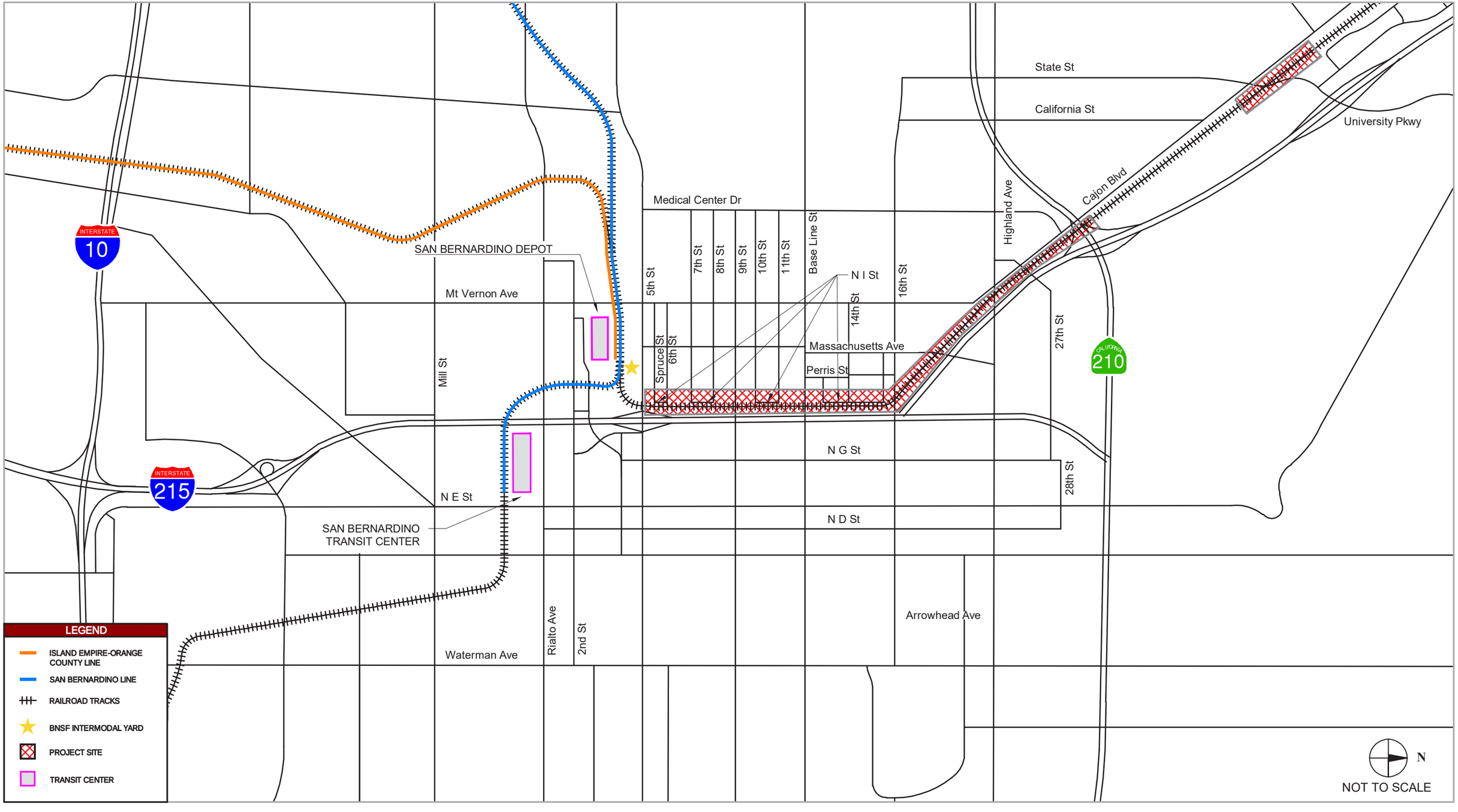

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BNSF Ono Lead Track Extension Transportation Analysis

Exhibit 5: Metrolink Routes

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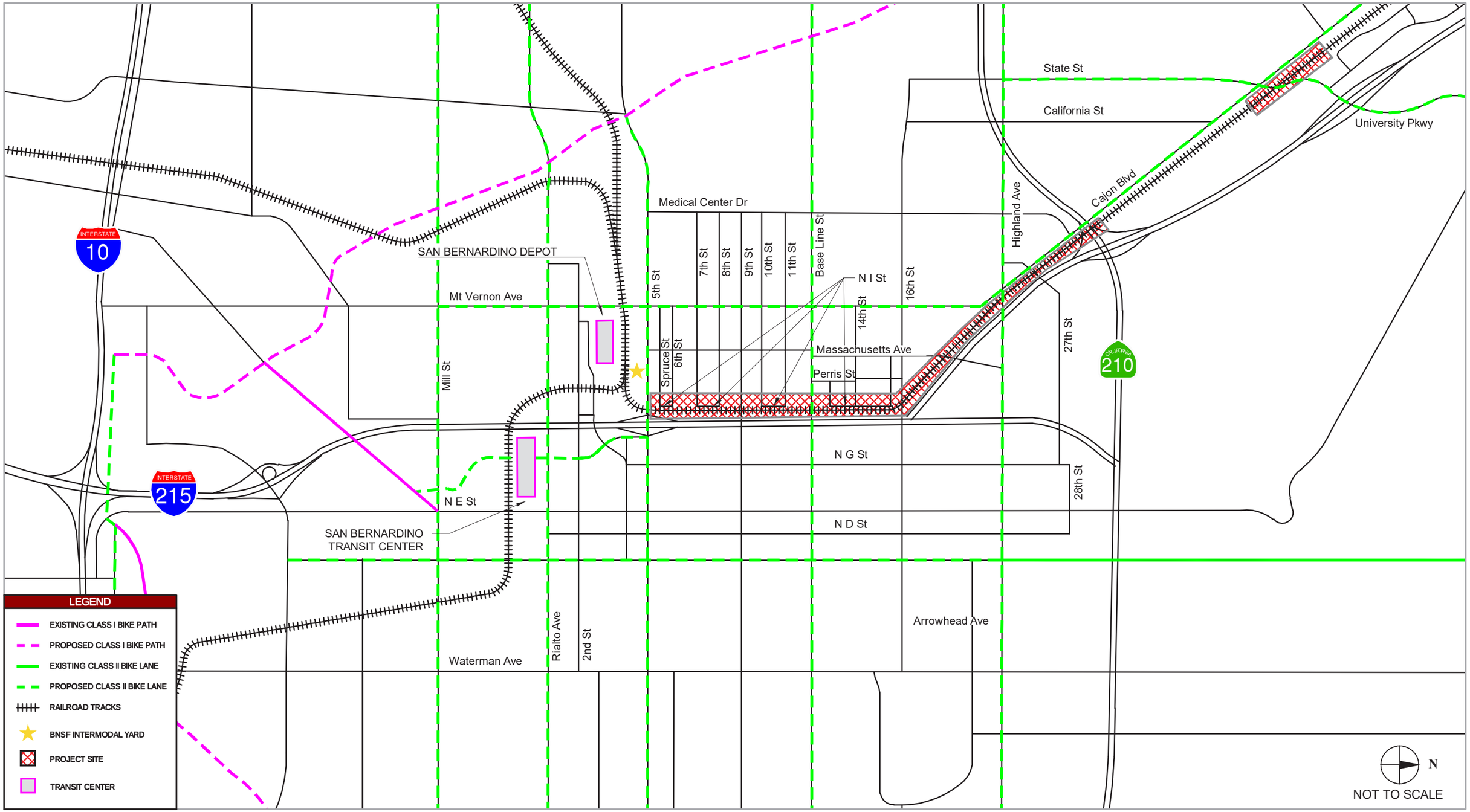

