minority populations and low-income populations. In 1997, the Council on Environmental Quality issued guidance to assist federal agencies in implementing the Executive Order.

The Executive Order defines key terms and provides guidance for identifying and addressing disproportionately high and adverse impacts to low income and minority populations. If disproportionately high and adverse impacts would result from the proposed action (i.e., proposed project), mitigation measures or alternatives must be developed to avoid or reduce the impacts, unless the agency finds that such measures are not feasible. Impacts and benefits of transportation projects result from the physical placement of such facilities, and also from their ability or inability to improve or impede access to neighborhoods or portions of a region.

U.S Department of Housing and Urban Development

In 2012, the U.S. Department of Housing and Urban Development (HUD) posted an update to its original 1995 Environmental Justice Strategy. This strategy is a plan to address environmental justice concerns and increase access to environmental benefits through HUD policies, programs, and activities, including through NEPA compliance for HUD-sponsored projects.

U.S. Department of Transportation Guidance

In 1997, the U.S. Department of Transportation (DOT) issued an order to establish procedures for use in complying with Executive Order 12898 for its operating administrations, including the Federal Transit Administration (FTA). Since FTA could provide funding for the proposed Dos Rios Light Rail Station, the DOT guidance is also used to assess the impact of the project alternatives.

3.5.4 Standards of Significance and Applicable Authorities

City of Sacramento Standards of Significance

An evaluation of Environmental Justice is not required by CEQA, and the City of Sacramento has not established thresholds to guide such an evaluation. Therefore, the following analysis is provided only for compliance with NEPA-implementing regulations from HUD and other federal agencies. No CEQA findings are made.

Department of Housing and Urban Development Evaluation Criteria

Federal guidelines do not provide a specific threshold at which a disproportionate effect to an environmental justice community would occur. Rather, Council on Environmental Quality Guidance (1997) instructs that a NEPA evaluation should clearly state whether, “in light of all of the facts and circumstances, a disproportionately high and adverse human health or environmental impact on minority populations, low-income populations, or Indian tribe is likely to result from the proposed action and any alternatives.” A disproportionate effect is defined as an effect that is predominantly borne, more severe, or of a greater magnitude in areas with environmental justice populations than in other areas.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

3.5.5 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

As noted above, Environmental Justice analyses are not a requirement of CEQA. Therefore, neither the 2035 General Plan Master EIR or the River District Specific Plan EIR evaluated the topic.

Environmental Analysis

EJ-1. Would the project have a disproportionate effect on environmental justice populations?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be no **adverse effect**.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As noted above, for a project to have an adverse effect relative to Environmental Justice, a minority and/or a low-income population must be disproportionately affected by a federal action. Based on the demographic data for the project area, the residents of the area meet the definition of an Environmental Justice community. To assess the potential effect or impact of this project to this community, each environmental resource area assessed in this IS/EA has been reviewed to determine if this community would be disproportionately affected by implementation of Alternative 2. The analysis contained in each of those topical evaluations is hereby incorporated by reference and summarized here.

Aesthetics and Visual Resources. As described in Section 3.1 of this IS/EA, construction of the project elements would not create any adverse effects with respect to aesthetics and visual quality, and a number of beneficial effects would be realized within the surrounding community as a result of implementation of Alternative 2. Therefore, the overall effect would be beneficial to Environmental Justice communities in the project area.

Air Quality and Greenhouse Gas Emissions. As described in Section 3.2 of this IS/EA, construction of the project elements would not create any adverse effects with respect to air quality and greenhouse gas emissions, and any potential effects would be mitigated to levels that would not be adverse. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse air quality or greenhouse gas emissions effect and therefore would not disproportionately affect Environmental Justice communities in the project area.

Biological Resources. As described in Section 3.3 of this IS/EA, construction of the project elements would not create any adverse effects with respect to biological resources, and any potential effects would be mitigated to levels that would not be adverse. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect to biological resources and therefore would not disproportionately affect Environmental Justice communities in the project area.

Cultural and Paleontological Resources. As described in Section 3.4 of this IS/EA, construction of the project elements would not create any adverse effects with respect to cultural and paleontological resources, and any potential effects would be mitigated to levels that would not be adverse. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect to cultural and paleontological resources and therefore would not disproportionately affect Environmental Justice communities in the project area.

Geology, Soils, and Mineral Resources. As described in Section 3.6 of this IS/EA, construction of the project elements would not create any adverse effects with respect to geology, soils, or mineral resources. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect to these resources and therefore would not disproportionately affect Environmental Justice communities in the project area.

Hazards and Hazardous Materials. As described in Section 3.7 of this IS/EA, construction of the project elements would not create any adverse effects with respect to hazards and hazardous materials, and any potential effects would be mitigated to levels that would not be adverse. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect and therefore would not disproportionately affect Environmental Justice communities in the project area.

Hydrology and Water Resources. As described in Section 3.8 of this IS/EA, construction of the project elements would not create any adverse effects with respect to hydrology and water quality. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect to these resources and therefore would not disproportionately affect Environmental Justice communities in the project area.

Land Use, Population and Housing, and Socioeconomics. As described in Section 3.9 of this IS/EA, construction of the project elements would not create any adverse effects with respect to land use, population, housing, or socioeconomics, and a number of beneficial effects would be realized within the surrounding community as a result of implementation of Alternative 2. Therefore, the overall effect would be beneficial to Environmental Justice communities in the project area.

Noise and Vibration. As described in Section 3.10 of this IS/EA, construction of the project elements would not create any adverse effects with respect to noise and vibration, and any potential effects would be mitigated to levels that would not be adverse. Based on the IS/EA's analysis of these topics, implementation of Alternative 2 would not result in an adverse effect and therefore would not disproportionately affect Environmental Justice communities in the project area.

Public Services and Recreation. As described in Section 3.11 of this IS/EA, construction of the project elements would not create any adverse effects with respect to public services and recreation, and a number of beneficial effects would be realized within the surrounding community as a result of implementation of Alternative 2. Therefore, the overall effect would be beneficial to Environmental Justice communities in the project area.

Transportation and Traffic. As described in Section 3.12 of this IS/EA, construction of the project elements would not create any adverse effects with respect to transportation and traffic, and any potential effects would be mitigated to levels that would not be adverse. In addition, a number of beneficial effects would be realized within the surrounding community as a result of implementation of Alternative 2. Therefore, the overall effect would be beneficial to Environmental Justice communities in the project area.

Utilities. As described in Section 3.13 of this IS/EA, construction of the project elements would not create any adverse effects with respect to utilities. Based on the IS/EA's analysis of this topic, implementation of Alternative 2 would not result in an adverse effect to these resources and therefore would not disproportionately affect Environmental Justice communities in the project area.

Determination of Disproportionate Effects

The purpose of the preceding impact assessment summary of this IS/EA was to disclose the adverse environmental effects of the proposed project. As shown in in Tables 3.9-1 and 3.9-2, the project area is considered an Environmental Justice Community as defined in Executive Order 12898 and applicable regulations and guidance.

In every instance that the proposed project was found to have adverse effects on Environmental Justice communities, feasible mitigation measures were identified that would reduce the adverse effects. The effects that would be borne by the Environmental Justice communities in the project area include construction air emissions, greenhouse gas emissions, effects to special status species, effects to cultural resources, hazardous materials impacts, noise and vibration impacts during project construction and operation, and traffic-related impacts. With implementation of prescribed mitigation measures and compliance with standard regulatory and legal requirements, these adverse effects to Environmental Justice populations within the project area would be reduced to levels considered less than significant. Since the implementation of Alternative 2 would not create an adverse effect, after mitigation, Environmental Justice communities in the project area would not be disproportionately affected.

Mitigation Measures

None required.

References

Note: Any references cited for specific technical analyses supporting this evaluation of Environmental Justice are listed in the corresponding topical sections in Chapter 3 of this IS/EA, incorporated herein by reference.

Council on Environmental Quality. 1997. Environmental Justice: Guidance Under the National Environmental Policy Act. December 10, 1997.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. February 11, 1994. 59 Federal Register 7630.

Federal Highway Administration, Interim Guidance: Addressing Environmental Justice in the Environmental Assessment (EA)/Environmental Impact Statement (EIS). March 2, 1999.

U.S. Census Bureau, American Fact Finder. Poverty Status in the Past 12 Months: 2010-2014 ACS 5-Year Estimates. Table S1701. Accessed June 29, 2016.

U.S. Department of Transportation. 1997. Order to Address Environmental Justice in Minority Populations and Low-Income Populations. Federal Register April 15, 1997, Volume 62, Number 72, Pages 18377-18381.

U.S. Department of Health and Human Services. 2016 Poverty Guidelines. Available at: https://aspe.hhs.gov/2010-hhs-poverty-guidelines. Accessed June 29, 2016.

U.S. Environmental Protection Agency, Interim Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis, Office of Federal Activities. September 30, 1997.

3.6 Geology, Soils, and Mineral Resources

3.6.1 Introduction

This section evaluates the potential for construction and operation of the proposed project to result in adverse impacts associated with geologic and soil constraints, such as settlement and slope instability, seismic hazards, and the loss of mineral resources.

3.6.2 Environmental Setting

Geology, Soils, and Geologic Hazards

The proposed project site is located within the Sacramento Valley and lies centrally in the Great Valley geomorphic province of California (City of Sacramento, 2015). The Sacramento Valley forms the northern third of the Great Valley, which fills a northwest-trending structural depression bounded on the west by the Great Valley Fault Zone and the northern Coast Range, and to the east by the northern Sierra Nevada and the Foothills Fault Zone. Most of the surface of the Great Valley is covered with Holocene and Pleistocene-age alluvium, primarily composed of sediments from the Sierra Nevada and the Coast Ranges, which were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary deposits. Older Tertiary deposits underlie the Quaternary alluvium.

At the project site, the underlying soils are primarily the Columbia-Urban Fill Complex, composed of sandy to clayey loam (NRCS, 2016). This soil unit is considered to have a low potential for expansive soils, also referred to as shrink-swell or linear extensibility. This developed urban environment has been largely reworked and local soil conditions may vary.

Because the project area and much of the city is flat, slope stability, landslide, and erosion hazards do not present substantial hazards to people and property. Site-specific effects of erosion are generally limited to construction activities, when stormwater runoff can carry sediment or other pollutants into local waterways.

Faults, Seismicity, and Seismic Hazards

According to Chapter 7 of the Background Report to the City of Sacramento 2035 General Plan (City of Sacramento, 2015), there are no known active faults within the City of Sacramento and the Sacramento region. The greatest seismic risk to the City comes from earthquakes along Northern California's major faults, which are the San Andreas, Calaveras, and Hayward faults, located 40 or more miles to the west. Ground shaking on any of these faults could cause seismic shaking within the City. The California Geological Survey (CGS) Ground Motion Interpolator estimates a peak ground acceleration (PGA)[1] of 0.194g with a 10 percent chance of occurrence

[1] PGA is expressed as a percentage of the horizontal acceleration due to gravity (g). PGA varies from place to place and is dependent on the distance from the epicenter and the character of the underlying geology (e.g., hard bedrock, soft sediments, or artificial fills.

within the next 50 years (CGS, 2008). For comparison purposes, the maximum PGA value recorded during the Loma Prieta earthquake in the vicinity of the epicenter, near Santa Cruz, was 0.64 g. Sacramento's risk of damage from seismic ground-shaking is relatively low. Future development, rehabilitation, reuse, or possible change of use of a structure would be required to comply with all design standards for the given location as promulgated in the California Building Code (CBC), described further below.

Based on the locally high water table and the types of soil in the area, the project site is susceptible to liquefaction hazards, typically induced by a seismic event (City of Sacramento, 2015). For purposes of engineering design and construction, geotechnical studies are required by the CBC to determine site-specific design and engineering requirements to protect against this hazard.

Mineral Resources

The project area is not located within a designated mineral resource recovery zone (City of Sacramento, 2015). The project area is located within an area that has been designated as Mineral Resource Zone (MRZ)-1 by the California Department of Conservation (California Department of Conservation, 1999). MRZ-1 zones are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

3.6.3 Applicable Policies and Regulations

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016 and takes effect starting January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-16, *Minimum Design Loads for Buildings and Other Structures*,

provides requirements for general structural design and includes means for determining earthquake loads[2] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

The design of the proposed action is required to comply with CBC requirements, which would make the proposed action consistent with the CBC.

NPDES Construction General Permit

Construction associated with the proposed project would disturb more than one acre of land surface, potentially affecting the quality of stormwater discharges into waters of the U.S. The proposed project would therefore be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-

[2] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

DWQ, NPDES No. CAS000002, Construction General Permit; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. The Construction General Permit contains requirements for Risk Levels 1, 2 and 3, and the LUP Type 1, 2, and 3 categories. If a project does not meet any one or more of the aforementioned conditions under the Type 1 LUP category, depending on its location within a sensitive watershed area or floodplain, the level of receiving water risk could be considered low, medium, or high. Depending on the Risk Level, the construction projects could be subject to the following Construction General Permit requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific Best Management Practices (BMPs) designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment.

The SWPPP must be prepared before construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls

during certain activities, such as paving operations and vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

Grading, Erosion, and Sediment Control (City Code Section 15.88)

This section regulates land disturbances, soil storage, pollution, and erosion and sedimentation resulting from construction activities within the City. Grading approval must be received from the Department of Utilities before construction. All projects are required to prepare erosion and sediment control plans which apply during and post construction. The plans include erosion control measures such as straw mulch, sediment controls such as fiber rolls, inlet protection, and housekeeping practices such as concrete management and spill prevention.

City of Sacramento 2035 General Plan

The City of Sacramento adopted its 2035 General Plan on March 3, 2015. The General Plan includes redevelopment of the Twin Rivers Community Housing Complex and the construction of the proposed Dos Rios LRT Station in its long range plans. A summary of General Plan policies that are relevant to the proposed project is provided later in this section.

River District Specific Plan

The River District Specific Plan (RDSP) was adopted in 2011 and established planning and design standards for the redevelopment of approximately 773 acres of land (City of Sacramento, 2011). The RDSP area includes the entirety of the proposed project area under consideration in this IS/EA. The RDSP tiered its analysis on geology, soils, and mineral resources from the City's General Plan. No site-specific analysis for these issues was undertaken in the RDSP Program EIR, and no new policies were adopted for these issues under the Specific Plan.

3.6.4 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

Chapter 4.5 of the Master EIR evaluated the potential effects related to seismic hazards, underlying soil characteristics, slope stability, erosion, existing mineral resources and paleontological resources in the City. Implementation of identified policies in the 2035 General Plan reduced all effects to a less-than-significant level. Geology and Soils goals and policies applicable to the project area include the following:

> ***Policy EC 1.1.1: Review Standards.*** The City shall regularly review and enforce all seismic and geologic safety standards and require the use of best management practices (BMPs) in site design and building construction methods.
>
> ***Policy EC 1.1.2: Geotechnical Investigations.*** The City shall require geotechnical investigations to determine the potential for ground rupture, ground-shaking, and liquefaction

due to seismic events, as well as expansive soils and subsidence problems on sites where these hazards are potentially present.

River District Specific Plan EIR

The RDSP tiered its analysis on each of these issues from the City's General Plan. No site-specific analysis for these issues was undertaken in the RDSP Program EIR, and no new policies were adopted for these issues under the Specific Plan.

3.6.5 Impact Assessment and Mitigation Measures

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to geology and soils under CEQA are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The project alternatives would have a significant adverse effect if they would:

- Allow a project to be built that will introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards? These hazards include those associated with seismicity and faulting, liquefaction, landslides, soil erosion, and unstable or expansive soils.
- Result in the loss of a known mineral resource that would be of value to the region and residents of the state, or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Department of Housing and Urban Development Evaluation Criteria

The online HUD Exchange provides guidance documents for considering context and intensity impacts associated with geology and soils (HUD, 2013). Specific factors to consider include slope, erosion, and soil suitability. These factors generally mirror those listed in the City standards of significance listed above. The HUD exchange provides no guidance concerning mineral resources.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

GEO-1. Would the project be built in a manner that would introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its

existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Construction activities would involve building demolition and excavating, filling, moving, grading, and temporarily stockpiling soils onsite, which would expose site soils to erosion from wind and surface water runoff. The City has adopted standard measures to control erosion and sediment during construction and all projects in the City are required to comply with the City's Standard Construction Specifications for Erosion and Sediment Control. The proposed project would comply with the City's standards set forth in the "Administrative and Technical Procedures Manual for Grading and Erosion and Sediment Control." In addition, the project would also comply with the City's grading ordinance (Chapter 15.88 of Sacramento City Code), which specifies construction standards to minimize erosion and runoff.