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BNSF Ono Lead Track Extension Transportation Analysis

Exhibit 6: Existing Bicycle Facilities

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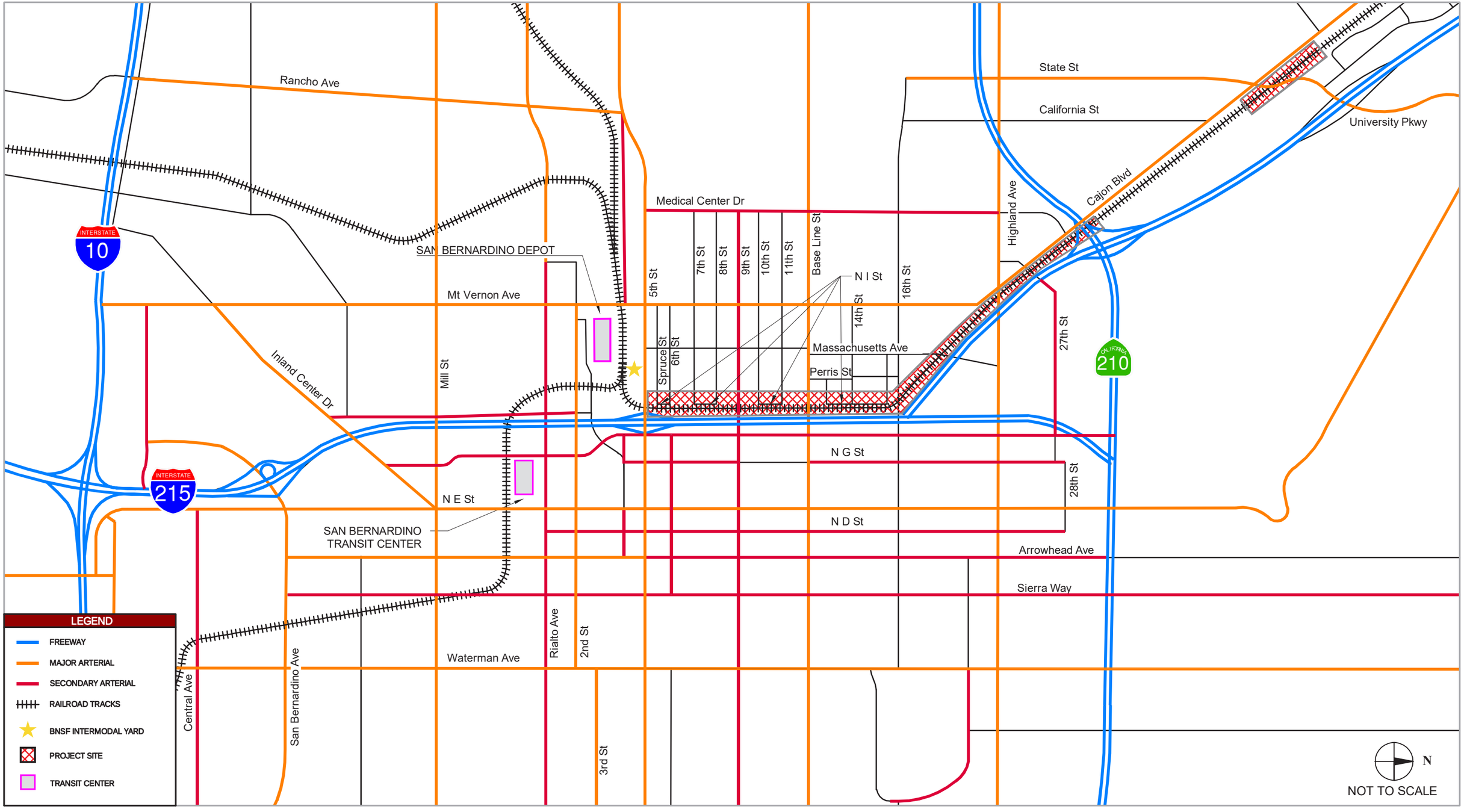
Rancho Ave
INTERSTATE 10
SAN BERNARDINO DEPOT
Mt Vernon Ave
Inland Center Dr
Mill St
Medical Center Dr
5th St
Spruce St
6th St
7th St
8th St
9th St
10th St
11th St
Base Line St
N I St
14th St
16th St
Massachusetts Ave
Perris St
State St
California St
University Pkwy
Highland Ave
Caion Blvd
27th St
CALIFORNIA 210
INTERSTATE 215
N E St
SAN BERNARDINO TRANSIT CENTER
N G St
28th St
N D St
Arrowhead Ave
Sierra Way
Waterman Ave
Rialto Ave
2nd St
3rd St
Central Ave
San Bernardino Ave
LEGEND
FREEWAY
MAJOR ARTERIAL
SECONDARY ARTERIAL
RAILROAD TRACKS
BNSF INTERMODAL YARD
PROJECT SITE
TRANSIT CENTER
N
NOT TO SCALE


BNSF
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3 FORECAST EXISTING PLUS PROJECT CONDITIONS (CONSTRUCTION PHASE)

This chapter presents a description of the proposed site use and trip generation and discusses the day-to-day operations associated with Project-related construction activities including demolition, grading, and construction. The Project would generate traffic related to commuting construction workers and importing/exporting equipment and materials to and from the Project area.

3.1. Proposed Site Use

The Project consists of extending the lead track from the SBD Intermodal A Yard to the north for approximately 4.06 linear miles adjacent to the west side of I-215. The Project would not generate additional train traffic, but instead would increase the A Yard's efficiency by reducing the congestion along the existing lead tracks servicing BNSF's east-west corridor. Appendix A includes the conceptual design plans depicting the proposed Project, including the modified roadways and property takes.

To accommodate the proposed rail improvements and ancillary storm drainage/water quality, circulation/ roadway, and utility improvements/modifications, the Project would require acquisition of approximately 30 acres of adjacent properties where residential and non-residential land uses are located. Project implementation would require removal of as many as 43 dwelling units (DU) and approximately 63,000 square feet (SF) of non-residential (commercial and industrial) land uses, as follows:

- 36 single-family residential DU,
- 4 residential duplex DU (2 duplexes),
- 3 residential triplex DU (1 triplex),
- 32,000 SF* of industrial uses (multi-tenant and auto wrecking), and
- 31,000 SF* of commercial uses (i.e., repair shop and self-storage).

*Approximate and rounded.

Appendix A includes the conceptual design plans depicting the properties proposed for acquisition. Because property acquisition would occur prior to commencement of construction, this analysis assumes these properties would be unoccupied when construction begins, thus, would not be generating trips. Partial acquisition of some properties would create remnant parcels that would not be required for the project. Concerning these remnant parcels, this analysis assumes they would not be redeveloped, as part of the proposed Project. No zone change is proposed; thus, the underlying/existing zoning would be retained making remnant parcels available for reuse/redevelopment in the future consistent with the existing zoning.

The following sections describe the Project's circulation/roadway changes and the trips generated by existing land uses that would be acquired/removed from the roadway network under Forecast Existing Plus Project Conditions.

3.2. Project Circulation/Roadway Changes

To accommodate the proposed rail improvements, the Project would result in circulation/roadway improvements/modifications to multiple City roadways, including vacations, realignments, and cul-de-sacs, as follows:

- Relocation of the existing roadway bend at J Street and 17th Street to the southwest and subsequently aligning the north side of the roadway bend with the proposed BNSF ROW.

- North I Street would be vacated from 10th Street to 11th Street, and from 14th Street to Evans Place.
- Because of the North I Street vacations, access to North I Street would be closed off at 10th Street, Olive Street, 11th Street, 14th Street, Magnolia Avenue, 15th Street, and Evans Place. The easterly extents of these cross streets (near their existing intersection with North I Street) would be reconstructed as cul-de-sacs and remaining ROW between the proposed cul-de-sacs and railroad corridor would be vacated.
- The 11th Street at Harris Street intersection would be reconstructed from a T-intersection to a roadway bend, connecting Harris Street to the west leg of 11th Street. 11th Street between Harris Street and the existing railroad corridor would be vacated.
- North I Street from 7th Street to 8th Street would be vacated and relocated to the west and aligned with the ROW on the east side of North I Street. Remaining ROW between relocated North I Street and the railroad corridor would be vacated.
- Various remnants of City ROW that do not impact roadway circulation (i.e. portions of dead-end streets, remnant portions of ROW resulting from the construction of Interstate 215) will also be vacated.
- Additional street vacations and a cul-de-sac, which are required for the Project but are already in process by others per City of San Bernardino Resolution 2018-20, are as follows:
    - Home Avenue is proposed to be vacated from North I Street to approximately 200 feet west of North I Street. A cul-de-sac would be constructed at Home Avenue's new terminus.
    - North I Street is proposed to be vacated from Home Avenue to 14th Street.
- These additional street vacations and cul-de-sac would occur prior to commencing Project construction. Notwithstanding, to provide a conservative analysis, the impacts associated with these improvements are included with the Project's assumed improvements and evaluated herein.

Appendix A includes the conceptual design plans depicting the street vacations, realignments, and cul-de-sacs. Refer to the 4 Chapter below for a discussion concerning resulting access and circulation impacts, if any.

3.3. Trip Generation

Trip generation is typically calculated based on data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* (ITE 2017), which is a standard reference used by jurisdictions nationally to estimate trip generation potential for a proposed project. The *Trip Generation Manual* defines a trip as a single or one-directional vehicle movement with either the origin or destination at a project site. In other words, a trip can be either "to" or "from" the site and therefore, a single visitor to a site is counted as two trips.

The Project does not propose to increase BNSF line operations. It would increase the A Yard's operational efficiency and, as a result, no employment increase is expected. Therefore, the proposed Project would not generate vehicle trips or change vehicle travel patterns to or from the Project site. While Project operations would not generate any vehicle trips, the Project would displace existing land uses. Trips generated by these displaced land uses would be deducted from existing traffic volumes. Therefore, the

Project would have a negative trip generation. Because property acquisition would occur prior to commencement of construction, this analysis assumes these properties would be unoccupied when construction begins, thus, would not be generating trips. The trip reduction associated with the removed land uses is based on the following categories:

- Single family residential: ITE Land Use 210 (Single-Family Detached Housing)
- Residential duplex and triplex: ITE Land Use 220 (Multifamily Housing (Low-Rise)).
- Repair Shop: ITE Land Use 180 (Specialty Trade Contractor)
- Industrial Buildings: ITE Land Use 130 (Industrial Park), and
- Outdoor Storage: ITE Land Use 150 (Warehousing).

Average rates were used to determine trip generation associated with the removed land uses.

For purposes of determining the worst-case impacts of traffic on the surrounding street network, the trips generated by a proposed project are estimated for the AM peak hour (between the hours of 7:00 AM and 9:00 AM), and for the PM peak hour (between 4:00 PM and 6:00 PM) on a typical weekday.

As indicated in **Table 3**, the Project is forecast to reduce traffic by 572 trips per day (-50 AM peak hour trips and -61 PM peak hour trips). Trip generation calculation sheets are provided in **Appendix B**.