Within the City of Sacramento and the Sacramento region, there are no known active faults. However, the structures under Alternative 2 could be subjected to seismic shaking and seismically-induced liquefaction from earthquakes occurring along Northern California's major faults. Future development, rehabilitation, reuse, or possible change of use of all project structures would be required to comply with all design standards in the CBC, described above in Applicable Policies and Regulations. The structural elements of the proposed project would undergo appropriate design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements in the CBC and County and City ordinances and ensuring that all buildings and structures constructed in compliance with the law is the responsibility of the project engineers and City building officials. The project's geotechnical engineer,[3] as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California, which, in the case of the proposed project, is the City of Sacramento. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. The local Building Officials are typically with the local jurisdiction and are responsible for ensuring CBC and local code compliance prior to approval of the building permit, and also through subsequent inspections throughout the construction process.

While it is likely that the structural elements of the proposed project would be subjected to seismic shaking at least once during their operational life, there is a low potential for the groundshaking associated with an earthquake to cause injury, loss of life, or substantial property damage. Completion of a comprehensive design-level geotechnical investigation, adherence to

[3] A geotechnical engineer (GE) specializes in structural behavior of soil and rocks. GEs conduct soil investigations, determine soil and rock characteristics, provide input to structural engineers, and provide recommendations to address problematic soils.

the current CBC and local ordinances regulating construction, and the application of proven seismic design criteria that are standard engineering practice would ensure that structures are designed to withstand seismic events without sustaining substantial damage or collapsing.

Based on each of the considerations outlined above, and compliance with existing codes and regulations, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact** with respect to this criterion.

GEO-2. Would the project result in the loss of a known mineral resource that would be of value to the region and residents of the state, or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The project area is located within an area that has been designated as Mineral Resource Zone (MRZ) 1 by the California Department of Conservation (California Department of Conservation, 1999). MRZ-1 zones are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. Even if important minerals were present in the area, it would be infeasible to extract them due to the location and size of the project site and the developed nature of the surrounding area. Therefore, under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Mitigation Measures

None required.

References

California Department of Conservation. 1999. Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California. Open File Report 99-09.

City of Sacramento 2014. City of Sacramento 2035 General Plan Master Environmental Impact Report.

City of Sacramento. 2015. *Background Report to the 2035 Sacramento General Plan, Chapter 7, Public Health and Safety*, adopted March 3.

Housing and Urban Development, Department of (HUD). 2016. HUD Exchange. Available at: https://www.hudexchange.info/programs/environmental-review/. Accessed December 27, 2016.

Natural Resources Conservation Services (NRCS), 2016, Columbia-Urban Fill Complex, Survey Area Date: September 28, 2016.

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3.7 Hazards and Hazardous Materials

3.7.1 Introduction

This section discusses known hazardous materials in the vicinity of the project area. The section also discusses potential for explosive materials hazards in the project area as prescribed in U.S. Department of Housing and Urban Development (HUD) regulations.

Materials and waste may be considered hazardous if they are poisonous (toxic); can be ignited by open flame (ignitable), corrode other materials (corrosive); or react violently, explode, or generate vapors when mixed with water (reactive). The term "hazardous material" is defined in California Health and Safety Code Section 25501(p) as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment. "Hazardous substances" are further defined in applicable HUD regulations (24 CFR 51 Subpart C) as "petroleum products (petrochemicals) and chemicals that can produce blast overpressure or thermal radiation levels in excess of standards set forth in 24 CFR 51.203."

In some cases, past industrial or commercial uses on a site can result in spills or leaks of hazardous materials and petroleum products to the environment, thus resulting in soil and groundwater contamination. Federal and State laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The California Code of Regulations, Title 22, Section 66261.20-24 contains technical descriptions of characteristics that would cause soil to be classified as a hazardous waste. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government, as outlined later in this section.

3.7.2 Environmental Setting

Existing Environment

The project site is comprised of two areas totaling approximately 24.2 acres that are separated from one another by North 12th Street. The larger parcel (21 acres) west of 12th Street contains the existing Twin Rivers Community Housing Complex, which was built in the early 1940s. That portion of the project area that lies east of North 12th Street is comprised of six separate parcels, all of which are undeveloped and vacant.

The project site and the surrounding vicinity was undeveloped and primarily used for agricultural land uses between the late 1800s through the 1930s. Beginning in the 1930s, the surrounding vicinity was used primarily for commercial and industrial land uses. Several historical gasoline service stations and/or historical or currently active automobile repair shops are within the surrounding vicinity. Additionally, several other kinds of industrial businesses that are commonly associated with hazardous materials (e.g., metal fabrication, battery retailer and printing) are located within the surrounding vicinity (Nichols Consulting, 2013).

Hazardous Materials Database Records Search

Records searches were conducted using the Department of Toxic Substances Control's (DTSC) EnviroStor and the Regional Water Resources Control Board's (RWRCB) GeoTracker online databases that identify sites currently or formerly undergoing investigation and cleanup under the jurisdiction of the DTSC or RWQCB or a local agency that provides the investigative and cleanup reports to the EnviroStor or GeoTracker websites.

The EnviroStor database also includes facilities that are authorized to treat, store, dispose, or transfer hazardous materials or waste; such sites handle hazardous materials or waste as part of their permitted operation, but their listing does not necessarily mean that any leaks, spills, or releases have occurred. The EnviroStor website also includes the following site types: Federal Superfund sites (National Priority List; state response, including military facilities and State Superfund; voluntary cleanup; and school sites that are being evaluated by DTSC for possible hazardous materials contamination. The EnviroStor database also contains current and historical information relating to permitted and corrective action facilities. The GeoTracker database contains regulatory data about leaking underground storage tanks, Department of Defense facilities, spills, leaks, investigations, cleanups, and landfill sites. The Geotracker database contains similar information for the sites under their jurisdiction that are more water quality focused. In addition, the GeoTracker database provides information about public drinking water wells.

Data obtained from the EnviroStor and Geotracker databases indicate there are three active sites undergoing investigation and cleanup for contaminants within 0.25 mile of the project site, as listed below in **Table 3.7-1**. Sites that use hazardous materials but have no records of releases, and sites that have been cleaned up and received closure from the regulatory agency are not listed because they are unlikely to affect the project site.

TABLE 3.7-1
REGULATORY SITES LISTED WITHIN 0.25 MILE OF THE PROJECT

Site Name/ Address	Regulatory List	Site Summary
SIMS Metal 130 North 12th Street	Cleanup Program Site	Potential for soil contamination. Potential contaminants of concern include copper, lead, polychlorinated biphenyls, polynuclear aromatic hydrocarbons, and waste oil.
Union Pacific Railroad – North A Street Site 1324 North A Street	Cleanup Program Site	Potential for groundwater contamination. Potential contaminants of concern includes diesel, lead, other chlorinated hydrocarbons, and waste oil.
North 12th Street Social Service Site 1221 North A Street	EnviroStor Cleanup Evaluation Site	Potential for soil contamination. Potential contaminant of concern is lead.

SOURCE: DTSC, 2016; SWRCB, 2016a, 2016b, 2016c.

Asbestos-Containing Materials and Lead-Based Paint

Asbestos is a naturally occurring mineral that can be hazardous to human health if it becomes airborne. Due to their small size, asbestos particles are inhaled and the fibers can become lodged in the lungs or go to other parts of the body. Asbestos fibers can cause local inflammation and

disrupt cell division in the lungs. Some of the diseases associated with asbestos exposure include lung cancer, mesothelioma, and asbestosis. Asbestos was used as a fireproofing and insulating component of building materials before such uses were terminated due to health concerns in the late1970s. Because it was widely used prior to the discovery of its health effects, asbestos may be found in a variety of building materials and components such as insulation, walls and ceilings, floor tiles, roofing, and pipe insulation.

Lead and lead compounds can be found in many types of paint. In 1978, the Consumer Product Safety Commission set the allowable lead levels in paint at 0.06 percent by weight in a dry film of newly applied paint. Prior to 1978, the lead content was higher. Lead dust is of special concern, because the smaller particles are more easily absorbed by the body. Common methods of paint removal, such as sanding, scraping, and burning, create excessive amounts of dust. Lead based paints are considered likely present in buildings constructed prior to 1960, and potentially present in buildings built prior to 1978.

Due to the age of the Twin Rivers Community Housing Complex, asbestos-containing materials and lead-based paint abatement activities were conducted between 1993 and 2000. However, lead-based paint and coatings originally used on exterior building surfaces may have flaked or oxidized and been deposited into the surrounding soils. There are also areas of asbestos-containing material present in some of the buildings specifically, near the vent pipes (Nichols Consulting, 2012).

Explosive Hazards

Environmental Science Associates conducted an explosive hazards study addressing the project distance from potential explosive hazards to demonstrate compliance with HUD regulations at 24 CFR Part 51, Subpart C (ESA, 2016). The results of the study are included with this IS/EA in Appendix C. Hazards as defined by HUD regulations include stationary containers of an explosive or fire prone nature (e.g., above-ground storage tanks [ASTs] containing gasoline). HUD-assisted projects must meet required HUD Acceptable Separation Distance standards or implement appropriate mitigation.

Potential AST sites were identified by reviewing existing Phase 1 environmental site assessments and requesting and receiving information from the Sacramento County Environmental Management Department (SCEMD) regarding above-ground storage tanks (ASTs). Of the eight sites listed within the project vicinity that had hazardous materials listings with the SCEMD, only two sites have active ASTs: Sims Metals at 130 North 12th Street and Downtown Ford Sales at 525 North 16th Street. Only Sims Metals has ASTs with contents (gasoline) that would be substantially explosive. The HUD Acceptable Separation Distance Electronic Assessment Tool calculator (HUD, 2016) estimated the acceptable separation distance at 276.57 feet. The Sims Metals AST is located about 930 feet from the project site.

3.7.3 Applicable Policies and Regulations

City of Sacramento 2035 General Plan

The City of Sacramento adopted its 2035 General Plan on March 3, 2015. The General Plan includes redevelopment of the Twin Rivers Community Housing Complex and the construction of the proposed Dos Rios LRT Station in its long range plans. A summary of General Plan policies that are relevant to the proposed project is provided below.

River District Specific Plan

The River District Specific Plan (RDSP) was adopted in 2011 and established planning and design standards for the redevelopment of approximately 773 acres of land (City of Sacramento, 2011). The RDSP area includes the entirety of the proposed project area under consideration in this IS/EA. A summary of RDSP policies that are relevant to the proposed project is provided below.

State Department of Toxic Substances Control

The DTSC is responsible for the management of hazardous materials and hazardous wastes within the state of California. The DTSC oversees some cleanup sites, sharing certain overlapping jurisdiction with the Sacramento County Environmental Management Department (SCMED) or the Regional Water Quality Control Board (RWQCB). Sites within DTSC's jurisdiction include hazardous materials sites where soil and sometimes groundwater has been contaminated.

Regional Water Quality Control Board

The RWQCB is responsible for maintaining the high quality of waters within the state. Although many hazardous materials sites are overseen by the local Certified Unified Program Agency (CUPA), the RWQCB often assumes lead agency status over hazardous materials sites where groundwater has been contaminated.

Sacramento County Environmental Management Department

The Sacramento County Environmental Management Department (SCEMD) is the local CUPA. Hazardous waste laws and regulations are enforced locally by SCEMD, including Underground Storage Tank (UST) investigations and cleanups.

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) enforces Rule 902 that protects the public from exposure to asbestos in the event of a release, as discussed further below. Federal regulations and regulations adopted by the SMAQMD apply to the identification and treatment of hazardous materials during demolition and construction activities.

SMAQMD Rule 902 and Commercial Structures

The work practices and administrative requirements of Rule 902 apply to all commercial renovations and demolitions where the amount of Regulated Asbestos-Containing Material (RACM) is greater than 260 lineal feet of RACM on pipes, or 160 square feet of RACM on other facility components, or 35 cubic feet of RACM that could not be measured otherwise. The administrative requirements of Rule 902 apply to any demolition of commercial structures, regardless of the amount of RACM.

Asbestos Surveys

To determine the amount of RACM in a structure, Rule 902 requires that a survey be conducted prior to demolition or renovation unless the structure is otherwise exempt from the rule, or any material that has a propensity to contain asbestos (so-called "suspect material") is treated as if it is RACM. Surveys must be done by a state-licensed asbestos consultant and require laboratory analysis.

Removal Practices, Removal Plans/Notification and Disposal

If a survey shows that there are asbestos-containing materials present, the SMAQMD recommends leaving the materials in place. If it is necessary to disturb the as part of a renovation, remodel, repair or demolition, Cal OSHA and the Contractors State License Board require a licensed asbestos abatement contractor be used to remove the asbestos-containing material. There are specific disposal requirements in Rule 902 for friable asbestos-containing material, including disposal at a licensed landfill. If the material is non-friable asbestos, any landfill willing to accept asbestos-containing material may be used to dispose of the material.

Cal/OSHA Lead in Construction Standard Construction Safety Order 1532.1

The work practices and administrative requirements of Section 1532.1 apply to all construction work where an employee may be occupationally exposed to lead, such as in lead-based paint. These requirements include employee training, employee air monitoring, medical surveillance, dust control, and recordkeeping.

U.S. Department of Housing and Urban Development Explosive Hazards Safety Assessment

24 CFR 51 Subpart C requires that projects receiving HUD assistance be evaluated for potential exposure to explosive forces that could derive from hazardous materials operations associated with surrounding land uses. The principal purpose of the regulation is to ensure that suitable separation distances are maintained between HUD-assisted projects and stationary hazardous materials operations which store, handle, or process hazardous substances. The regulation defines specific substances of concern, and prescribes specific methods by which acceptable separation distances are to be determined.

3.7.4 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

The Master EIR evaluated effects of development on hazardous materials, emergency response and aircraft crash hazards (see Master EIR Chapter 4.6). The Master EIR disclosed that implementation of the 2035 General Plan may result in the exposure of people to hazards and hazardous materials during construction activities, and exposure of people to hazards and hazardous materials during the life of the 2035 General Plan. Impacts related to construction activities and operations were found to be less than significant. Policies included in the 2035 General Plan were determined to be effective in reducing the identified impacts, and include the following:

> ***Policy PHS 3.1.1: Investigate Sites for Contamination.*** The City shall ensure buildings and sites are investigated for the presence of hazardous materials and/or waste contamination before development for which City discretionary approval is required. The City shall ensure appropriate measures are taken to protect the health and safety of all possible users and adjacent properties. This Policy requires that buildings and sites under consideration for new development or redevelopment be investigated for the presence of hazardous materials prior to development activities.
>
> ***Policy PHS 3.1.2: Hazardous Material Contamination Management Plan.*** The City shall require that property owners of known contaminated sites work with Sacramento County, the State, and/or Federal agencies to develop and implement a plan to investigate and manage sites that contain or have the potential to contain hazardous materials contamination that may present an adverse human health or environmental risk.
>
> ***Policy PHS 4.1.1: Multi-Hazard Emergency Plan.*** The City shall maintain and implement the Sacramento County Multi-Hazard Emergency Plan to address disasters such as earthquakes, flooding, dam or levee failure, hazardous material spills, epidemics, fires, extreme weather, major transportation accidents, and terrorism.

Routine use and transport of hazardous materials is regulated by a number of federal, state, and local regulations. Potential incidents may include accidental spills or releases, intentional releases, and/or the release of hazardous materials during or following a natural disaster such as an earthquake or flood. To respond to these circumstances, Sacramento County has developed an Area Plan for Emergency Response to Hazardous Materials Incidents. The City of Sacramento Fire Department also has a hazardous materials incident response team, and works in cooperation with other regional and state agencies in the event of a major emergency.

The Master EIR found that compliance with all applicable rules and regulations, along with the 2035 General Plan policies, would reduce the potential for exposure of construction workers and the general public to unusual or excessive risks related to hazardous materials during demolition or construction activities throughout the life of the 2035 General Plan. The Master EIR concluded that the impact of the 2035 General Plan on hazards within the City was less than significant.

River District Specific Plan EIR

The River District Specific Plan (RDSP) EIR evaluated effects of development on hazardous materials (see EIR Chapter 5.4). The EIR found that implementation of the RDSP could result in the exposure of people to hazards and hazardous materials during construction activities, and exposure of people to hazards and hazardous materials during the life of the RDSP. Exposure of people to hazards and hazardous materials during construction activities would be less than significant through implementation of the following mitigation measures:

> **Mitigation Measure 5.4-1(a):** Prior to any ground-disturbing or site construction activities associated with redevelopment of a parcel east of [North] 12th Street, a determination shall be made by the County's Environmental Management Department (EMD) as to whether the parcel is within 1,000 feet of the following County Assessor's Parcels. Assessor Parcel Numbers: 003-0032-008, 003-0032-009, 001-0160-010, 001-0160-011, 003-0032-012, 003-0041-006, 001-0170-022, and 003-00410-003. The listed parcel numbers are associated with a former landfill site located adjacent to the American River and east of the Union Pacific Railroad tracks. If so, the applicant shall contact the County of Sacramento's Local Enforcement Agency, per Title 27, California Code of Regulations, Section 21190. The applicant shall comply with all requirements of the EMD regarding development and use of the parcel.
>
> **Mitigation Measure 5.4-1(b):** Prior to demolition or renovation of structures, the project applicant shall provide written documentation to the City that asbestos-containing materials and/or lead-based paint have been abated and that any remaining hazardous substances and/or waste have been removed in compliance with application State and local laws.