Table 3 – Trip Generation Rates and Estimates

ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Residential Land Uses										
210	Single-Family Detached Housing	-36	Dwelling Unit(s)	-340	-27	-7	-20	-36	-23	-13
220	Multifamily Housing (Low-Rise)	-7	Dwelling Unit(s)	-52	-3	-1	-2	-4	-3	-1
Commercial Land Uses										
150	Warehousing	-29.22	1,000 sf	-52	-5	-4	-1	-6	-2	-4
180	Specialty Trade Contractor	-1.66	1,000 sf	-18	-3	-2	-1	-3	-1	-2
Industrial Land Uses										
130	Industrial Park	-31.94	1,000 sf	-110	-12	-10	-2	-12	-2	-10
Total Project Trips				**-572**	**-50**	**-24**	**-26**	**-61**	**-31**	**-30**

Note: Trip Generation Data from ITE Trip Generation, 10th Edition

As noted previously, the Project does not propose to redevelop the remnant parcels. Because no zone change is proposed, and the underlying/existing zoning would be retained, these parcels would be available for reuse/redevelopment in the future consistent with the existing zoning. However, there is no known proposal for redevelopment of these parcels, as of this writing. Therefore, analysis of transportation impacts resulting from their redevelopment would be too speculative for evaluation and no further analysis has been conducted.

3.4. Construction Activities

This section discusses the Project-related construction activities including demolition, grading, and construction. The Project would generate traffic related to construction workers and importing/exporting equipment and materials to and from the Project area.

3.5. Construction Schedule and Traffic

Construction Trip Generation

Project construction is proposed to occur in several construction phases and is anticipated to begin the first quarter of 2020 and be completed by the first quarter of 2024. Construction subphases and approximate durations are:

- Property Demolitions: 19.5 months,
- Utility Relocations: 12 months (three months would overlap with Civil Improvements),
- Civil Improvements (street relocations/modifications, track corridor, soundwalls, and infiltration basins): 10 months (three months would overlap with Utility Relocations), and
- Track and Signal Construction: 3.5 months.

Inclusive of property demolitions, Project construction would occur over approximately 42 months. However, demolition would occur upon property acquisition, prior to commencing Project construction. It is noted, property acquisitions were underway concurrent with preparation of this Technical Memo, and their demolition could occur as soon as required by a governmental entity (e.g. release of liens/ abatement of nuisance) or as soon as possible upon property acquisition, prior to Project approval or commencement of Project construction. Exclusive of property demolitions and accounting for the three-month overlap, Project construction would occur over approximately 23 months. Notwithstanding, to provide a conservative analysis, demolition-related activities are included in the assumed construction activities and evaluated herein.

The Project's site preparation phase would occur simultaneous with demolition and prior to grading. Upon completion of property acquisitions and grading, municipal improvements (i.e., utility relocation and paving) would commence simultaneous with rail construction.

To provide a conservative analysis, demolition-related activities are included in the assumed construction activities and evaluated herein. This analysis also assumes:

- Project construction would generate a total of approximately 25,267 one-way truck trips.
- The construction subphases are consecutive, thus, the truck trips per subphase would not occur concurrently, except for a three-month overlap of the utility relocations and civil improvements subphases.
- Estimates are for numbers of trucks; thus, the number of trucks trips would be multiplied by two for each truck (i.e. one trip inbound and one trip outbound); therefore, Project construction would generate a total of approximately 50,534 round truck trips.
- Almost all of the Project's traffic would be truck traffic; therefore, assuming approximately 50,534 round truck trips and a passenger car equivalent (PCE) factor of 3.0, Project construction would generate a total of approximately 151,602 PCE round trips
- Construction activities would occur 22 days per month and 13 hours per day.

- Trucks would be evenly distributed throughout the day, including during the peak hours.

Import/export of equipment and materials to and from the Project site would be dispersed throughout the day for each subphase and would primarily use the Freeways/Highways, Major Arterials, and Secondary Arterials shown in **Exhibit 7**. A breakdown of the estimated truck trips during each subphase is presented in **Table 4**. Additionally, the estimated soils/materials import/export quantities (and thus the truck trips) assumed nine potential basin sites (totaling approximately 6.0 acres and providing a storage volume of approximately 11.6 acre-feet) would be constructed. Given that the storage volume required to mitigate the Project's increased runoff volume totals 2.0 acre-feet, not all of the basins would be constructed. Therefore, the Project's actual soils/materials import/export quantities would likely be less than one-half of the assumed quantities. Because less soils/materials import/export quantities would result in less truck trips, the estimate of truck trips is highly conservative. Construction assumptions are provided in **Appendix A** and construction truck details are provided in **Appendix B.**

CONSTRUCTION TRAFFIC – UPDATES TO ASSUMPTIONS

The minor Project refinements discussed below occurred subsequent to completion of the transportation analysis.

Basin Construction. The current Project design for stormwater runoff and water quality assumes seven potential basin sites (totaling approximately 5.3 acres and providing a storage volume of approximately 13 acre-feet) would be constructed. The construction-related transportation analysis assumed nine basins would be constructed, when likely less than one-half of the soils/materials import/export quantities, and thus less truck trips, would occur. Therefore, the transportation analysis concerning basin construction is considered conservative.

Displaced Commercial Uses. The construction-related transportation analysis assumed 31,000 square feet (SF) of displaced (i.e., demolished) commercial land uses, and not 46,000 SF, as proposed under the current Project design. This change in demolition assumptions is attributed to full acquisition (as opposed to partial acquisition) of an additional property. Because the construction transportation analysis conservatively assumed all nine basin sites would be constructed and did not take credit for the trip generation decrease associated with the additional 15,000 SF of commercial floor area, the construction-related transportation analysis is conservative.

Table 4 – Construction Trucks Summary						
Subphase	**Total**					
	Trucks	**Truck Trips**	**PCE Trips**	**PCE Trips/ Month**	**PCE Trips/Day**	**PCE Trips/Hour**
0.0: Property Demolitions	1,374	2,748	8,244	423	19	2
1.0: Utility Relocations	563	1.125	3.375	173	8	1
1.5: Subphases 1.0 + 2.0 Overlap	6,988	13,976	41,927	2,150	98	8
2.0: Civil Improvements	15,868	31,735	95,206	4,882	222	18
3.0: Track & Signal Construction	475	950	2,850	146	7	1
Total	**25,267**	**50,534**	**151,602**	**7,774**	**353**	**30**

As indicated in **Table 4,** the greatest truck volume would occur during the civil improvements subphase, with an estimated 4,882 PCE trips per month, 222 PCE trips per day, and 18 PCE trips per hour. The estimates presented in **Table 4** are conservative, since it assumes that all trucks are completing one-way hauls. Generally, contractors try to complete two-way hauls whenever possible to limit the times trucks are driving empty.