3.7.5 Impact Assessment and Mitigation Measures

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to hazards and hazardous materials are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The standards also incorporate appropriate HUD or FTA criteria, where applicable. The project alternatives would have a significant adverse effect if they would:

- Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities;
- Expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials, or other hazardous materials or situations;
- Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during construction or dewatering activities;

Department of Housing and Urban Development Evaluation Criteria

24 CFR 51 Subpart C requires that projects receiving HUD assistance be evaluated for potential exposure to explosive forces that could derive from hazardous materials operations associated with surrounding land uses. The principal purpose of the regulation is to ensure that suitable separation distances are maintained between HUD-assisted projects and stationary hazardous materials operations which store, handle, or process hazardous substances. Under this criteria, an adverse effect would occur if a HUD-assisted project were to be located at a lessor separation distance than that prescribed in the regulation.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

HAZ-1. Would the project expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities?

Alternative 1 – No Project

Under this alternative, existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Past uses may have released hazards materials into the environment as a result of practices common at one time or another. The Phase I Environmental Site Assessment (Phase I assessment), identified previous uses such as gasoline service stations, automobile repair facilities, battery shops, machine shops, car dealerships and vehicle wash areas, as uses that would have used hazardous materials (e.g., fuels, oils and greases, solvents, and metals). The current and historical industrial land uses on the project site and within the immediate vicinity could have resulted in the release of hazardous materials, resulting in contamination in the soil, soil vapor and groundwater beneath the sites. The potential spills or releases at the nearby locations could have resulted in the migration of contaminants from these facilities to the project site (Nichols Consulting, 2012; 2013).

The project site is also located within an area generally known to have imported fill. Much of the immediate vicinity was backfilled during initial development with imported fill from nearby industrial land use properties. Some locations that received fill during this period have been found to contain high levels of metals such as lead (Nichols Consulting, 2012; 2013).

Because unidentified hazardous materials could be present at the project site, construction activities could expose workers to contaminated soil or other hazardous substances or debris that may be present, if such hazards are not properly identified and managed prior to site work. This is

considered a potentially significant impact which could be mitigated to less than significant through implementation of Mitigation Measure 3.6-1, which is prescribed at the end of this section. Mitigation Measure 3.6-1 would require that a Phase II assessment be conducted to analyze soil and groundwater conditions beneath the site, and that any hazardous materials conditions discovered be remediated to defined regulatory standards. Based these considerations, and after compliance with Mitigation Measure 3.6-1, there would be **no adverse effect** under NEPA. Under CEQA, the impact would be **less than significant with mitigation**.

RDSP EIR Mitigation Measure 5.4-1(a) requires that applicants considering development of parcels that are east of [North] 12th Street or within 1,000 feet of the former landfill, located east of the RDSP area, contact the County's Environmental Management Department to determine whether the parcel is, in fact, located within 1,000 feet. The Twin Rivers Community Housing Expansion Area would be located east of North 12th Street; however, the nearest listed parcel associated with the former landfill is more than 3,000 feet from the project area. As such, RDSP EIR Mitigation Measure 5.4-1(a) would not apply to the proposed project.

HAZ-2. Would the project expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials, or other hazardous materials or situations?

Alternative 1 – No Project

Under this alternative, existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As identified in the environmental setting, the Twin Rivers Community Housing Complex was constructed when asbestos and lead-based paint were used in building construction. Asbestos and lead based paint abatement activities were conducted at the Twin Rivers Community Housing Complex. However, the Phase 1 assessment identified that there is potential for lead to be present in the soil (at both the Twin Rivers Community Housing Complex and the Twin Rivers Community Housing Expansion Area) originating from lead based paints and coatings originally used on exterior building surfaces, which may have flaked or oxidized and deposited into the surrounding soils (Nichols Consulting, 2012; 2013).

CCR Title 8 Section 5208 requires that a State-certified risk assessor conduct a risk assessment and/or paint inspection of all structures constructed prior to 1978 for the presence of asbestos or lead-based paint prior to demolition. If such hazards are determined to exist on site, the risk assessor would then prepare a site-specific hazard control plan detailing asbestos and/or paint removal methods and specific instructions for providing protective clothing and gear for abatement personnel. If necessary, a State-certified lead-based paint and/or an asbestos removal contractor (independent of the risk assessor) would be retained to conduct the appropriate abatement measures as required by the plan. Wastes from abatement and demolition activities would be disposed of at a landfill(s) licensed to accept such waste. RDSP EIR Mitigation

Measure 5.4-1(b) enhances the framework by ensuring that project applicants provide written documentation to the City that development in the RDSP area does not expose people to potential hazards due to asbestos-containing material or lead-based paint.

If any unforeseen conditions are discovered during construction, the contractor would coordinate with the appropriate agencies for the safe handling, sampling, and disposal of encountered materials. Construction workers are required to comply with California Occupational Safety and Health Administration worker health and safety standards that ensure safe workplaces and work practices.

Compliance with the federal, State, local regulatory framework (including General Plan policies), and Mitigation Measure 5.4-1(b) would ensure that workers and the public are protected from hazards such as asbestos-containing material and/or lead-based paint during ground disturbing, demolition and/or construction activities. Based these considerations, and after compliance with RDSP Mitigation Measure 5.4-1(b), there would be **no adverse effect** under NEPA. Under CEQA, the impact would be **less than significant with mitigation**.

HAZ-3. Would the project expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during construction or dewatering activities?

Alternative 1 – No Project

Under this alternative, existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Groundwater underlying a nearby site was recently measured at 12 to 22 feet below ground surface. As described in the environmental setting, groundwater in the proposed project vicinity has been documented as being contaminated by diesel, lead, other chlorinated hydrocarbons, and waste oil. The potential spills or releases at the nearby locations could result in the migration of contaminants in groundwater from these facilities to the project site (Nichols Consulting, 2012; 2013).

If the proposed project were to require dewatering during construction and/or the Phase II assessment identified contaminated groundwater, any discharges to the sewer, or a storm drainage system would be required to comply with the City's Department of Utilities Engineering Services regulations to ensure that contaminants do not enter the environment. Because discharge of groundwater during dewatering is regulated by federal, state and local regulations to minimize potential degradation of receiving waters and to minimize exposure to associated risks, this is considered a less-than-significant impact.

HAZ-4. Would the project place housing in proximity to explosive hazards at distances less than that prescribed in 24 CFR 51 Subpart C?

Alternative 1 – No Project

Under this alternative, existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As discussed above in the Setting, the nearest AST is located approximately 930 feet from the project site, which is well outside of the HUD acceptable separation distance of approximately 277 feet. Under NEPA, there would be **no effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Mitigation Measures

Mitigation Measure 3.7-1: Phase II Assessment. Prior to construction or development of the proposed project, a Phase II assessment and subsurface geophysical investigation shall be conducted. If the Phase II assessment concludes that site remediation would be necessary to protect human health and the environment, the site shall not be developed until the site is remediated to levels that would be protective of the most sensitive population for the planned use, as prescribed in applicable regulations.

RDSP Mitigation Measure 5.4-1(b): Prior to demolition or renovation of structures, the project applicant shall provide written documentation to the City that either there is no asbestos-containing materials and/or lead-based paint in the structures or that such materials have been abated and that any remaining hazardous substances and/or waste have been removed in compliance with application State and local laws.

References

California Department of Toxic Substances Control (DTSC), 2016. North 12th Street Social Services Site (60001172), EnviroStor Database. Available at: http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60001172. Accessed January 21, 2016.

Environmental Science Associates, 2016. Twin Rivers Transit-Oriented Development and Light Rail Station Project Explosive Hazards Analysis. July 20, 2016.

Housing and Urban Development, Department of (HUD), 2016. Acceptable Separation Distance Electronic Assessment Tool. Available at: https://www.hudexchange.info/programs/environmental-review/asd-calculator,

Nichols Consulting Engineers, Chtd, (Nichols Consulting), 2012. Phase I Environmental Site Assessment Twin Rivers Development. June 28, 2012.

Nichols Consulting Engineers, Chtd, (Nichols Consulting), 2013. Phase I Environmental Site Assessment Dos Rios Transit Oriented Development Project. December 3, 2013.

State Regional Water Quality Control Board (SWRCB), 2016a. Former BC Stocking Station (T0606700184), Geotracker Database. Available at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606700184. Accessed January 21, 2016.

State Regional Water Quality Control Board (SWRCB), 2016b. Sims Metal (T10000000891), Geotracker Database. Available at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000000891. Accessed January 21, 2016.

State Regional Water Quality Control Board (SWRCB), 2016c. Union Pacific Railroad – North A St. Site (SL205753036), Geotracker Database. Available at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL205753036. Accessed January 21, 2016.

3.8 Hydrology and Water Quality

3.8.1 Introduction

This section discusses hydrology and water quality in the vicinity of the project area. This analysis describes the effects on all surface water sources, including the Section 303(d) list of water bodies in the project area with pollutants that cannot be managed completely. This analysis also evaluates potential effects on flooding resulting from the proposed project. Please see Section 3.13, Utilities, for an analysis of the proposed project's effects to the storm drainage system.

3.8.2 Environmental Setting

Surface Water

The project site is located in a mixed-use urban environment area near the confluence of the American and Sacramento Rivers. The American River is approximately 0.20 miles north of the project site and the Sacramento River is approximately 1.15 miles to the west of the project site. The water quality in these rivers is influenced by a number of factors, including agricultural drainage, urban runoff, and industrial, municipal, and construction discharges. According to the City of Sacramento 2035 General Plan, the reaches of the Sacramento and American rivers that flow through the Sacramento urban area are considered by the Central Valley Regional Water Quality Control Board (CVRWQCB) to be impaired for certain fish consumption and aquatic habitat and are listed on the EPA approved 2006 Section 303(d) list of water quality limited segments. Both of these rivers can be treated to meet all Title 22 drinking water standards using conventional and direct filtration processes, and newer membrane technologies. There are no persistent constituents in the raw waters that require additional treatment processes. Chemical treatments are sometimes seasonally required to be treated for rice herbicides.

Groundwater

Groundwater levels near the project site have been identified at between 12 and 22 feet below ground surface (bgs) and are generally mapped around the 20 foot depth (Nichols Consulting, 2012 and DWR, 2016). Groundwater in the project area is not a federally listed sole source aquifer (USEPA, 2016) and is not currently in use for the public water supply. However, it could be a future source of water to supplement surface water supply for the City (US EPA, 2016; City of Sacramento, 2014). Sources of groundwater recharge include active river and stream channels, inflow of groundwater from outside the project area, deep percolation of applied surface water, and precipitation.

Stormwater

The entire project site is partially paved, and is occupied by buildings, surface streets, parking areas, and open space. There are a number of trees within the project footprint. The project site is in an urban area north of downtown Sacramento. Currently the project site is only partially

composed of impervious surfaces and as a result, storm water drains through the soil as well as to the adjacent storm drain system.

The public wastewater collection system within the City includes a combined sewer system (CSS) that extends partially within the River District area, and a separated sewer system (sanitary sewer) in the remaining areas of the City. The existing Twin Rivers Community Housing Complex is currently served by a sanitary sewer managed by the Sacramento Regional County Sanitation District (SRCSD) and conveyed to the Sacramento Regional Wastewater Treatment Plant (SRWTP), while the Expansion Area portion of the project site is served by the CSS.

The CSS serves residences and businesses generally within the Downtown, East Sacramento, and Land Park communities, which contribute both sanitary sewage and storm drainage flows (combined sewer) to the local CSS (City of Sacramento, 2004). Currently stormwater from this area enters a series of storm drain pipes and is delivered to Sump 111, near the northerly terminus of North 5th Street, from where it is discharged into the American River. This storm drainage system is regulated by a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit issued by the CVRWQCB. The permit requires the use of best management practices to meet the standard of "reducing pollutants in urban runoff to the maximum extent practicable" (City of Sacramento, 2010). Meanwhile, the SRCSD and the Sacramento Area Sewer District (SASD) provide both collection and treatment services within their service area for the portions of the city served by the separate sewer system. The SRWTP, which is located just south of the city limits, is owned and operated by SRCSD and provides sewage treatment for the entire 2035 General Plan Policy Area (City of Sacramento, 2015).

The CSS is composed of about 345 miles of 4- to 120-inch diameter vitrified clay, reinforced concrete and brick pipes that drain westwards to two large pump station facilities known as Pump Station 1/1A/1B and Pump Station 2/2A, located near the Sacramento River. Pump Stations 1B and 2A are the primary pumping stations at each facility, operating continuously throughout the year, while Pump Stations 1/1A and 2 only operate during large storms. Other City facilities include an off-line storage facility known a Pioneer Reservoir that also serves as a primary treatment plant and the Combined Wastewater Treatment Plant (CWTP), which is another primary treatment plant with a capacity of 130 million gallons per day (mgd). Pioneer Reservoir has a peak hydraulic capacity of approximately 350 mgd and a treatment capacity of about 250 mgd.

The City has an agreement with the SRCSD whereby the City can convey a maximum of 60 mgd to the SRWTP for secondary treatment prior to discharge to the Sacramento River. This capacity is sufficient to treat all CSS dry weather sanitary flows (about 17 to 18 mgd) and stormwater from low-intensity storms. During moderate to large storms when the CSS flows are greater than 60 mgd, the flows greater than 60 mgd are routed to CWTP and/or Pioneer Reservoir for temporary storage. When flows exceed storage capacity, the excess flows are released to the Sacramento River after receiving primary treatment, including chlorination and de-chlorination. When the storage and treatment capacities are reached, additional CSS flows are discharged directly to the Sacramento River from Sump 1 and/or Sump 2.

Flows conveyed by the City's wastewater systems are routed to the SRWTP for treatment and disposal via an interceptor system consisting of large diameter pipes and pump stations. The interceptor system and the SRWTP, located just south of the City limits, are owned and operated by the independent SRCSD.

Several projects are planned to improve the operation of the combined system. Projects initiated by the City to address existing deficiencies are system improvements, while major land development projects often include specific measures to mitigate the additional sewage and drainage flows created by the specific development. Notably, the Downtown Combined Sewers Upsizing Project is a 15-year program to upsize downtown sewers which will provide significant reductions of street flooding and combined sewer outflows when complete. Upsizing the 7th Street Sewer from K Street to P Street from 24 inches to 60 inches is one of the final legs of the project and will provide the downtown area combined system with additional capacity. Major development projects within the combined sewer area are required to mitigate the additional sewage flows and the added impervious surface, which increases drainage runoff, or to pay the new CSS Development Fee, which funds this project.

Flooding

According to Flood Insurance Rate (FIRM) maps produced by the Federal Emergency Management Agency (FEMA), the project site is designated as Zone X (FEMA, 2015a and 2015b). The Zone X is given to areas protected by levees from a one-percent (100 year) annual chance of flood. According to FEMA, buildings in this zone could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. The failure of a local drainage system creates areas of high flood risk within these rate zones. Flood insurance is available in participating communities but is not required by regulation in these zones.

Existing levees along the American and Sacramento Rivers provide flood protection to this area. Because the levees are federally authorized flood control levees, the land established for the levees and the flood control easements are owned by the State. Two agencies maintain these areas; the American River Flood Control District, for the American River, and the California Central Valley Flood Protection Board (CVFPB), for the Sacramento River. Any activities or encroachments proposed within the flood control area of either levee are subject to permits from the CVFPB.

In addition, protection is provided by the operation of upstream reservoirs and dams, including Folsom Dam and Shasta Dam. The project site is within the dam inundation zone in the event of failure at the Folsom Dam, which is located on the American River, upstream of the project site.

3.8.3 Applicable Policies and Regulations

Federal Clean Water Act (CWA)

The Clean Water Act (CWA) (33 U.S.C. 1251 – 1376) established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs such as wastewater standards for industry. The CWA sets water quality standards for all contaminants in

surface waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The U.S. Army Corps of Engineers (Corps) has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the CWA, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load(s) (TMDL) for the pollutant(s) causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Generally, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the Section 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved state NPDES program. The USEPA has delegated authority for NPDES permitting to the California State Water Resources Control Board (SWRCB), which has nine Regional Water Quality Control Boards (RWQCBs). Under this system, municipal and industrial facilities are required to obtain a NPDES permit from the applicable RWQCB that specifies allowable limits, based on available wastewater treatment technologies, for pollutant levels in their effluent.

Stormwater discharges are regulated somewhat differently than pollutant discharges. Discharge of stormwater runoff from construction areas of one acre or more requires either an individual permit issued by the RWQCB or coverage under the statewide Construction General Stormwater Permit for stormwater discharges (discussed below). Specific industries and public facilities, including wastewater treatment plants that have direct stormwater discharges to navigable waters, are also required to obtain either an individual permit or obtain coverage under the statewide General Industrial Stormwater Permit.

Title 44 of the Code of Federal Regulations, Part 60

This part of the Code contains the regulations governing development in a floodplain. FEMA establishes flood zones and boundaries based on information from the Corps. The maps distributed by FEMA identify the locations of special flood hazard areas, including the 100-year floodplain.

State Porter-Cologne Act

The SWRCB and the RWQCBs share responsibility under the Porter-Cologne Act to formulate and adopt water policies and plans, and to adopt and implement measures to fulfill CWA requirements. To meet these requirements, the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) was prepared by the CVWQCB to protect the water quality of the State according to the beneficial uses identified for each water body. Prior to authorizations of waste discharge by the RWQCB, the Porter-Cologne Act requires reports of waste discharges to be filed. The RWQCB then prescribes Waste Discharge Requirements, which serve as NPDES permits under a provision of the Porter-Cologne Act.

Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4012a]

The Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 require that projects receiving federal assistance and located in an area identified by FEMA as being within a Special Flood Hazard Areas (SFHA) be covered by flood insurance under the National Flood Insurance Program (NFIP).

Executive Order 11988

Executive Order 11988 (May 24, 1977) requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Sole Source Aquifer: 40 CFR 149

A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. 40 CFR 149 applies to federally assisted projects which may contaminate an aquifer designated by the USEPA as the sole source of drinking water for a community. The regulation prohibits financial assistance of projects which USEPA determines may contaminate a designated sole source aquifer.

Stormwater Quality Improvement Program (SQIP)

The City operates under a NPDES permit (NPDES No. CAS082597) for stormwater municipal discharges to surface waters. The permit requires that the City impose water quality protection measures for all development projects. The permit prohibits discharges from causing violations or water quality standards or result in conditions that create water quality impairment in receiving waters. A key component of the NPDES permit is the implementation of the SQIP. The SQIP consists of elements such as control of commercial/industrial discharges, control of stormwater during construction, and control of postconstruction stormwater for new development and redevelopment of parcels. In addition, the two following sections of the City Code provide additional regulation and guidance to prevent degradation of water quality.

Mitigation of Drainage Impacts (City Code Section 13.08.145)

Sacramento City Code Section 13.08.145 addresses mitigation of drainage impacts, and a design and procedures manual for water, sanitary sewer, storm drainage, and water quality facilities. The code requires that when a property contributes drainage to the storm drain system or combined sewer system, all storm water and surface runoff drainage impacts resulting from the improvement or development must be fully mitigated to ensure that the improvement or development does not affect the function of the storm drain system or combined sewer system, and that there is no increase in flooding or in water surface elevation that adversely affects individuals, streets, structures, infrastructure, or property. Because the CSS is considered at or near capacity, all additional inflow into the system is required to be mitigated. The Sewer Development Fee Fund is used to recover an appropriate share of the capital costs of the City's existing or newer system facilities or the City's existing or new CSS facilities. Revenues are generated from impact fees paid by developers and others whose projects add to the demand on the combined sewer collection systems. In order to connect with the SRCSD wastewater conveyance and treatment system, developers must pay impact fees. Infill development pays $2,519 per equivalent multi-family dwelling (ESD) (rates effective July 1, 2016).

Stormwater Management and Control (City Code Section 13.16)

This section of the Code regulates non-stormwater discharges to the stormwater conveyance system, by eliminating discharges to the stormwater conveyance system from spills, dumping, or disposal of materials other than stormwater, and by reducing pollutants in urban stormwater discharges to the maximum extent practicable. Non-stormwater discharges are prohibited except where the discharge is regulated under a NPDES permit.

Post-construction non-stormwater and pollutant discharges resulting from new development are minimized and controlled using source and/or treatment control measures to remove and prevent pollution in stormwater.

Grading, Erosion, and Sediment Control (City Code Section 15.88)

This section regulates land disturbances, soil storage, pollution, and erosion and sedimentation resulting from construction activities within the City. Grading approval must be received from the Department of Utilities before construction. All projects are required to prepare erosion and sediment control plans which apply during and post construction. The plans include erosion control measures such as straw mulch, sediment controls such as fiber rolls, inlet protection, and housekeeping practices such as concrete management and spill prevention.

Resolution No. 92-439 of the Sacramento City Council

This resolution regulates groundwater discharges to the CSS or a separated sewer system. The Department of Utilities is responsible for the permitting of short-term discharges or approval of a Memorandum of Understanding for long-term discharges. Groundwater discharges to a sewer system are defined as discharges from construction dewatering, foundation dewatering, treated or untreated contaminated groundwater cleanup, and uncontaminated groundwater.

All groundwater discharges to the sewer must be granted a SRCSD discharge permit. If the discharge contains excessive contaminants, CVRWQCB approval is also required.

City of Sacramento 2035 General Plan

The City of Sacramento adopted its 2035 General Plan on March 3, 2015. The General Plan includes redevelopment of the Twin Rivers Community Housing Complex and the construction of the proposed Dos Rios LRT Station in its long range plans. A summary of General Plan policies that are relevant to the proposed project is provided below.

River District Specific Plan

The River District Specific Plan (RDSP) was adopted in 2011 and established planning and design standards for the redevelopment of approximately 773 acres of land (City of Sacramento, 2011). The RDSP area includes the entirety of the proposed project area under consideration in this IS/EA, and includes water related elements that are directly applicable to the proposed project. A summary of RDSP policies that are relevant to the proposed project is provided below.

3.8.4 Summary of Analysis Under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

Chapter 4.7 of the Master EIR considered the potential effects of the 2035 General Plan on surface water, groundwater, flooding, stormwater, and water quality, and the proposed project was included in all aspects of the plan's evaluation.

The 2035 General Plan Master EIR identified potential impact to water quality degradation due to construction activities (Impacts 4.7-1, 4.7-2), and exposure of people to flood risks (Impacts 4.7-3). Policies included in the 2035 General Plan, including a directive for regional cooperation (Policies ER 1.1.2, EC 2.1.1), comprehensive flood management (Policy EC 2.1.23), and construction of adequate drainage facilities with new development (Policy ER 1.1.1 to ER 1.1.10) were identified that the Master EIR concluded would reduce all impacts to a less-than-significant level.

Water Quality goals and policies applicable to the project area include the following:

> ***Goal ER 1.1: Water Quality Protection.*** Protect local watersheds, water bodies and groundwater resources, including creeks, reservoirs, the Sacramento and American rivers, and their shorelines.
>
> ***Policy ER 1.1.1: Conservation of Open Space Areas.*** The City shall conserve and where feasible create or restore areas that provide important water quality benefits such as riparian corridors, buffer zones, wetlands, undeveloped open space areas, levees, and drainage canals for the purpose of protecting water resources in the city's watershed, creeks, and the Sacramento and American rivers.

Policy ER 1.1.2: Regional Planning. The City shall continue to work with local, State, and Federal agencies and private watershed organizations to improve water quality.

Policy ER 1.1.3: Stormwater Quality. The City shall control sources of pollutants and improve and maintain urban runoff water quality through stormwater protection measures consistent with the city's National Pollution Discharge Elimination System (NPDES) Permit.

ER 1.1.4: New Development. The City shall require new development to protect the quality of water bodies and natural drainage systems through site design (e.g., cluster development), source controls, storm water treatment, runoff reduction measures, best management practices (BMPs), and Low Impact Development (LID), and hydromodification strategies consistent with the City's NPDES Permit.

ER 1.1.5: Limit Stormwater Peak Flows. The City shall require all new development to contribute no net increase in stormwater runoff peak flows over existing conditions associated with a 100-year storm event.

***ER 1.1.6: Post-Development Runoff*.** The City shall impose requirements to control the volume, frequency, duration, and peak flow rates and velocities of runoff from development projects to prevent or reduce downstream erosion and protect stream habitat.

***Policy ER 1.1.7*: *Construction Site Impacts*.** The City shall minimize disturbances of natural water bodies and natural drainage systems caused by development, implement measures to protect areas from erosion and sediment loss, and continue to require construction contractors to comply with the City's erosion and sediment control ordinance and stormwater management and discharge control ordinance.

Policy ER 1.1.8: Clean Watershed. The City shall continue ongoing Sacramento and American River source water protection efforts (e.g., Keep Our Waters Clean), based on watershed sanitary survey recommendations.

***Policy ER 1.1.9: Groundwater Recharge*.** The City shall protect open space areas that are currently used for recharging groundwater basins, have the potential to be used for recharge, or may accommodate floodwater or stormwater.

Policy EC 2.1.9: Community Rating System. The City shall maintain eligibility in FEMA's Community Rating System program, which gives property owners discounts on flood insurance.

Policy EC 2.1.11: New Development. The City shall require evaluation of potential flood hazards prior to approval of development projects to determine whether the proposed development is reasonably safe from flooding and consistent with California Department of Water Resources (DWR) Urban Level of Flood Protection Criteria. The City shall not approve new development or a subdivision or enter into a development agreement for any property within a flood hazard zone unless the adequacy of flood protection specific to the area has been demonstrated.

EC 2.1.6: New Development. The City shall require evaluation of potential flood hazards prior to approval of development projects.

***Policy EC 2.1.25: Flood Risk Notification*.** The City shall annually notify owners of residential development protected from flooding by a levee and/or subject to inundation in the event of levee failure of the risk.

***Policy EC 2.1.26: Deed Notification*.** The City shall require, for areas protected by levees, all new developments to include a notice within the deed that the property is protected by flooding from a levee and that the property can be subject to flooding if the levee fails or *is* overwhelmed.

***Policy EC 2.1.27: Flood Insurance*.** The City shall encourage all residents to purchase flood insurance.

Goal U 4.1: Adequate Stormwater Drainage. Provide adequate stormwater drainage facilities and services that are environmentally-sensitive, accommodate growth, and protect residents and property.

River District Specific Plan EIR

The River District Specific Plan (RDSP) EIR considered the effects of the buildout of the proposed RDSP on hydrology and water quality. Chapter 5.5 of the RDSP EIR evaluated the potential effects of the RDSP on surface water and groundwater quantity and quality and the potential for either construction (Impacts 5.5-1, 5.5-2), or development associated with the RDSP to result in an increased risk to exposure to flooding (Impact 5.5-3). The RDSP Draft EIR concluded all impacts to hydrology and water quality would be less than significant.

Water Quality goals and policies applicable to the project area include the following:

***Goal I 1*:** Reduce water consumption and wastewater flows by implementing conservation techniques such as those described in the Water Forum agreement.

***Policy a*:** Encourage the installation of techniques such as bio-swales, permeable pavement and greywater systems to reduce stormwater runoff.

3.8.5 Impact Assessment and Mitigation

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to hydrology and water quality are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The standards also incorporate appropriate HUD or FTA criteria, where applicable. The project alternatives would have a significant adverse effect if they would:

- Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the project; or

- Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

Department of Housing and Urban Development Evaluation Criteria

HUD regulations provide a listing of federal laws, regulations, and executive orders against which all HUD-assisted projects must be evaluated. Those authorities under 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities, that are relevant to the proposed project have been listed previously in the Applicable Policies and Regulations section. Most notable are the Flood Disaster Protection regulations, which identify flood level standards for new housing construction, and consideration of a sole source aquifer. Exceedance of those standards would constitute an adverse impact.

The online HUD Exchange provides additional guidance documents for considering context and intensity impacts associated with hydrology and water quality (HUD, 2013). Specific factors to consider include use of a septic system, whether the project involves a substantial increase in impervious surface area, impacts related to use of groundwater such as its availability, quality, and recharge ability.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

HYD-1. Would the project substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the project?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Construction activities associated with the proposed project would create the potential to degrade water quality from increased sedimentation and increased discharge (increased flow and volume of runoff) associated with storm water runoff. Disturbance of site soils would increase the potential for erosion from storm water. The State Water Resources Control Board (SWRCB) adopted a statewide general NPDES permit for storm water discharges associated with construction activity. Dischargers whose projects disturb one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation.

The City's SQIP contains a Construction Element that guides in implementation of the NPDES Permit for Storm Water Discharges Associated with Construction Activity. This General Construction Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list BMPs the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. Compliance with City requirements to protect storm water inlets would require the developer to implement BMPs such as the use of straw bales, sandbags, gravel traps, and filters; erosion control measures such as vegetation and physical stabilization; and sediment control measure such as fences, dams, barriers, berms, traps, and basins. City staff also inspect and enforce the erosion, sediment and pollution control requirements in accordance with City codes (Grading, Erosion and Sediment Control ordinance).

Based on each of the considerations outlined above, and compliance with existing codes and regulations, there would be **no adverse effect** under NEPA. Under CEQA, the impact would be **less than significant**.

HYD-2. Would the project substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project site is located within Flood Zone X of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). The project area designation under Flood Zone X is determined to be outside the area having a 0.2 percent chance of a flood. Based on this designation, the project site is not subject to flooding from the 100 or 500-year storm events (refer to Appendix B, HUD Floodplain Management Worksheet). Because the proposed project site is located outside the FEMA 100-year floodplain, the project would not place housing within a 100-year flood hazard, expose people to significant risk, or impede flood flows.

The City requires all infill developments to comply with the City's "Do No Harm" policy, which requires that all existing affected drainage systems function as well, or better, as a result of the new construction, and that there is no increase in flooding or in water surface elevation with negative impacts to individuals, streets, structures, infrastructure, or property. In order to comply with this standard, underground storage facilities through the use of oversized pipes, storm vaults, or similar methods, would be incorporated into the project design. A storm drain study would be submitted to the City Department of Utilities demonstrating compliance with the City's "Do No Harm" policy at time of improvement plan review.

Based on the considerations outlined above, there would be **no adverse effect** under NEPA. Under CEQA, the impact would be **less than significant**.

HYD-3. Would the project result in a contamination of a sole source aquifer?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Groundwater in the project area is not a federally listed sole source aquifer and is not currently in use for the public water supply (refer to Appendix B, HUD Sole Source Aquifer Worksheet). As such, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact**.

Mitigation Measures

None required.

References

City of Sacramento, 2004. Combined Sewer System Map. Available at: https://www.cityofsacramento.org/-/media/Corporate/Images/DOU/Combined-Sewer-Map.jpg?la=en.

City of Sacramento. 2007. City of Sacramento Department of Utilities, Engineering Services. Stormwater Quality Improvement Program. June 2007.

City of Sacramento. 2010. River District Specific Plan Draft EIR [SCH 2009062023]. July 2010

City of Sacramento. 2014. City of Sacramento 2035 General Plan Draft EIR [SCH 2012122006]. August 2014.

City of Sacramento, 2015. City of Sacramento 2035 General Plan Background Report. Page 4-11, Adopted March 3, 2015.

DWR. 2016. Groundwater Information Center Interactive Map Application, Fall 2015 Levels. Available: https://gis.water.ca.gov/app/gicima/. Access December 27, 2016.

FEMA. 2015a. Flood Insurance Rate Map, # 06067C0176J. Revised June 16, 2015.

FEMA. 2015b. Flood Insurance Rate Map, # 06067C0180J. Revised June 16, 2015. Nichols Consulting Engineers. 2012. Phase I Environmental Site Assessment Twin Rivers Development. June 28, 2012.

Nichols Consulting Engineers. 2013. Phase I Environmental Site Assessment Dos Rios Transit Oriented Development Project. December 3, 2013.

Regional San, July 1, 2016. Sacramento Regional Sanitation District Impact Fees. Available: http://www.regionalsan.com/impact-fees. Accessed January 23, 2017.

U.S. Environmental Protection Agency (USEPA). 2016. Sole Source Aquifers. Available at: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b. Accessed December 30, 2016.

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3.9 Land Use, Population and Housing, and Socioeconomics

3.9.1 Introduction

This section discusses the land use, population and housing, and socioeconomic characteristics of the project area and describes potential impacts associated with implementation of the project alternatives. Issues addressed in this section include land use compatibility, relocation of residences, occupants, and businesses, and also property acquisitions and fiscal impacts. Related information can be found in Section 3.5, *Environmental Justice*.