Approximately 20 construction workers per subphase are anticipated. City of San Bernardino Municipal Code (SBMC) Section 8.54.070 restricts construction activities to weekdays between 7:00 AM and 8:00 PM. Therefore, construction worker trips would be concentrated between 6:00 AM and 7:00 AM and between 8:00 PM and 9:00 PM, and any construction worker trips during the AM and PM peak hours would be negligible. Notwithstanding, to provide a conservative analysis, construction workers could generate as many as 20 peak hour trips (40 ADT) during each subphase.

Following this conservative approach, the maximum probable concurrent construction employment and maximum concurrent truck activity are included in the construction traffic volumes assumed and evaluated herein. Thus, combined with the maximum 18 PCE trips per hour, the Project could generate as many as 38 peak hour trips. As previously noted, a traffic study is warranted if a project's trip generation adds at least 500 daily trips or at least 50 AM or PM peak hour trips. Accordingly, it can be deduced that projects that do not meet these criteria would result in a less than significant impact. Because Project construction activities would generate fewer than 500 daily trips or 50 AM or PM peak hour trips, the Project's construction-related transportation impacts would be less than significant.

Further, as mentioned above, property acquisition and removal of the land uses required to accommodate the proposed improvements would result in -50 AM peak hour vehicle trips, -61 PM peak hour, and -572 ADT. Although construction-related traffic would generate a maximum of 38 peak hour trips and a maximum of 222 PCE ADT during the civil improvements subphase, because property acquisition would occur prior to commencement of construction and acquired properties would be unoccupied when construction begins, the total project and construction-related trips would result in net negative trips. **Table 5** shows the trip generation for the proposed Project during the construction phase.

Table 5 – Project and Construction Phase Trip Generation										
ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
Residential Land Uses										
210	Single-Family Detached Housing	-36	Dwelling Unit(s)	-340	-27	-7	-20	-36	-23	-13
220	Multifamily Housing (Low-Rise)	-7	Dwelling Unit(s)	-52	-3	-1	-2	-4	-3	-1
Commercial Land Uses										
150	Warehousing	-29.22	1,000 sf	-52	-5	-4	-1	-6	-2	-4
180	Specialty Trade Contractor	-1.66	1,000 sf	-18	-3	-2	-1	-3	-1	-2
Industrial Land Uses										
130	Industrial Park	-31.94	1,000 sf	-110	-12	-10	-2	-12	-2	-10
Total Project Trips				**-572**	**-50**	**-24**	**-26**	**-61**	**-31**	**-30**
Construction Truck Traffic (Civil Construction Subphase)				222	18	9	9	18	9	9
Construction Worker Traffic (Civil Construction Subphase)				40	20	20	0	20	0	20
Total Project & Construction Trips				**-310**	**-12**	**5**	**-17**	**-23**	**-22**	**-1**

Note: Trip Generation Data from ITE Trip Generation, 10th Edition

As indicated in **Table 5**, during the Project's construction phase and considering the removed land uses due to property acquisition, the Project is forecast to result in -12AM peak hour vehicle trips, -23 PM peak hour vehicle trips, and -310 ADT. The trips removed from the roadway network associated with the acquired properties is greater than the trips generated by construction activities. Therefore, the Project's construction-related transportation impacts would be less than significant.

OPERATIONS TRANSPORTATION ASSUMPTIONS

The operational transportation analysis assumed 31,000 square feet (SF) of displaced (i.e., demolished) commercial land uses, and not 46,000 SF, as proposed under the current Project design. This change in demolition assumptions is attributed to full acquisition (as opposed to partial acquisition) of an additional property. Because the operations transportation analysis did not take credit for the trip generation decrease associated with the additional 15,000 SF of commercial floor area, the operations transportation analysis is conservative.

Construction Staging and Mitigation

Construction-related traffic, equipment, and materials would be stored at the construction staging areas located along the lead track extension; see **Appendix A**. The following describes the three proposed staging areas:

- Staging Area 1 – Located on the properties proposed for acquisition from 21st Street to Massachusetts Avenue;
- Staging Area 2 – Located on the properties proposed for acquisition from West 16th Street to Baseline Street, and
- Staging Area 3 – Located on the properties proposed for acquisition from approximately 165 feet south of 7th Street to 6th Street.

As discussed above, the City of San Bernardino does not designate truck routes. To avoid/reduce conflicts between construction traffic and nearby land uses, Project-related construction vehicles would utilize the following study area Freeways/Highways, Major Arterials, and Secondary Arterials for access to/from the Project area: I-215, CA-210, State Street/University Parkway, California Street, Medical Center Drive, Mount Vernon Avenue, H Street, North G Street, North E Street, 5th Street, 9th Street, Base Line Street, 16th Street, Highland Road, and Cajon Boulevard. Truck deliveries would occur intermittently throughout the day, and consistent with SBMC Section 8.54.070, which restricts construction activities to weekdays between 7:00 AM and 8:00 PM. Further, it is City of San Bernardino policy (General Plan Policy 6.5.2[7]) to "continue to regulate on-street parking of trucks to prevent truck parking on residential streets or in other locations where they are incompatible with adjacent land uses." **Appendix A** depicts the proposed construction staging areas where construction traffic would park vehicles to minimize impacts to the nearby residential areas. BNSF would be required to comply with Caltrans, City of San Bernardino, and other relevant jurisdictions concerning limitations for encroachment into public ROW and secure the necessary encroachment permits. Additionally, to minimize potential effects on study area roadways/ intersections associated with the transport of hazardous materials by oversized or overweight trucks, BNSF would be required to secure all applicable permits/licenses from the California Highway Patrol and Caltrans. To further ensure Project compliance with weight, size, and route restrictions established by the City of San Bernardino, County of San Bernardino, and Caltrans, Mitigation Measure TRA-1 is recommended. Mitigation Measure TRA-1 also requires that BNSF provide documentation of the necessary transportation permits. Implementation of Mitigation Measure TRA-1 would ensure the potential for Project-related construction traffic to conflict with nearby land uses is reduced to a level of less than significant. Further, the Project would be required to adhere to Mitigation Measure TRA-2, which requires preparation and implementation of a Traffic Management Plan (TMP). BNSF would be required to submit the TMP to the City of San Bernardino and each affected jurisdiction for review and approval. The TMP, which would be implemented during all construction phases, would include traffic and parking management techniques to reduce construction-related traffic disruptions and congestion around the Project area. At a minimum, the TMP would address traffic flow route and timing, site and surrounding property access, on-site parking, and traffic control. TMP implementation would ensure that the Project's construction-related traffic and traffic delays or impacts on existing circulation patterns and intersection/ roadway LOS would be at a level of less than significant.