3.9.2 Environmental Setting

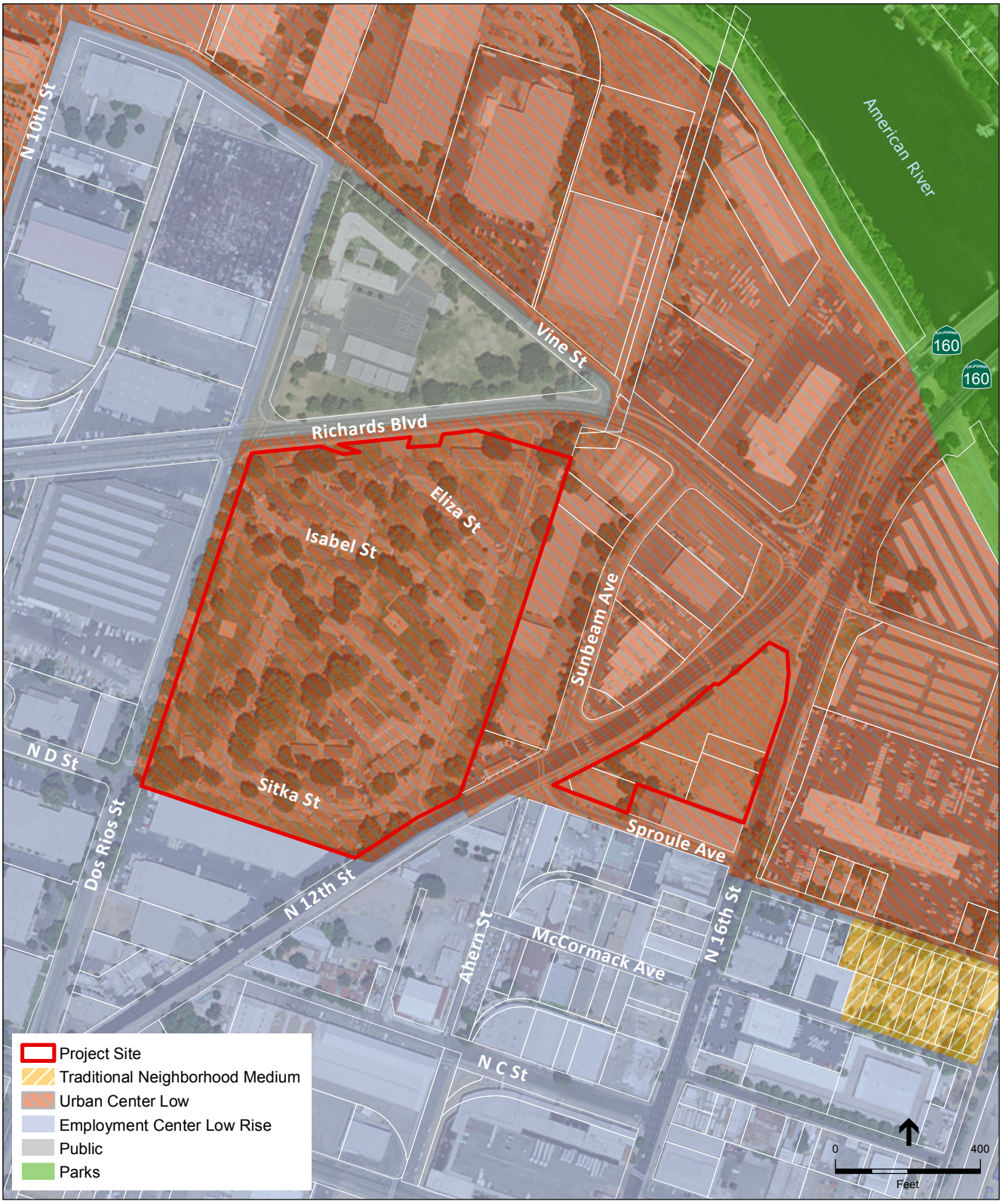
Existing and Zoned Land Uses

Land use designations in the project area were recently updated as part of the City's 2035 General Plan Update, with the designation for portions of the project site adjusted in anticipation of the proposed project. Designations in much of the River District were altered in both the General Plan and the River District Specific Plan (RDSP) to accommodate the projected buildout of the RDSP, which provides for the eventual transition of much of the area from commercial and industrial uses to mixed-use and residential**. Figure 3.9-1** shows current General Plan land use designations on the site and in the surrounding area, with the project site identified. The land use designation for both the existing Twin Rivers Community Housing Complex and the Twin Rivers Community Housing Expansion Area is Urban Center Low (City of Sacramento, 2014). This designation provides for residential densities ranging from 20 to 150 units per acre, with Floor Area Ratios (FAR) ranging from 0.40 to 4.00. Urban Center Low areas are intended to be located around light rail stations, along local arterials, and other key areas of the City.

Zoning on the existing Twin Rivers Community Housing Complex is currently R-5-SPD. This zoning provides for multi-family residential development with densities ranging up to 150 units per acre, with no minimum. However, proposed uses would need to be consistent with the General Plan land use designation, so the range would technically be 20 to 150 units per acre.

Zoning on most of the parcels on the Twin Rivers Community Housing Expansion site east of North 12th Street is C-1-SPD - Limited Commercial/Special Planning District. One parcel (APN 001-0103-001) is zoned as both C-1-SPD and C-2-SPD - General Commercial/Special Planning District. Areas zoned as C-1 provide for a variety of uses as defined in Sacramento City Code Section 17.216.610. These uses include certain commercial, institutional, industrial, and residential uses. Additional uses may be allowed with appropriate approvals. Areas zoned as C-2 allow for similar uses as provided in C-1 areas, with certain additional commercial uses allowed. Allowable uses in C-2 areas are listed in Section 17.216.710 of the Sacramento City Code.

Besides the C-1 zoning designation, the area is also included within the River District Special Planning District (SPD). Allowances provided for in the SPD can be found in Section 17.436 of the Sacramento City Code. As defined in the Code, uses allowed within the SPD are generally the



SOURCE: ESRI, 2012; City of Sacramento, 2016; ESA, 2016

Twin Rivers Transit-Oriented Development and Light Rail Station Project . 140202

Figure 3.9-1

General Plan Land Use Designation

same as those allowed outside of the SPD, but the SPD designation provides for greater flexibility. As further defined in the code, the purpose and intent of the SPD designation is to:

1. Establish a greater mix of land uses and intensities to attract private investment;

2. Provide the opportunity for reuse and rehabilitation of heavy commercial and industrial uses; to take advantage of the light rail facilities in the area; and to reduce the number of obsolete and underutilized buildings and sites;

3. Allow for the retention and continued operation of industrial and service-oriented uses;

4. Provide for improved circulation, infrastructure, and community facilities that will serve existing and future needs within the area;

5. Provide for the future creation of a significant residential population within the River District area as industrial uses relocate or are replaced; achieve the housing objectives of the general plan and Central City Community Plan; and provide a jobs-housing balance for future office growth;

6. Provide for the intensification of commercial and office uses within close proximity to the planned and existing light rail stations and Interstate 5;

7. Discourage uses that contribute to visual or economic blight;

8. Encourage the preservation of historic structures; and

9. Promote aesthetic improvements to the area by implementing development standards and design guidelines.

Existing land uses adjacent to the project site are generally commercial, industrial, and institutional. To the south and east of the project site, existing occupants include Loaves & Fishes, the Mustard Seed School, Family Promise of Sacramento, Endless Auto Body, Capital Casino, Downtown Ford Sales, and multiple public storage facilities. Occupants to the north include the Depo of Sacramento, Ken Imler Diesel Performance, GCR Tires & Service, Restaurant Depot, Kelly Paper, Sacramento Habitat for Humanity, and the Smythe Academy Middle School and Dos Rios School Park. Land uses to the west include restaurants, a clothing wholesaler, and retail space. Other nearby uses include the California Lottery office, approximately 0.15 mile west of the project site, and California Highway Patrol offices 0.3 mile to the west.

Demographics

General demographic information for Sacramento County, the City of Sacramento, and the project study area was obtained from U.S. Census data from the 2010 Census. The project area is wholly contained within Census Tract 53.01, as is the River District Specific Plan (RDSP) area, with minimal overlap into adjoining areas. Therefore, Tract 53.01 was used as the project study area for site-specific demographic characteristics. **Figure 3.9-2** shows the boundary of Census Tract 53.01.

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SOURCE: ESRI, 2012; City of Sacramento, 2016; U.S. Census Bureau, 2013; ESA, 2016

Figure 3.9-2
Census Tract Boundaries

Population and Housing Characteristics

County of Sacramento Population and Housing Characteristics

The 2010 Census determined that 1,418,788 persons lived in the County of Sacramento. There were a total of 555,932 housing units, 513,945 (92.4 percent) of which were occupied. Of the occupied units in the County, 57.5 percent were owner-occupied, and 42.5 percent were renter-occupied. The average household size was 2.71 persons per household.

In the 2000 Census, 1,223,449 persons lived in the County. There were a total of 474,814 housing units, 453,602 (95.5 percent) of which were occupied. Of the occupied units in the County, 58.2 percent were owner-occupied, and 41.8 percent were renter-occupied. The average household size was 2.64 persons per household. **Table 3.9-1** shows population and housing trends in the County between 2000 and 2010.

TABLE 3.9-1
POPULATION AND HOUSING TRENDS – 2000 THROUGH 2010

	2000	2010	% change
County of Sacramento			
Population	1,223,499	1,418,788	+15.9
Total Housing Units	474,814	555,932	+17.1
City of Sacramento			
Population	407,018	466,488	+14.6
Total Housing Units	163,957	190,911	+16.4
Tract 53.01			
Population	NA	1,823	NA
Total Housing Units	NA	333	NA

NOTES: All data from U.S. Census Bureau, American Fact Finder. Profile of General Population and Housing Characteristics: 2000 and 2010. Table DP-1. Accessed June 28, 2016.

City of Sacramento Population and Housing Characteristics

The 2010 Census determined that 466,488 persons lived in the City of Sacramento. There were a total of 190,911 housing units, 174,624 (91.4 percent) of which were occupied. Of the occupied units in the City, 49.4 percent were owner-occupied, and 50.6 percent were renter-occupied. The average household size was 2.62 persons per household.

In the 2000 Census, 407,018 persons lived in the City. There were a total of 163,957 housing units, 154,581 (94.2 percent) of which were occupied. Of the occupied units in the City, 50.1 percent were owner-occupied, and 49.9 percent were renter-occupied. The average household size was 2.57 persons per household. Table 3.9-1 shows population and housing trends in the City between 2000 and 2010.

Census Tract 53.01 Population and Housing Characteristics

The 2010 Census determined that 1,823 persons lived in Census Tract 53.01. There were a total of 333 housing units, 310 (93.1 percent) of which were occupied. Of the occupied units in Tract 53.01, 8.7 percent were owner-occupied, and 91.3 percent were renter-occupied. The average household size was 2.36 persons per household.

It should be noted that the existing Twin Rivers Community Housing Complex comprises a substantial portion (218 out of 333, or 65.5 percent) of the available housing units within Tract 53.01. Although the tract is relatively large for such an urbanized area, most of the tract is dedicated to non-residential uses.

Census data from the 2000 Census is not available for Tract 53.01. However, no new housing has been constructed in the area since the late 1990s, so it is likely that the amount of available housing has remained largely unchanged since that time. It is thus also likely that the population of the area has also not undergone substantial change since 2000.

Homelessness

Based on a January 2013 count, Sacramento Steps Forward[1] found a total of 2,659 homeless individuals living in Sacramento County, with 1,711 people living in transitional housing or shelters, and 948 living in unsheltered conditions (Sacramento Steps Forward, 2013). Within the River District, there are a number of social services facilities that provide aid to the poor and the homeless. These services include emergency and transitional housing, medical services, counseling and mental health services, food distribution, and meal service facilities. Some of those support services include the Union Gospel Mission at 400 Bannon Street, Loaves and Fishes at 1351 North C Street, Women's Empowerment at 1590 North A Street, Family Promise of Sacramento at 321 N 12th Street, Francis House Center at 1422 C Street, and Volunteers of America at 470 Bannon Street. Based on the concentration of homeless services in the area, levels of homeless persons in and around the project area tend to be substantially higher than most other areas of the City.

Transit Dependent Populations

Transit dependent populations are defined as households without private transportation. These individuals generally rely on public transportation services for access to employment opportunities, school, social/recreational functions, medical appointments, and mobility in general. **Table 3.9-2** shows the representation of transit-dependent populations in the County, the City, and Census Tract 53.01 based on 2010 U.S. Census data. Approximately 21 percent of the households in Census Tract 53.01 are without a private automobile, in contrast to 10 percent for the City of Sacramento and 8 percent for the County.

[1] Sacramento Steps Forward is the lead nonprofit agency monitoring and addressing homeless issues in the Sacramento region.

TABLE 3.9-2
TRANSIT DEPENDENT POPULATIONS (2010 CENSUS DATA)

	No. of Households	Households without Private Transport	Percent of Households without Private Transport
County of Sacramento	508,499	36,761	8.0
City of Sacramento	173,938	16,905	10.0
Census Tract 53.01	292	61	21.0

SOURCE: All data from U.S. Census Bureau, American Fact Finder. Household Size by Vehicles Available: 2010. Table B08201. Accessed June 28, 2016.

Income and Employment

Table 3.9-3 shows comparative levels of household income and employment status for the County, the City, and Census Tract 53.01. Mean household income within Census Tract 53.01 was only 29 percent of mean household income in the County, and only 35 percent that of mean household income for the City. Rates of unemployment rates in Tract 53.01 are more than three times that recorded in the City and the County.

TABLE 3.9-3
INCOME AND EMPLOYMENT (2010 CENSUS DATA)

	Mean Household Income[1]	Percent Unemployed[2]
County of Sacramento	$56,439	10.2
City of Sacramento	$46,731	11.4
Census Tract 53.01	$16,364	38.5

NOTES:
1 Source: U.S. Census Bureau, American Fact Finder. Financial Characteristics: 2010. Table S2503. Accessed June 28, 2016.
2 Source: U.S. Census Bureau, American Fact Finder. Employment Status: 2010. Table S2301. Accessed June 28, 2016.

3.9.3 Applicable Policies and Regulations

Property Acquisition Regulations

Acquisition of any property associated with the proposed project would be required to occur in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and Amendments (Public Law 91-646) and the California Relocation Act (California Government Code, Chapter 16, Section 7260 *et. seq.*). As noted in Chapter 2.0, Alternatives, partial acquisition of two commercial parcels would be required as part of the realignment of RT's tracks leading into the proposed Dos Rios LRT Station site. RT has a specific process it follows with regards to acquisitions. These processes are in accordance with the above-noted regulatory requirements and are summarized as follows:

Appraisals. The process by which properties would be acquired would begin with an appraisal of the affected property, followed by an offer to purchase. Appraisals would be

made by licensed professional appraisers and would take into consideration a number of factors, included the assessed value of the property and improvements, as well as comparable sales in the general area. Property owners would have the right to appeal and/or counteroffer the appraisal. Following acceptance of the offer, the funds would be transferred to the seller and title to the property would transfer to RT.

Partial Acquisitions. For partial acquisitions, as is the case with both commercial parcels that would be acquired by RT as part of the proposed project, property owners would be paid only for the value of the land acquired. A value would be assigned to the entire parcel of land (not to include buildings or other improvements). The value of the land would be broken down into a cost per square foot and the owner would be paid that price per square foot for the acquisition.

Severance Damages for Substantial Devaluation. In some cases, the amount of property acquired may render the remaining portion of the property substantially devalued to a point where compensation for the entire property is warranted, even if improvements on the property are not directly impacted. Such could be the case, for example, if the new RT alignment were to require the partial acquisition of a property that could leave the remaining improvements on the property substantially devalued and undesirable from the standpoint of future sale. In these situations, severance damages would be offered. Severance damage is a loss in value of the remaining property after acquisition and construction of a project. Severance damages are valued by appraisal of the remaining property as a portion of the total property in the "before" condition and as a remainder in the "after" condition. The remainder is considered damaged if it is worth less after the project's construction. The payment of severance damages would compensate for the loss in value of the remaining property. In some cases, this can include payment for the value of the entire property, in which case the property owner would have two options available to them: 1) accept the payment for the acquisition and severance damages and maintain possession of the property; and 2) request a full acquisition of the property and relocate to a replacement property. If the second option is chosen, the cost of relocation would be borne by RT, subject to certain legal limitations.

Relocation Assistance. Relocation assistance would also apply to property owners affected by full acquisitions. If it is determined that an entire property is necessary to be acquired to implement the project, then the affected property owner would receive payment for the full appraised value of the acquired property as well as relocation assistance. RT and its consultants would then work with the property owners to help them find a suitable replacement property.

Transfer of Proceeds to Property Owners and Lenders. In cases where acquired property is fully owned by the property owner (i.e., no mortgage, lien, or other encumbrance), the entire purchase amount would be transferred to the property owner upon transfer of title. In cases where a mortgage or other encumbrance is present on the property, a percentage of the purchase price would be transferred to the lender or lien holder to compensate for the loss in the property's overall secured value, with the balance transferring to the property owner. If the property owner's equity in the property is negative (i.e., the appraised value of the property is less than the amount owed on the property) or is subject to some other substantial encumbrance, then RT would negotiate a short sale with the lending institution or lien holder on the property owner's behalf. In these cases, the property owner would still receive relocation assistance, but the proceeds from the acquisition would transfer to the lending institution and not to the property owner.

City of Sacramento 2035 General Plan

The City of Sacramento adopted its 2035 General Plan on March 3, 2015. The General Plan includes redevelopment of the Twin Rivers Community Housing Complex and the construction of the proposed Dos Rios LRT Station in its long range plans. A summary of General Plan policies that are relevant to the proposed project is provided below.

River District Specific Plan

The River District Specific Plan (RDSP) was adopted in 2011 and established planning and design standards for the redevelopment of approximately 773 acres of land (City of Sacramento, 2011). The RDSP area includes the entirety of the proposed project area under consideration in this IS/EA, and includes a number of land use and circulation elements that are directly applicable to the proposed project.