Overall, Project implementation would not conflict with adopted plans, policies or programs concerning circulation patterns and intersection/roadway LOS. With implementation of Mitigation Measures TRA-1 to TRA-2, the Project's construction-related transportation impacts would be **less than significant impact**.

Mitigation Measures

TRA-1 Oversized Vehicles. Prior to Grading Permit issuance, BNSF (or its designee) shall comply with Caltrans, the City of San Bernardino, and other relevant jurisdictions concerning limitations on vehicle sizes and weights. In addition, BNSF (or its designee) shall secure the necessary transportation permits for roadway use.

TRA-2 Traffic Management Plan (TMP). At least 60 days prior to start of site mobilization, BNSF (or its designee) shall submit the TMP to the City of San Bernardino and each affected jurisdiction for review and approval. The TMP, which shall be implemented during all construction phases, shall include traffic and parking

[7] *City of San Bernardino General Plan*, City of San Bernardino, 2005.

management techniques to reduce construction-related traffic disruptions and congestion around the Project area. The TMP shall at a minimum address the following factors:

- Traffic Flow Route and Timing: Local and alternate routes and emergency access. Haul routes based on construction staging areas and City-designated routes. Timing heavy construction equipment and building material deliveries.
- Site and Surrounding Property Access: Vehicle access and circulation.
- Onsite Parking: Construction worker parking lot assignment.
- Traffic Control: Street and intersection controls (e.g., flag persons, temporary travel lane closure, etc.).

4 FORECAST EXISTING PLUS PROJECT CONDITIONS (POST CONSTRUCTION PHASE/OPERATIONS)

This chapter discusses the traffic operations once Project-related construction has been completed.

4.1. Project Trip Estimates

The Project does not propose to increase BNSF line operations, instead it would increase the A Yard's operational efficiency, and as a result, no employment increase is anticipated. With the proposed improvements, the A Yard would have capacity to assemble and hold outbound trains and switch out the yard without fouling the mainline.

Since the Project would result in the removal of existing land uses, Project implementation is forecast to reduce traffic by 572 vehicle trips per day (-50 AM peak hour vehicle trips, -61 PM peak hour vehicle trips), as indicated in **Table 3**. As noted previously, the Project does not propose to redevelop the remnant parcels. Because no zone change is proposed, and the underlying/existing zoning would be retained, these parcels would be available for reuse/redevelopment in the future consistent with the existing zoning. However, there is no known proposal for redevelopment of these parcels. Therefore, analysis of transportation impacts resulting from their redevelopment would be too speculative for evaluation and no further analysis has been conducted.

Since the proposed Project would decrease the vehicle trips on the roadway network, Project implementation would result in a **less than significant impact** on levels of service at study area intersections and roadways during Project operations.

5 MULTI-MODAL EVALUATION

This chapter discusses the Project's potential impacts on the existing transit, bicycle, and pedestrian facilities.

5.1. Transit Facilities

There are no transit service routes along the portions of roadways identified for vacation or modification, including North I Street. The removal or realignment of sections of North I Street would not impact transit service routes. The nearest transfer points and bus stops would not be impacted by the Project. Therefore, Project implementation would not conflict with adopted plans, policies or programs regarding transit facilities and **no significant impacts** would occur.

5.2. Bicycle Facilities

There are no existing bicycle facilities located along the portions of roadways identified for vacation or modification, including North I Street. The removal or realignment of sections of North I Street would not impact bicycle facilities. Therefore, the proposed Project would not conflict with adopted plans, policies, or programs regarding bicycle facilities and **no impact** would occur.

5.3. Pedestrian Facilities

There are discontinuous sidewalks segments along North I Street, Montgomery Street, Harris Street, Home Avenue, 16th Street, and J Street. The proposed Project would remove existing sidewalks along the west side of North I Street between 10th Street and 11th Street, and between 14th Street and Evans Street. It should be noted that the Project would also remove existing development on the parcels that front these existing sidewalks. Further, the Project would not conflict with any program plan, ordinance, or policy addressing pedestrian facilities, and existing sidewalks and pedestrian facilities would continue to exist in the general vicinity Therefore, pedestrians would not be significantly impacted by the loss of sidewalks. Additionally, the new/modified roadways would be constructed pursuant City of San Bernardino standards, including the addition of new sidewalks along the portions of relocated I Street where sidewalks did not previously exist. Therefore, the Project results in a **less than significant impact** concerning pedestrian facilities.

6 OTHER TRANSPORTATION-RELATED CEQA ISSUES

This chapter discusses additional transportation-related CEQA issues that were evaluated for the proposed Project.

6.1. Vehicle Miles Traveled (VMT)

Based on the City's Guidelines, a VMT analysis should be conducted for land use projects that have the potential to increase the average VMT per service population (e.g., population plus employment) compared to the City boundary. There are three types of screening that lead agencies can apply to effectively screen projects from project-level assessment: Transit Priority Area (TPA) Screening; Low VMT Area Screening; and Project Type Screening. Based on Project Type Screening, projects generating less than 110 daily vehicle trips can also be screened from project-level analysis.

The Project would both generate fewer than 110 trips per day and replace existing VMT-generating land uses. As many as 43 DU, six commercial buildings (approximately 46,000 SF), and three industrial buildings (approximately 32,000 SF) would be acquired to accommodate the proposed Project. Because the Project would remove these existing land uses, the Project is forecast to decrease traffic by 572 trips per day (see **Table 5)** thus, leading to a proportionate decrease in VMT. Additionally, the Project does not propose to increase BNSF line operations, rather, it would increase the A Yard's operational efficiency and, as a result, no employment increase is expected.

Because the Project would both generate fewer than 110 trips per day and replace existing VMT-generating land uses, leading to a net overall decrease in VMT, the Project would result in a less-than-significant impact concerning VMT.

Safety Hazards

The Project was evaluated to determine if the proposed roadway improvements would result in a substantial increase in hazards due to a geometric design (e.g. sharp curves or dangerous intersections). The Project proposes to remove three segments of North I Street: 1) between 7th Street and 8th Street, 2) between 10th Street and 11th Street, and 3) between Home Avenue and Evans Street. Current intersections along these three segments would be converted into cul-de-sacs. Other proposed roadway modifications (i.e., realignments and cul-de-sacs) are considered minor.