3.9.4 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

Chapter 3 of the Master EIR considered the effects of the 2035 General Plan on land use, population, and housing, and the proposed project was included in all aspects of the plan's evaluation. With respect to land use, the General Plan's policies focused on strategic growth to preserve existing viable neighborhoods and targeted new development primarily within infill areas that are vacant or underutilized. Land Use and Mobility goals and policies applicable to the project area include the following:

> ***Policy LU 1.1.4: Leading Infill Growth.*** The City shall facilitate infill development through active leadership and the strategic provision of infrastructure and services and supporting land uses.
>
> ***Policy LU 2.1.3: Complete and Well-Structured Neighborhoods.*** The City shall promote the design of complete and well-structured neighborhoods whose physical layout and land use mix promote walking to services, biking, and transit use; foster community pride; enhance neighborhood identity; ensure public safety; are family-friendly and address the needs of all ages and abilities.
>
> ***Policy LU 2.1.6: Neighborhood Centers.*** The City shall promote the development of strategically located (e.g., accessible to surrounding neighborhoods) mixed-use neighborhood centers that accommodate local-serving commercial, employment, and entertainment uses; provide diverse housing opportunities; are within walking distance of surrounding residents; and are efficiently served by transit.
>
> ***Policy LU 2.1.8: Neighborhood Enhancements.*** The City shall promote infill development, reuse, rehabilitation, and reuse efforts that contribute positively (e.g., architectural design) to existing neighborhoods and surrounding areas.

Policy LU 2.5.1: Connected Neighborhoods, Corridors, and Centers. The City shall require that new development, both infill and greenfield, maximizes connections and minimizes barriers between neighborhoods, corridors, and centers within the city.

Policy LU 2.6.2: Transit-Oriented Development. The City shall actively support and facilitate mixed-use retail, employment, and residential development around existing and future transit stations.

Policy LU 2.6.6: Efficiency Through Density. The City shall support an overall increase in average residential densities throughout the city consistent with the adopted General Plan Land Use & Urban Form Diagram, as new housing types shift from lower-density, large lot developments to higher-density, small lot and multifamily developments as a means to increase energy efficiency, conserve water, and reduce waste.

Policy LU 4.1.10: Family-Friendly Neighborhoods. The City shall promote the development of family-friendly neighborhoods throughout the city that provide housing that accommodates families of all sizes and provides safe and convenient access to schools, parks, and other family-oriented amenities and services.

Policy LU 5.6.6: Central City Development Projects. The City shall work with the Sacramento Housing and Redevelopment Agency (SHRA), the Capitol Area Development Authority (CADA), and private developers to ensure that development efforts in areas surrounding the CBD (e.g., Railyards, River District, Docks Area, R Street) respect and respond to the urban patterns—streets, blocks, building heights, massing—and character established in the CBD, and do not undermine the physical centrality, visual primacy, or land use composition of the CBD.

Goal M 1.2: Multimodal System. Increase multimodal accessibility (i.e., the ability to complete desired personal or economic transactions via a range of transportation modes and routes) throughout the city and region with an emphasis on walking, bicycling, and riding transit.

As described in the 2013-2021 Housing Element, the City maintains a commitment to combating homelessness throughout Sacramento through the provision of affordable housing and support services. To achieve these efforts, the City maintains a partnership with a variety of supporting organizations and agencies, such as the Sacramento County Department of Human Assistance (DHA), SHRA, Sacramento Steps Forward, and several local and resident-based groups. Accordingly, the City's 2013-2021 Housing Element outlines policies aimed at addressing homelessness and collaborating with groups to better ensure improved housing conditions for the homeless population in Sacramento. The Public Health and Safety Element also includes relevant policies. These policies include:

Policy H-3.1.1: Promote Extremely Low Income Housing. The City shall promote the siting, production, rehabilitation, and preservation of housing for ELI households, including nontraditional housing types.

Policy H-3.2.2: Community Based Non-profit Organizations. The City shall continue to work with community-based non-profit organizations that develop affordable housing and provide supportive services for special needs populations.

H-3.2.3: Ten-Year Plan to End Chronic Homelessness and the Continuum of Care. The City shall support the efforts of Sacramento Steps Forward to implement and update the

Sacramento City and County Ten-Year Plan to End Chronic Homelessness and the Continuum of Care to meet the needs of homeless families and individuals.

H-3.2.5: Emergency Shelter Facilities. The City shall continue to provide assistance to emergency shelter facilities for the homeless population, including alcohol and drug recovery programs.

H-3.2.9: Special Needs Housing Prioritized. The City shall prioritize development and acquisition/rehabilitation projects designed and programmed to serve special needs tenants such as chronically homeless individuals or families for available local affordable housing financing as set forth in the City's Multifamily Lending and Mortgage Revenue Bond Policies. Projects that augment or safeguard the City's inventory of single room occupancy units will also have the same priority.

Policy H-4.3: Preservation of Affordable Housing. The City shall continue to administer its Preservation Ordinance to ensure no loss of regulated multifamily rental units.

PHS 5.1.4: Homeless Population. The City shall work with public and private social service agencies to site facilities to address the human service needs of the city's homeless populations.

River District Specific Plan EIR

The River District Specific Plan (RDSP) EIR evaluated the effects of the buildout of the proposed RDSP on land use. For land use, the proposed project was included in all aspects of the RDSP's evaluation. The issues of population, employment, and housing were not analyzed in the RDSP EIR. The development of the RDSP area with future development assumptions of 8,000 dwelling units and 10,600 employees had previously been assumed as one of the pipeline projects in the Master EIR for the 2030 General Plan. Since the RDSP used the same development assumptions, additional analysis was not warranted.

3.9.5 Impact Assessment and Mitigation Measures

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to land use, population and housing, and socioeconomics under CEQA are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The project alternatives would have a significant adverse effect if they would:

- Physically divide an established community;
- Conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project site;
- Result in a change in land use that would be incompatible with surrounding land uses;
- Induce substantial population growth within an area, either directly or indirectly;
- Displace substantial numbers of residents or businesses;

- Reduce employment or otherwise diminish employment opportunities; or
- Substantially reduce local jurisdiction revenues through decreases in property tax revenues or other sources of revenue.

Department of Housing and Urban Development Evaluation Criteria

The online HUD Exchange provides guidance documents for considering context and intensity impacts associated with land use, population, housing, and socioeconomics (HUD, 2013). Specific factors to consider include the project's conformity with comprehensive plans and zoning, its compatibility with the surrounding community, and its impact on the urban setting. Other factors to consider include displacement of existing populations, demographic and character changes that could occur as a result of the project, and changes to employment and income patterns. These factors generally mirror those listed in the standards of significance listed above.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

LU-1. Would the project physically divide an established community?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would expand the intensity of the existing residential and transit uses, while adding community facilities and improved landscaping. The Twin Rivers Community Housing Complex would be redeveloped to provide additional residential capacity which would include market-rate and affordable housing in a multi-unit development. The Twin Rivers Community Housing Expansion Area would develop additional housing, which would expand the established residential community within the RDSP Area. The Dos Rios light rail station would be constructed to provide enhanced service to an existing light rail route. None of these improvements would add additional fragmentation or divisions within the existing community.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

LU-2. Would the project conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project site?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would build out the Twin Rivers Community Housing Complex Site, Dos Rios light rail station, and Twin Rivers Community Housing Complex Expansion Area. Each of these improvements has been envisioned and planned for in the RDSP and the City of Sacramento 2035 General Plan. Therefore, the proposed project would not conflict with an existing land use plan, policy or regulation.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

LU-3. Would the project result in a change in land use that would be incompatible with surrounding land uses?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would build out the Twin Rivers Community Housing Complex Site, Dos Rios light rail station, and Twin Rivers Community Housing Complex Expansion Area in a manner consistent the RDSP and City of Sacramento 2035 General Plan. The land use on the existing housing complex site would not change. The proposed project would expand multi-family residential uses into the Expansion Area, which is presently undeveloped. However, existing adjacent land uses, which are primarily commercial, would not be incompatible with the expanded residential development as the project would be a continuance of an existing development pattern. Likewise, construction of the Dos Rios light rail station would also be consistent as it would be an improvement to and a continuance of the existing transit use.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

LU-4. Would the project induce substantial population growth within an area, either directly or indirectly?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would increase the number of housing units in the River District by 269, which would directly contribute to population growth in the immediate area. However, the proposed project was included in growth patterns assumed under the RDSP and the City's 2035 General Plan and is consistent with the City's goal of providing transit-oriented development in areas of the City where it is feasible to do so (General Plan Policy LU 2.6.2). Thus, population growth due to buildout of the proposed project has already been accounted for in the existing land use plans for the area and would not induce population growth that has not been previously accounted for.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

LU-5. Would the project displace substantial numbers of residents or businesses?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Temporary relocation of existing residents during construction would be conducted as directed by a relocation plan that would be developed to maximize options available to residents. Construction of the proposed project would occur in phases to facilitate efficient relocation of residents from existing units into the new replacement housing on site as the existing units are demolished and new units are constructed. The phasing would involve sequential steps; as new housing is constructed, residents would be moved into the new units, and the older vacated units would be demolished, with the process repeating itself until the project is complete. Other options for residents would include temporary and/or permanent relocation to existing available units in other areas of the City or County using housing choice vouchers. With implementation of

construction phasing and providing options for temporary relocation to existing affordable housing, housing units or people would not be permanently displaced.

Partial acquisition of two commercial parcels would be required as part of the realignment of RT's tracks to the immediate south of the proposed Dos Rios light rail station site. **Figure 2-11** shows the locations of these two parcels and the amount of property that would be required to facilitate realignment of the RT tracks. Both acquisition areas are currently utilized for parking for the adjoining uses. **Table 3.9-4** shows the characteristics of the partial acquisition parcels.

TABLE 3.9-4
PARTIAL ACQUISITION PARCEL CHARACTERISTICS

Assessor's Parcel Number	Total Size of Parcel (sq ft)	Portion of Parcel to be Acquired (sq ft)	Percentage of Parcel to be Acquired
001-0103-027	179,467	1,306	>1%
001-0141-001	16,458	167	1%

SOURCE: RT, 2016

As shown in the table, acquisition of only a small portion of each parcel would be required, and no full property acquisitions would be needed. Acquisition of approximately 1 percent of each of the affected parcels would be unlikely to substantially diminish the value of the properties, and federal and State laws govern the taking of private property, and include requirements for just compensation and other assistance measures. Property owners would be compensated in accordance with those requirements.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

LU-6. Would the project reduce employment or otherwise diminish employment opportunities?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would create a temporary increase in construction jobs during project construction. The project would not be anticipated to directly create new permanent employment, aside from the potential addition of a small number of maintenance jobs at the expanded housing facility.

As a transit-oriented development (i.e., inclusion of the Dos Rios light rail station), the proposed project is intended to extend transit opportunities to link residents to employment opportunities throughout the region. In addition, businesses within the River District could benefit from construction of the Dos Rios light rail station due to increased patronage from RT users. This would improve opportunities for employment for area residents.

Based on the information above, there would be a **beneficial** effect attributable to Alternative 2 under NEPA. Under CEQA, the impact would also be **beneficial**.

LU-7. Would the project substantially reduce local jurisdiction revenues through decreases in property tax revenues or other sources of revenue?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and light rail station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The proposed project would add 267 market-rate housing units to the project site that would include the expansion parcels east of North 12th Street. Addition of housing units and additional transit opportunities from construction of the Dos Rios light rail station would contribute to an increase in local jurisdictional revenues through increased property tax revenues and other sources of revenue (e.g., sales tax). The proposed project would be a visibly contributing project for planned neighborhood transitions within the RDSP area and is intended to encourage additional development in the RDSP area, which would include new Office-Mixed-Use (OMU), Office/Residential Mixed-Use (ORMU), Light Industrial/Mixed Use (LIMU), and Public (PUB) zoning designations for properties in the River District area. The transformation thus planned would have a positive effect on the local tax base.

Based on the information above, there would be **no adverse effect** attributable to Alternative 2 under NEPA. Under CEQA, the impact would be **less than significant**.

Mitigation Measures

None required.

References

City of Sacramento, 2011. River District Specific Plan. Adopted February 15, 2011.

City of Sacramento. 2014. Sacramento 2035 General Plan, Figure LU1, Land Use & Urban Form Diagram. June 26, 2014.

Sacramento Steps Forward. 2015. 2015 Point-in-Time Homeless Count Report. December 17, 2013. Page 3, unlabeled table.

U.S. Census Bureau 2010. U.S. Census Bureau website; American Fact Finder. Employment Status: 2010. Table S2301. Accessed June 28, 2016.

U.S. Census Bureau, 2010. U.S. Census Bureau website; American Fact Finder. Financial Characteristics: 2010. Table S2503. Accessed June 28, 2016.

U.S. Census Bureau, 2010. U.S. Census Bureau website; American Fact Finder. Household Size by Vehicles Available: 2010. Table B08201. Accessed June 28, 2016.

U.S. Census Bureau 2016. U.S. U.S. Census Bureau website; American Fact Finder. Profile of General Population and Housing Characteristics: 2000 and 2010. Table DP-1. Accessed June 28, 2016.

U.S. Department of Housing and Urban Development (HUD), 2013. HUD Exchange website. Available at https://www.hudexchange.info/programs/environmental-review/. Accessed November 21, 2016.

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3.10 Noise and Vibration

3.10.1 Introduction

This section describes the existing noise environment in the vicinity of the proposed project area, and evaluates the potential for construction and operation of the project to result in significant impacts associated with noise and vibration.

The analysis included in this section was developed based on field investigations to measure existing noise levels, as well as data provided in the *City of Sacramento 2035 General Plan*, the *City of Sacramento 2035 General Plan Master Environmental Impact Report*, the *River District Specific Plan EIR*, the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* manual, the U.S. Department of Housing and Urban Development's (HUD's) Noise Abatement and Control Criteria directive (24 CFR 51, Subpart B) and the Federal Highway Administration (FHWA) Noise Prediction Model based upon vehicular trip generation data provided in the project's transportation evaluation as presented in Section 3.12, Transportation.

3.10.2 Environmental Setting

The following discussions present basic information related to noise and vibration, as well as the existing noise environment at the proposed project site.

Noise

Sound is mechanical energy transmitted by pressure waves through the air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting," referred to as dBA. In general, a difference of more than 3 dBA is a perceptible change in environmental noise, while a 5 dBA difference typically causes a change in community reaction. An increase of 10 dBA is perceived by people as a doubling of loudness (U.S. Environmental Protection Agency, 1974).

Cumulative noise levels from two or more sources will combine logarithmically, rather than linearly. For example, if two identical noise sources produce a noise level of 50 dBA each, the combined noise level would be 53 dBA, not 100 dBA.

Time variation in noise exposure is typically expressed in terms of the average energy over time (L_{eq}), or alternatively, as a statistical description of the sound level that is exceeded over some fraction of a given period of time. For example, the L50 noise level represents the noise level that is exceeded 50 percent of the time – half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is

exceeded 30 minutes in an hour. Similarly, the L8 and L25 represent the noise levels that are exceeded 8 and 25 percent of the time, respectively, or for 5 and 15 minutes during a 1 hour period, respectively.

Several methods have been devised to relate noise exposure over time to human response. The Day-Night Noise Level (L_{dn}) is a 24-hour L_{eq} that adds a 10 dBA penalty to sounds occurring between 10:00 PM to 7:00 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL, originally developed for use in the California Airport Noise Regulation, adds a five dBA penalty to noise occurring during evening hours from 7:00 PM to 10:00 PM, and a 10 dBA penalty to sounds occurring between the hours of 10:00 PM and 7:00 AM to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day.

Another noise descriptor that is used primarily for the assessment of rail and aircraft noise is the Sound Exposure Level (SEL). The SEL descriptor represents the acoustic energy of a single event (e.g., rail pass-bye) normalized to a one-second event duration. This is useful for comparing the acoustical energy of different events involving different durations of the noise sources. The SEL is based on an integration of the noise during the period when the noise first rises within 10 dBA of its maximum value and last falls below 10 dBA of its maximum value. The SEL is often 10 dBA or greater than the L_{max}, since the SEL logarithmically adds the L_{eq} for each second of the duration of the noise.

An important concept used in evaluating noise impacts is the fact that measured and perceived noise levels decrease the further a receptor is from the noise source. For example, a working bulldozer is much louder from a distance of 50 feet than it is from a distance of 100 feet. This principal is established in the inverse-square law, which states that a specified physical quantity or intensity is inversely proportional to the square of the distance from the source of that physical quantity. Mathematically, the law is formulated as:

$$intensity \propto \frac{1}{distance^2}$$

When applied to noise, the law determines that sound levels from a point source will decrease by 6 dBA for each doubling of distance, and will decrease approximately 3 dBA for each doubling of distance for a line source, such as an operational light rail line. Using the example of a bulldozer for a point source noise generator, a noise meter positioned 50 feet from an operating bulldozer might record a noise level of 85 dBA, whereas the meter positioned 100 feet from the bulldozer would record a noise level of 79 dBA. For a line source noise generator, such as an operating light rail line, a noise level of 75 dBA might be recorded at a distance of 50 feet, and a level of 72 dBA would be recorded at 100 feet. This “doubling of distance” or “drop-off rate” is an important concept in predicting the likely noise levels that would be experienced by sensitive receptors from noise-generating equipment and activities.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration (FTA, 2006). Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment. Fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage. The Federal Transit Administration (FTA) measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV. The human annoyance response level is 80 RMS.