6.2. Project Circulation and Roadway Changes

As discussed above, to accommodate the proposed rail improvements, the Project would result in circulation and roadway improvements and modifications to multiple City roadways, including vacations, realignments, and cul-de-sacs. The following discusses the proposed roadway improvements and modifications and resulting access and circulation impacts, if any:

- Relocation of the existing roadway bend at J Street and 17th Street:
  - No impacts or changes to circulation or property access.
- Construction of cul-de-sacs:
  - Due to the vacation of North I Street, cul-de-sacs would be provided at Evans Place, 15th Street, Magnolia Avenue, 14th Street, Home Avenue,* and Olive Street. Alternative north-south access would be available via North J Street and North Perris Street, which may be used to access land uses between these roadways. The Project proposes to vacate the

existing land uses for parcels directly adjacent to North I Street where access would be removed, therefore eliminating the need for vehicle access.

- Due to the vacation of North I Street, a cul-de-sac would be provided at 10th Street. Alternative north-south access would be available via North J Street, which may be used to access land uses between these roadways. A driveway extension would be needed for Property #56 to extend the driveway access to the proposed cul-de-sac. Alternative driveway access may also be provided on Montgomery Street.
- Results in no significant impacts to property access with mitigation incorporated concerning alternative driveway access.

- Reconstruction of Harris Street and 11th Street to a roadway bend:
  - Due to the vacation of North I Street, access to North I Street would no longer be needed. Alternative north-south access would be available via North J Street and Harris Street, which may be used to access land uses. The Project proposes to vacate the existing land uses for parcels directly adjacent to North I Street and 11th Street where access would be removed, thus, eliminating the need for vehicle access to those parcels.
  - Results in no significant impacts or changes to circulation or property access.
- Relocation of North I Street between 7th Street and 8th Street:
  - Results in no significant impacts or changes to circulation or property access.

*As previously noted, the Home Avenue cul-de-sac (and certain street vacations), which are required for the Project but are already in process by others, would occur prior to commencing Project construction. Notwithstanding, to provide a conservative analysis, the impacts associated with the Home Avenue cul-de-sac (and certain street vacations), are included with the Project's assumed improvements and evaluated herein.

In general, parcels with existing access from these removed roadways would also be acquired/removed, therefore, no impacts would occur to the remaining parcels.

The proposed roadway improvements would be subject to compliance with the City of San Bernardino Publics Works standards for cul-de-sacs, roadway bends/knuckles, and roadway segments. Following compliance with City of San Bernardino standards, no potential safety hazards would occur. Final plan sets would be reviewed to verify compliance with the City's standards to avoid any potential safety hazards. Since no potential safety hazards are identified, the Project would have a **less than significant impact**.

6.3. Emergency Vehicle Access

The Project was evaluated to determine if proposed roadway improvements would impact access for emergency vehicles. As discussed in the *Project Circulation/Roadway Changes* section above, the Project would result in circulation and roadway improvements and modifications to multiple city roadways, including vacations, realignments, and cul-de-sacs. The Project proposes to vacate the existing land uses for parcels adjacent to the vacated roadways where access would be removed, and therefore eliminating the need for vehicle access for all locations. The proposed roadway improvements would be subject to compliance with the City of San Bernardino Publics Works standards for cul-de-sacs, roadway bends/ knuckles, and roadway segments. Final plan sets would be reviewed to verify compliance with the City's

standards to avoid any emergency access restrictions. Since the Project would not affect access for emergency vehicles, the Project would result in a **less than significant impact**.

7 SUMMARY OF IMPACTS AND RECOMMENDED MITIGATIONS

Based on the results of the traffic analysis and evaluation of the proposed Project, the following Project impact significance determinations are noted in **Table 6**.

Table 6 – Impact Summary	
Impact Type	**Impact Significance**
Construction Traffic	Less Than Significant with Mitigation Incorporated
Intersection Level of Service & Local Circulation	Less than Significant
Transit Facilities	Less than Significant
Bicycle Facilities	No Impact
Pedestrian Facilities	Less than Significant
Vehicle Miles Traveled (VMT)	Less than Significant
Safety Hazard	Less than Significant
Emergency Vehicle Access	Less than Significant

8 APPENDIX

APPENDIX A – CONSTRUCTION DETAILS AND CONCEPTUAL DESIGN PLANS

APPENDIX B – TRIP GENERATION

Appendix A -
Construction Details
And Conceptual Design Plans

BNSF ONO PROJECT - CONSTRUCTION ASSUMPTIONS

Description			Export			Import			Export			Import			Total Export Truck Trips (1-Way)	Total Import Truck Trips (1-Way)
Sub-Phase	Duration (Mos.)	Task	Tons	Truck Trips[1] (1-Way)	Notes	Tons	Truck Trips (1-Way)		Cubic Yards	Truck Trips (1-Way)		Cubic Yards	Truck Trips (1-Way)			
0	Property Demolitions[2]															
	19.5	Residential Buildings	3,956	233	3										***233***	***0***
		Residential Pavement	0	0	4										***0***	***0***
		Other Buildings	2,889	170	5										***170***	***0***
		Other Pavement	16,500	971	4										***971***	***0***
1	Utility Relocations															
	12	Watermain/Sanitary/Stormwater		250	6		100	6				1,800	150	6	***250***	***250***
		Miscellaneous Utilities		250											***250***	***0***
2.0	Civil Improvements															
2.1	10	Street Relocations/Modifications														
		- Materials	3,500	206	7	3,500	206	8							***206***	***206***
		- Subcut & Soil							3,500	292	9	7,000	583	10,11	***292***	***583***
2.2		Track Corridor[12]							90,000	7,500	13	22,000	1,833	13	***7,500***	***1,833***
2.3		Soundwalls				3,660	215	14	1,800	150	13	2,600	325	15	***150***	***540***
2.4		Infiltration Basins				67,000	3,941	16	89,000	7,417	17				***7,417***	***3,941***
3.0	3.5	Track & Signal Construction		80	18		395	19							***80***	***395***
		Subtotals	***26,845***	***2,159***		***74,160***	***4,857***		***184,300***	***15,358***		***33,400***	***2,892***		***17,517***	***7,749***
Total Months[20]			***23***													
Total Tonnage			***101,005***													
Total Yardage			***217,700***													
Total Truck Trips			***25,267***													

Sub-Phase	Duration (Mos.)	Task	Tons	Truck Trips[1] (1-Way)	Notes	Tons	Truck Trips (1-Way)		Cubic Yards	Truck Trips (1-Way)		Cubic Yards	Truck Trips (1-Way)		Export Truck Trips (1-Way)	Import Truck Trips (1-Way)
Notes/Assumptions:																
[1]	Truck capacities: Soils = 12 CY/truck; Asphalt/debris/CMU's/etc. = 17 tons/truck; Concrete for soundwalls = 8 CY/truck.															
[2]	Property acquisition and demolition would occur prior to commencement of the proposed construction subphases.															
[3]	Demolished Residential Buildings: 43 DU x 2,000 SF/DU = 86,000 SF															
[4]	Pavement 6". Assumed no further corrective measures (i.e., subcuts, soil treatments, etc.).															
[5]	Demolished Non-Residential Buildings: 62,810 SF															
[6]	9,700 LF. Stormwater design pending- assumed equal to sanitary sewer with 50% greater impact (due to larger pipe). Assumed 12 CY quad dump trucks.															
[7]	Demolished pavement 6"															
[8]	Bituminous 6"															
[9]	Subcut 12"															
[10]	Proposed street elevations are approximately equal to existing street elevations.															
[11]	Class 5 Soil 24" (12" base and 12" soil correction)															
[12]	Includes area where backslope of railroad ditch ties back into existing grade.															
[13]	Soil/earthwork															
[14]	3,360 tons concrete masonry units (CMUs) + 300 tons reinforcement															
[15]	Concrete															
[16]	Imported materials for basins assumed to be gravel (assumed 2.0' deep) and amended soil materials (assumed 1.5' deep).															
[17]	Soil/earthwork. Assumes ~9.2 acres and depth of 6.0 feet.															
[18]	Three (3) #11 TO's, one (1) #20 TO, including rail, ties, ballast.															
[19]	Six #20 TO's, including 1,000 track feet of new rail and ballast, 1 derail, and miscellaneous signal.															
[20]	Excludes property demolitions. Utility Relocations overlap three (3) months with Civil Improvements.															

Appendix B -
Trip Generation

BNSF ONO LEAD TRACK EXTENSION PROJECT

CONSTRUCTION TRUCK TRIPS[1]

	Task	Export		Import		Total					
		Trucks	Trips	Trucks	Trips	Trucks	Truck Trips	PCE Trips	PCE Trips/ Month	PCE Trips/ Day	PCE Trips/ Hour
0	**PROPERTY DEMOLITIONS[2]**										
0.1	Residential Buildings	233	466	-	-	233	466	1,398	72	3.26	0.25
0.2	Residential Pavement	-	-	-	-	-	-	-	-	-	-
0.3	Other Buildings	170	340	-	-	170	340	1,020	52	2.38	0.18
0.4	Other Pavement	971	1,942	-	-	971	1,942	5,826	299	13.58	1.04
	Subtotal	*1,374*	*2,748*	-	-	*1,374*	*2,748*	*8,244*	*423*	*19*	*2.00*
1.0	**UTILITY RELOCATIONS**										
1.1	Watermain/Sanitary/Stormwater	250	500	250	500	500	1,000	3,000	154	7	0.54
1.2	Miscellaneous Utilities	250	500	-	-	250	500	1,500	77	3	0.27
	Subtotal	*500*	*1,000*	*250*	*500*	*750*	*1,500*	*4,500*	*231*	*10*	*0.81*
	Subtotal Adjusted (12 - 3 = 9 / 12 = 75%)	*375*	*750*	*188*	*375*	*563*	*1,125*	*3,375*	*173*	*8*	*1.00*
1.5	**SUBPHASES 1.0 + 2.0 OVERLAP**										
1.5.1	1.0 3-Month Overlap	125	250	63	125	188	375	1,125	58	3	0.20
1.5.2	2.0 3-Month Overlap	4,670	9,339	2,131	4,262	6,800	13,601	40,802	2,092	95	7.32
	Subtotal	*4,795*	*9,589*	*2,193*	*4,387*	*6,988*	*13,976*	*41,927*	*2,150*	*98*	*8.00*
2.00	**CIVIL IMPROVEMENTS**										
2.1	Street Relocations/Modifications										
2.1.1	- Materials	206	412	206	412	412	824	2,472	127	5.76	0.44
2.1.2	- Subcut & Soil	292	584	583	1,166	875	1,750	5,250	269	12.24	0.94
2.2	Track Corridor	7,500	15,000	1,833	3,666	9,333	18,666	55,998	2,872	130.53	10.04
2.3	Soundwalls	150	300	540	1,080	690	1,380	4,140	212	9.65	0.74
2.4	Infiltration Basins	7,417	14,834	3,941	7,882	11,358	22,716	68,148	3,495	158.85	12.22
	Subtotal	*15,565*	*31,130*	*7,103*	*14,206*	*22,668*	*45,336*	136,008	6,975	*317*	*24.39*
	Subtotal Adjusted (10 - 3 = 7 / 10 = 70%)	*10,896*	*21,791*	*4,972*	*9,944*	*15,868*	*31,735*	*95,206*	*4,882*	*222*	*18.00*
3.00	**TRACK & SIGNAL CONSTRUCTION**	80	160	395	790	475	950	2,850	146	7	0.51
	Subtotal	*80*	*160*	*395*	*790*	*475*	*950*	2,850	146	*7*	*1.00*
Total		***17,519***	***35,038***	***7,748***	***15,496***	***25,267***	***50,534***	***151,602***	***7,774***	***353***	***30***

Mos.[3]	Subphase	PCE Trips/Hour		
		In	Out	Total
19.5	PROPERTY DEMOLITIONS	1.00	1.00	2
12.0	UTILITY RELOCATIONS	0.50	0.50	1
-3.0	SUBPHASES 1.0 + 2.0 OVERLAP	4.00	4.00	8
10.0	CIVIL IMPROVEMENTS	9.00	9.00	18
3.5	TRACK & SIGNAL CONSTRUCTION	0.50	0.50	1
42	***Total*** [2]	***15***	***15***	***30***

Note:
1. Truck trips exclude construction worker commute trips.
2. Property acquisition and demolition would occur prior to commencement of the proposed construction subphases.
3. Excluding property demolitions, and accounting for the Utility Relocations 3-month overlap with Civil Improvments, Project construction totals 23 months.

Assumptions	
Construction Workers per Phase	20
Days per Month	22
Hours per Day	13