Existing Noise Setting

To quantify the current existing ambient noise levels in the project vicinity, a noise survey was conducted in and around the project area. The noise measurement survey was conducted from January 24 to January 25, 2016, and consisted of seven 15-minute short-term noise measurements and two 24-hour long-term noise measurements. These locations are illustrated in **Figure 3.10-1**.

The area surrounding the project site during the noise survey was found to be dominated by localized vehicle traffic noise, as well as light rail activity noise, which were measured to be as high as 70 dBA L_{eq} at some locations. Results of the short- and long-term noise measurements are presented in **Table 3.10-1** and **Table 3.10-2**, respectively. The seven short-term noise measurements were conducted using a Larson Davis 831 sound level meter (SLM) and the two long-term noise measurements were conducted using Metrosonics Model db-308 SLMs. All SLMs were calibrated before and after the noise measurement survey.

TABLE 3.10-1
15-MINUTE SHORT-TERM AMBIENT NOISE MONITORING RESULTS

Monitor	Start Date & Time	L_{eq} (dBA)	L_{max} (dBA)	Primary Noise Source(s)
ST-1	1/25/16 10:00 am	70	93	Traffic noise along 12th Street, light rail passbys, and distance sirens
ST-2	1/25/16 10:19 am	66	74	Traffic noise along 16th Street and light rail passbys.
ST-3	1/25/16 10:43 am	61	79	Traffic noise along Dos Rios Street, car alarms.
ST-4	1/25/16 11:02 am	70	83	Traffic noise along Richards Boulevard
ST-5	1/25/16 11:27 am	65	76	Traffic noise along 12th Street and light rail passbys
ST-6	1/25/16 12:00 am	53	68	Traffic noise along Basler Street

SOURCE: ESA, 2016.

SOURCE: Google Earth Pro, basemap, 2016; ESA 2016

Twin Rivers Transit-Oriented Development and Light Rail Station Project . 140202

Figure 3.10-1
Noise Measurement Locations

TABLE 3.10-2
24-HOUR LONG-TERM AMBIENT NOISE MONITORING RESULTS

Monitor	Start Date & Time	24-hour L_{eq} (dBA)	L_{dn} (dBA)	L_{max} (dBA)	Primary Noise Source(s)
LT-1	1/25/16 10:00 am	65	71	90.1	Traffic noise along Richards Boulevard and Isabel Street.
LT-2[1]	--[1]	53	58	--[1]	Traffic noise along 12th Street, light rail pass-byes.

NOTES:
[1] Day, evening and night noise measurements were conducted at LT-2 to approximate a day-night and 24 hour L_{eq} with the Twin River Development.

SOURCE: ESA, 2016.

3.10.3 Applicable Policies and Regulations

City of Sacramento

City of Sacramento 2035 General Plan

The City's General Plan contains a number of policies directed towards reduction and management of noise and vibration impacts in the City. These policies are described in detail in the *Summary of Analysis Under the 2035 General Plan Master EIR and River District Specific Plan EIR* discussion later in this section.

City of Sacramento Noise Ordinance

Chapter 8.68 of the Sacramento City Code contains the City's general noise ordinance. The code establishes exterior and interior noise standards, and establishes certain restrictions and exemptions associated with the generation of noise. Exterior and interior noise standards are described below.

8.68.060 Exterior Noise Standards

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.

   1) From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five (55) dBA.

   2) From ten p.m. to seven a.m. the exterior noise standard shall be fifty (50) dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels
1. Cumulative period of 30 minutes per hour	0
2. Cumulative period of 15 minutes per hour	+5
3. Cumulative period of 5 minutes per hour	+10
4. Cumulative period of 1 minute per hour	+15
5. Level not to be exceeded for any time per hour	+20

8.68.070 Interior Noise Standards

A. In any apartment, condominium, townhouse, duplex or multiple dwelling unit it is unlawful for any person to create any noise from inside his or her unit that causes the noise level when measured in a neighboring unit during the periods ten p.m. to seven a.m. to exceed:

1. Forty-five (45) dBA for a cumulative period of more than five minutes in any hour;
2. Fifty (50) dBA for a cumulative period of more than one minute in any hour;
3. Fifty-five (55) dBA for any period of time.

B. If the ambient noise level exceeds that permitted by any of the noise level categories specified in subsection A of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level.

Federal Regulations

HUD Noise Abatement and Control Criteria, 24 CFR 51, Subpart B

The U.S. Department of Housing and Urban Development (HUD) has identified exterior noise standards for new housing construction. As indicated below in **Table 3.10-3**, sites with sound levels of 65 CNEL and below are "acceptable" and are allowable. Construction of new noise sensitive uses is prohibited generally for projects with "unacceptable" noise exposures and is discouraged for projects with "normally unacceptable" noise exposure.

TABLE 3.10-3
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT SITE ACCEPTABILITY STANDARDS

Approval	Ldn or CNEL (dBA)[2]	Requirements
Acceptable[1]	≤65[3]	None.
Normally Unacceptable	65 – 75	Special Approvals[4] Environmental Review[5] Attenuation[6]
Unacceptable	> 75	Special Approvals[4] Environmental Review[5] Attenuation[7]

NOTES:

1 The noise environment inside a building is considered acceptable if: (i) The noise environment external to the building complies with these standards, and (ii) the building is constructed in a manner common to the area or, if of uncommon construction, has at least the equivalent noise attenuation characteristics.

2 Where the building location is determined, the standards shall apply at a location 6.5 feet from the building housing noise sensitive activities in the direction of the predominant noise source. Where the building location is undetermined, the standards shall apply 6.5 feet from the building setback line nearest to the predominant noise source. However, where quiet outdoor space is desired at a site, distances should be measured from important noise sources to the outdoor area in question. (It is assumed that quiet outdoor space includes single-family private yards and multi-family patios or balconies that are greater than six feet in depth).

3 Acceptable threshold may be shifted to 70 dBA in special circumstances pursuant to Section 51.105 (a).

4 See Section 51.104(b) (Special Requirements) for requirements.

5 See Section 51.104(b) (Special Requirements) for requirements.

6 Five (5.0) dBA additional attenuation required for sites above 65 dB but not exceeding 70 dBA, and 10 dBA additional attenuation required for sites above 70 dBA but not exceeding 75 dB; see Section 51.104(a).

7 Attenuation measures can be submitted to the Assistant Secretary for CPD for approval on a case-by-case basis.

SOURCE: 24 CFR Part 51 (Environmental Criteria and Standards), Subpart B (Noise Abatement and Control), Section 51.103 (Criteria and Standards).

3.10.4 Federal Transit Administration Noise Impact Criteria

Under the FTA's criteria, the descriptors and criteria for assessing noise impacts vary according to land use categories adjacent to the track. For land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), the L_{dn} is the assessment parameter. For other land-use types where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), the L_{eq} for an hour of noise sensitivity that coincides with train activity is the assessment parameter. **Table 3.10-4** summarizes the three land use categories.

TABLE 3.10-4
FEDERAL RAILROAD ADMINISTRATION NOISE-SENSITIVE LAND USES

Land Use Category	Noise Metric dBA[1]	Land Use Category
1	Outdoor $L_{eq}(h)$[2]	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and National Historic Landmarks with significant outdoor use.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is of utmost importance.
3	Outdoor $L_{eq}(h)$[1]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, concert halls fall into this category, as well as places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

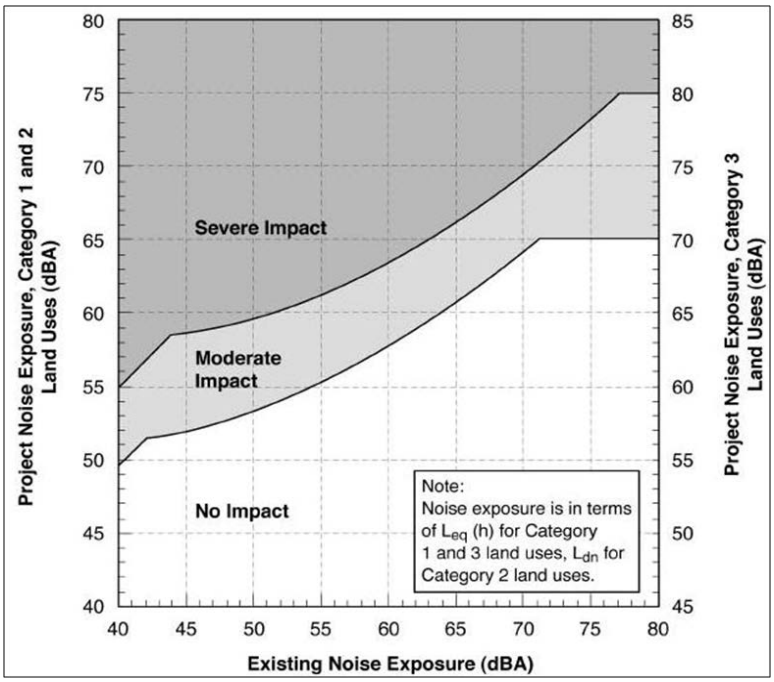
NOTES:
1 Onset-rate adjusted sound levels (L_{eq} and L_{dn}) are to be used where applicable.
2 L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

SOURCE: FTA, 2006.

The noise impact criteria used by the FTA are ambient-based; the increase in future noise (future noise levels with the transit project compared to existing noise levels) is assessed rather than the noise caused by each passing train. The criteria specify a comparison of future project noise with existing levels because comparison with an existing condition is more accurate (FTA, 2006). **Figure 3.10-2** illustrates the FTA noise impact criteria for human annoyance. There are two levels of impact included in the criteria, which are described below.

- **Moderate Impact:** In this range of noise impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels.

- **Severe Impact:** Severe noise impacts are considered "significant" as this term is used in NEPA and implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise.



SOURCE: FTA, 2006

Figure 3.10-2
Federal Transit Administration Noise Impact Criteria

In general, a severe impact would occur when a significant percentage of people would be highly annoyed by a project's noise. A moderate impact would occur when the change in cumulative noise level would be noticeable to most people, but may not be sufficient to generate strong, adverse reactions.

The FTA offers the following guidance in determining which noise impact threshold to apply in specific project circumstances:

- **Moderate Impact**: Predicted noise levels in the *"... moderate impact range will also require consideration and adoption of mitigation measures when it is considered reasonable. The range of Moderate Impact delineates an area where project planners are alerted to the potential for adverse impacts and complaints from the community and must then carefully consider project specifics as well as details concerning the affected properties in determining the need for mitigation."* Factors that may be considered when deciding whether to mitigate moderate impacts can include the predicted increase over existing noise levels, the type and number of noise-sensitive land uses affected, existing outdoor indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels.

- **Severe Impact**: *"Impacts in this range have the greatest adverse impact on the community; thus there is a presumption by FTA that mitigation will be incorporated in the project unless there are truly extenuating circumstances which prevent it."*

The FTA notes that no standardized criteria have been developed for assessing construction noise impacts. However, it does recommend as part of its General Assessment procedure for addressing construction noise that the potential for impact be evaluated by estimating the combined noise

level from the two noisiest pieces of equipment likely to operate at the same time. Adverse impacts would occur at nearby residential receptors, for example, where the noise level exceeds 90 dBA during the day and 80 dBA at night. Controls involving construction planning and scheduling and equipment would then be implemented to reduce construction noise intrusions to these receptors to the maximum feasible extent.

3.10.5 Federal Transit Administration Vibration Impact Criteria

FTA has also established criteria for determining impacts associated with ground-borne vibration. **Table 3.10-5** summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable ground-borne vibrations and acceptable ground-borne noise. Ground-borne noise is a low-frequency rumbling sound inside buildings, caused by vibrations of floors, walls, and ceilings.

TABLE 3.10-5
FTA GROUND-BORNE VIBRATION AND GROUND-BORNE NOISE IMPACT CRITERIA

Land Use Category	Ground-Borne Vibration Impact Criteria (VdB relative to 1 micro inch/second)		Ground-Borne Noise Impact Criteria (dB re 20 microPascals)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[1]
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[3]	65 VdB[3]	NA[4]	NA[4]
Category 2: Residences and buildings where people normally sleep	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	83 VdB	40 dBA	48 dBA

NOTES:
1 Frequent Events is defined as more than 70 vibration events per day.
2 Infrequent Events is defined as fewer than 70 vibration events per day.
3 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilating and air conditioning systems, and stiffened floors.
4 Vibration-sensitive equipment is not sensitive to ground-borne noise.

SOURCES: FRA 2005, 2012; FTA, 2006.

3.10.6 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

The Master EIR evaluated the potential for development under the 2035 General Plan to increase noise levels in the community. New noise sources include vehicular traffic, aircraft, railways, light rail and stationary sources. A number of General Plan policies were adopted as mitigation to address potentially significant noise and vibration effects. Policies that are applicable to the project area are listed below. Notwithstanding application of these policies, the Master EIR found

that noise impacts for exterior noise levels, interior noise levels, and vibration impacts would be significant and unavoidable.

Policy EC 3.1.1: Exterior Noise Standards. The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1 [of the General Plan], to the extent feasible.

Policy EC 3.1.2: Exterior Incremental Noise Standards. The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC-2 [of the General Plan], to the extent feasible.

Policy EC 3.1.3: Interior Noise Standards. The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA Ldn (with windows closed) for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dBA L_{eq} (peak hour with windows closed) for office buildings and similar uses.

Policy EC 3.1.4: Interior Noise Review for Multiple, Loud Short-Term Events. In cases where new development is proposed in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys), the City shall evaluate substantiated noise impacts on any sensitive receptors from such events when considering whether to approve the development proposal, taking into account potential for sleep disturbance, undue annoyance, and interruption in conversation, to ensure that the proposed development is compatible within the context of its surroundings.

Policy EC 3.1.10: Construction Noise. The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.

Policy EC 3.1.5: Interior Vibration Standards. The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

Policy EC 3.1.6 – Effects of Vibration: The City shall consider potential effects of vibration when reviewing new residential and commercial projects that are proposed in the vicinity of rail lines or light rail lines.

Policy EC 3.1.7 – Vibration: The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archeological sites and require all feasible mitigation measures be implemented to ensure no damage would occur.

River District Specific Plan EIR

The River District Specific Plan EIR evaluated the potential for the buildout of the River District Specific Plan (RDSP) to increase noise and vibration levels in the community. New noise sources include vehicular traffic, aircraft, railways, light rail and stationary sources. A number of mitigation measures were adopted to address potentially significant noise and vibration effects. Measures that are applicable to the project area are listed below. Notwithstanding application of

the mitigations, noise impacts for exterior noise levels, interior noise levels, vibration impacts, and cumulative noise impacts were found to be significant and unavoidable.

Mitigation Measure 5.6-1: Future development projects in the RDSP Area consisting of noise sensitive receptors shall have an acoustical and vibration analysis prepared to measure any potential project specific noise and/or vibration impacts and identify specific noise attenuation features to reduce impacts associated with exterior noise to a less than significant level consistent with the policies of the General Plan.

Mitigation Measure 5.6-3: The contractor shall ensure that the following measures are implemented during all phases of construction:

- Whenever construction occurs adjacent to occupied residences (on or offsite), temporary barriers shall be constructed around the construction sites to shield the ground floor of the noise-sensitive uses. These barriers shall be of ¾-inch Medium Density Overlay (MDO) plywood sheeting, or other material of equivalent utility and appearance, and shall achieve a Sound Transmission Class of STC-30, or greater, based on certified sound transmission loss data taken according to ASTM Test Method E90 or as approved by the City of Sacramento Building Official.

- Construction equipment staging areas shall be located as far as feasible from residential areas while still serving the needs of construction contractors.

- Quieter "sonic" pile-drivers shall be used, unless engineering studies are submitted to the City that show this is not feasible and cost-effective, based on geotechnical considerations.

Mitigation Measure 5.6-4: Implement Mitigation Measure 5.6-3 and:

- During construction, should damage occur despite the above mitigation measures, construction operations shall be halted and the problem activity shall be identified. A qualified engineer shall establish vibration limits based on soil conditions and the types of buildings in the immediate area. The contractor shall monitor the buildings throughout the remaining construction period and follow all recommendations of the qualified engineer to repair any damage that has occurred to the pre-existing state, and to avoid further structural damage.

- Prior to individual development projects, the applicant shall have a certified vibration consultant prepare a site-specific vibration analysis for residential uses and historic structures that are within the screening distance [shown in Figure 5.6-7 of the RDSP Draft EIR] for freight and passenger trains or light rail trains. The analysis shall detail how the vibration levels at these receptors would meet the applicable vibration standards to avoid potential structural damage and annoyance. The results of the analysis shall be incorporated into project design.

3.10.7 Impact Assessment and Mitigation

City of Sacramento Standards of Significance

For purposes of CEQA, noise and vibration impacts may be considered significant if construction and/or implementation of the project would result in the following impacts that remain significant after implementation of 2035 General Plan policies. Under CEQA, a significant impact related to noise and vibration would occur if the project would:

- Result in exterior noise levels in the project area that are above the upper value of the normally acceptable category for various land uses due to the project's noise level increases;
- Result in residential interior noise levels of 45 dBA L_{dn} or greater caused by noise level increases due to the project;
- Result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance;
- Permit existing and/or planned residential and commercial areas to be exposed to vibration-peak-particle velocities greater than 0.5 inches per second due to project construction;
- Permit adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations; or
- Permit historic buildings and archaeological sites to be exposed to vibration-peak-particle velocities greater than 0.2 inches per second due to project construction and highway traffic.

Department of Housing and Urban Development Evaluation Criteria

HUD regulations provide a listing of federal laws, regulations, and executive orders against which all HUD-assisted projects must be evaluated. Those authorities that are relevant to the proposed project have been listed previously in the *Applicable Policies and Regulations* section. Most notable are the Site Acceptability Standards, as presented previously in Table 3.10-3, which identify exterior noise standards for new housing construction. Exceedance of those standards would constitute an adverse impact.

The online HUD Exchange provides guidance documents for considering context and intensity impacts associated with noise (HUD, 2013). Specific factors to consider include noise abatement and control, the effects of ambient noise on the project, and the project's contribution to community noise levels.

Other Applicable Evaluation Criteria

Since the proposed Dos Rios Light Rail Station could receive funding from the FTA for its construction, FTA noise and vibration evaluation criteria are also applicable to the project. Noise and vibration from the light rail station would be considered adverse if they would exceed the noise and vibration thresholds provided in the FTA's *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2006).

Environmental Analysis

Given the specificity of the local and federal policies and regulations, as well as their associated significance criteria, this analysis of noise and vibration impacts is organized to discuss the project's impacts under CEQA in NV-1 though NV-6 and its effects under NEPA in NV-7 through NV-9.

NV-1. Would the project result in exterior noise levels in the project area that are above the upper value of the normally acceptable category for various land uses due to the project's noise level increases?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Traffic Exterior Noise Impacts

The effect of project-generated traffic was calculated using traffic noise prediction equations found in the FHWA Traffic Noise Prediction Model (FHWA RD-77-108). **Table 3.10-6** shows the calculated traffic noise levels along roadways that are expected to have an increase in traffic due to the proposed project during existing and existing plus project conditions.

As shown in Table 3.10-6, the greatest effect on ambient levels would occur in the area of the existing residential land uses within the Twin Rivers Community Housing Complex along Dos Rios Street, between Richards Boulevard and North D Street, where traffic noise would increase by 1.1 dB. All other traffic noise increases at existing residential land uses along roadway segments affected by the proposed project were found to be below 0.6 dB. The City of Sacramento General Plan Policy EC 3.1.1 requires that outdoor area of residential (and other noise sensitive land use) projects be constructed such that they are not exposed to noise levels that would exceed the City's noise standards. According to the City's General Plan, the project is located in the Urban Center Low District. Therefore, an impact would be considered significant if residences would be exposed to transportation-related noise levels above 70 dBA L_{dn}, as shown in General Plan Table EC-1. As shown in Table 3.10-6, the calculated traffic noise generated by the proposed project from all roadway segments would range from approximately 52.9 to 68.9 dBA L_{dn} under existing plus project conditions. These noise levels would be less than 70 dBA L_{dn}; therefore, this impact would be considered **less than significant** under CEQA.

Light Rail Station Exterior Noise Impacts

The proposed project would result in the construction of the Dos Rios light rail station adjacent to the Twin Rivers Community Housing Expansion Area east of North 12th Street, which has the potential to increase existing ambient noise levels above the City's exterior noise standards. As previously discussed, General Plan Policy EC 3.1.1 requires that outdoor areas of new projects be

TABLE 3.10-6
TRAFFIC NOISE LEVELS ALONG ROADWAYS IN THE PROJECT VICINITY

Roadway Segments	Existing Sensitive Receptor Located within 100 feet from Center of Roadway (Yes or No)?	Traffic Noise Levels, dBA, L_{dn}[1]			
		Existing (A)	Existing Plus Project (B)	Incremental Increase (B - A)	Significant[2] (Yes or No)?
1. Richards Blvd., between I-5 and N. 7th St.	No	66.6	66.6	0.0	No
2. Richards Blvd., between N. 7th St. and N. 10th St.	No	65.3	65.4	0.1	No
3. Richards Blvd., between N. 10th St. and Dos Rios St.	No	65.0	65.1	0.1	No
4. Richards Blvd., between Dos Rios St. and Vine St.	Yes	65.1	65.2	0.1	No
5. Dos Rios St., between Richards Blvd. and N. D St.	Yes	52.9	54.0	1.1	No
6. Dos Rios St., between N. D St. and N. B St.	No	52.3	52.9	0.6	No
7. N. 12th St., between Richards Blvd. and Sunbeam Ave.	Yes	65.4	65.4	0.0	No
8. N. 12th St., between Sunbeam Ave. and N. B St.	No	65.4	65.5	0.1	No
9. N. 16th St., between Richards Blvd. and Sproule Ave.	No	68.9	68.9	0.0	No
10. N. 16th St., between Sproule Ave. and N. B St.	No	66.1	66.1	0.0	No

NOTES:
1 Noise levels were determined using FHWA Traffic Noise Prediction Model (FHWA RD-77-108).
2 Per the City of Sacramento General Plan Table EC-1, transportation noise levels under existing plus project conditions that exceed 70 dBA L_{dn} would constitute a significant impact.

SOURCE: ESA, 2016

constructed such that they are not exposed to noise levels that exceed the City's exterior noise standards. Therefore an impact would be considered significant if new residences would be exposed to transportation-related noise levels above 70 dBA L_{dn}, as shown in General Plan Table EC-1 for urban infill residential land uses.

To assess noise impacts from the proposed Dos Rios light rail station, the stationary noise prediction equations found in the FTA's *Transit Noise and Vibration Impact Assessment* were used to assess noise impacts from trains arriving, idling, and departing the station (FTA, 2006). The light rail station would not include any heating, ventilation, air conditioning units (HVAC). A public address system would be installed, and exterior announcements would be broadcast from each train while in the station (e.g., "Watt/I-80 bound train"; Doors are closing, please stand clear.") Based on RT's current Blue Line schedule, it was determined that the RT rail line along North 12th street operates 20 hours a day, with approximately 106 train pass-by events occurring near the Expansion Area per day (Sacramento Regional Transit, 2016).

The multi-family residential dwelling units proposed for the Expansion Area would be subjected to line source noise from these rail pass-by events, and sensitive receptors located approximately 50 feet from the rail center line would be exposed to noise levels of approximately 75 dBA L_{dn}. Applying this calculated line source noise level at 50 feet and assuming a drop-off rate of 3 dBA per doubling of distance, future residents within 159 feet of the light rail centerline would be exposed to rail noise that would exceed the City's General Plan noise standard of 70 dBA L_{dn}. Although the exact location of the multi-family dwelling units within the Expansion Area are unknown at this time, at least some of the dwelling units would likely be located within 159 feet of the proposed light rail station and would thus be exposed to rail noise that would exceed the City's noise standards. This impact would be considered **significant** under CEQA. However, implementation of **Mitigation Measure 3.10-1** would reduce this impact to a **less than significant level**.

Traction Power Substation Exterior Noise Impacts

The proposed project would also include the construction of a transfer power substation (TPSS), which would be used to provide the power distribution needed to operate the light rail line following construction of the new Dos Rios light rail station. As discussed in Chapter 2 of this IS/EA, Alternatives, three options are under consideration for the placement of the new TPSS, which include the following locations:

- Option 1, on City-owned land in the triangular-shaped parcel at the intersection of North 12th Street, North 16th Street, and Richards Boulevard, immediately north of the Twin Rivers Community Housing Expansion Area. This option would require RT to acquire the site from the City.
- Option 2, in the Twin Rivers Community Housing Expansion Area. This parcel is currently privately-held, but would be acquired as part of the development of the housing expansion area.
- Option 3, on the existing Twin Rivers Community Housing Complex, adjacent to North 12th Street near the existing entrance to the housing complex at the intersection of Sitka Street and North 12th Street.

The primary noise sources on TPSS units are the air conditioning units. The precise locations of air conditioning units are unknown at this time, but will be mounted to one side of the TPSS. Air conditioning units can generate noise levels of approximately 51 dBA L_{eq} at a reference distance of 100 feet from the operating units during maximum air conditioning operations (Puron, 2005). Noise from the rectifiers and other equipment inside the TPSS will be less than from the air conditioners.

Sensitive receptors located within approximately 110 feet of these air conditioning units could be exposed to noise levels above the City of Sacramento's nighttime noise standard of 50 dBA L_{eq}. There are no existing or planned sensitive receptors located within 110 feet of the TPSS units proposed in Options 1 or 2. However, if the TPSS units are placed on the existing Twin Rivers Community Housing Complex, as proposed with Option 3, sensitive receptors could be located within 110 feet of the TPSS units and be exposed to air conditioning noise levels that would exceed the City of Sacramento's nighttime noise standard. Therefore, if the TPSS units are placed within the Twin Rivers Community Housing Complex, this impact would be considered

significant under CEQA. However, implementation of **Mitigation Measure 3.10-2** would reduce this impact to a **less than significant level**.

NV-2. Would the project result in residential interior noise levels of 45 dBA Ldn or greater caused by noise level increases due to the project?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Interior Traffic Noise Impacts

Table 3.10-6 shows the future traffic noise levels along roadways segments in the vicinity of the proposed project. An exterior noise exposure of 70 dBA L_{dn} or greater would result in potentially incompatible interior noise for new urban infill sensitive receptors. As shown in Table 3.10-5, the total roadway noise from existing and project-related traffic would not exceed the 70 dBA L_{dn} standard at existing or proposed residential uses. In addition, the multi-family residences to be developed as part of the proposed project would be subject to Title 24 of the California Code of Regulations, which requires an interior noise standard of 45 dBA L_{dn} in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. To allow the project to meet the City and State interior noise requirement of 45 dBA L_{dn}, in habitable rooms of residential dwellings, the exterior facades of residential buildings would need to be designed to reduce sound transmission (i.e., exterior-to-interior noise). Since none of the roadways segments analyzed would exceed the City of Sacramento exterior noise standards and onsite multi-family residential buildings would be subject to Title 24 of the California Code of Regulations, interior noise levels at existing and proposed residential uses adjacent to these roadway segments would not result in interior noise levels exceeding 45 dBA L_{dn}. Therefore, this impact would result in a **less than significant impact** under CEQA.

Interior Light Rail Noise Impacts

The multi-family residential dwelling units proposed within the Expansion Area are the most susceptible to elevated interior noise levels from existing light rail operations. As previously discussed in Impact NV-1 above, the proposed multi-family housing within the Expansion Area would be exposed to light rail noise that would exceed the City's exterior noise standards. Assuming the multi-family dwellings would be located within 50 feet of the proposed light rail station; these residential units would be exposed to an exterior noise level of approximately 75 dBA L_{dn}. Given an exterior noise level of 75 dB L_{dn}, a building facade noise reduction of 30 dB would be required to achieve an interior noise level of 45 dB L_{dn}. Standard residential construction (wood siding, STC-27 windows, door weather-stripping, exterior wall insulation, composition plywood roof), typically results in an exterior to interior noise reduction of at least 25 dB with windows closed and approximately 15 dB with windows open (Caltrans, 2013). Therefore, standard

construction would fail to provide the required noise reduction at the buildings facades. This impact would be considered **significant** under CEQA. However, implementation of **Mitigation Measure 3.10-3** would reduce this impact to a **less than significant level**.

NV-3. Would the project result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Construction activity noise levels at the proposed project site would fluctuate depending on the particular type, number and duration of usage for various pieces of construction equipment. Proposed project construction activities would involve demolition, excavation, grading and earth movement, foundation setting (concrete pours), materials delivery, building erection and cladding, roofing, exterior treatments (power washing, painting, application of siding materials), and landscaping. The redevelopment of the existing housing complex and construction of the Expansion Area housing would take approximately seven years to complete, beginning in 2017. The proposed project would include the demolition and replacement of the existing residential structures on the current Twin Rivers Community Housing Complex site, and construction of new residential dwelling units and the Dos Rios light rail station at the Expansion Area site. It is anticipated that construction of the proposed project would start with the light rail station, followed by the construction of the proposed multi-family buildings in the Expansion Area, and then redevelopment of the current Twin Rivers site. Upon completion of the Expansion Area, some residents in the existing housing complex could be relocated temporarily to the newly-constructed facilities in the Expansion Area.

Table 3.10-7 shows typical noise levels produced by various types of construction equipment. Although project construction would not require the use of an impact pile driver, it is possible that impact pile driving activities would be required during the construction of the light rail station. The construction period of the proposed station would be 18 months.

Since construction-related noise would be less noticeable during the daytime hours versus the night time hours, construction noise generated outside of the City of Sacramento Municipal Code (Chapter 8.68.080) exempt hours (between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday and between the hours of 9:00 a.m. and 6:00 p.m. on Sunday) would constitute a significant impact. Construction-related noise generated outside of City of Sacramento exempt hours would result in a substantial noise increase over the existing ambient, which would result in an annoyance.

TABLE 3.10-7
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT AT DISTANCE OF 50 FEET

Type of Equipment	L_{max}, dBA	Hourly L_{eq}, dBA/% Use
Dump Truck	84	80/40%
Air Compressor	80	76/40%
Pneumatic Tools	85	82/50%
Concrete Mixer (Truck)	85	81/40%
Scraper	85	81/40%
Jack Hammer	85	78/20%
Dozer	85	81/40%
Paver	85	82/50%
Generator	82	79/50%
Backhoe	80	76/40%
Impact Pile Driver	95	88/20%

SOURCE: Federal Highway Administration (FHWA), Roadway Construction Noise Model User's Guide, 2006.

The proposed project construction activities that would generate the highest noise levels would involve impact pile driving during the construction of the proposed Dos Rios light rail station at the Expansion Area, which can generate a noise level as high as 95 dBA L_{max} from a distance of 50 feet. During the building demolition and building construction phases, construction activities that would generate high noise levels would involve the use of bulldozers and pneumatic tools, which can generate a combined noise level as high as 85 dBA L_{max} from a distance of 50 feet. The nearest existing offsite sensitive receptor to the proposed project site consists of a single-family residences adjacent to Basler Street located approximately 500 feet southeast of the Expansion Area and 810 feet southeast of the proposed light rail station. Assuming 6 dBA drop-off rate, this existing offsite single-family residences would be exposed to a construction noise level of 71 dBA L_{max} during onsite impact pile driving and 65 dBA L_{max} during onsite building construction.

As the existing site is incrementally redeveloped over time, future residential buildings constructed in earlier phases would be occupied and these residents could be exposed to noise from construction of the subsequent phases. These future residences within the redeveloped Twin Rivers Community Housing Complex could be located within 50 feet of onsite construction activities. From a distance of 50 feet, future residential receptors could be exposed to noise levels as high as 85 dBA L_{max} during the use of pneumatic tools. Although future ambient noise levels would be higher compared than existing conditions (e.g., increase in traffic noise), the noise levels during construction could result in an annoyance for future onsite sensitive receptors.

As described above, construction noise associated with development of the proposed project would be noticeable at sensitive receptors in the area. Daytime demolition, building construction and impact pile driving activities would generate noise that could disturb people living in the surrounding residential uses. Since it is anticipated that some nighttime construction would be required to complete the construction of the proposed Dos Rios light rail station, the proposed

project could result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance, which prohibits construction noise between 6:00 p.m. and 7:00 a.m.

Construction activities could expose occupants of nearby buildings to elevated levels of noise during daytime and nighttime hours. Therefore, this would be considered a **short-term significant impact under CEQA**. However, implementation of **Mitigation Measure 3.10-4** would reduce construction noise levels to a **less than significant level**.

NV-4. Would the project permit existing and/or planned residential and commercial areas to be exposed to peak particle vibration velocities greater than 0.5 inches per second due to project construction?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Construction activities would include – in order – the construction of the Dios Rios light rail station, construction of housing structures in the Expansion Area, demolition of the existing structures on the existing Twin Rivers Community Housing Complex site, and new building construction. Construction activities may generate perceptible vibration when heavy equipment or impact tools such as impact pile drivers, jackhammers, hoe rams, or impact wrenches are used. As previously discussed, the proposed project could include the use of an impact pile driver during the construction of the proposed light rail station and dozers during the demolition of the existing structures on the existing Housing Complex site. Construction of the project would be expected to begin in the fall of 2017 and would be completed in approximately seven years.

The potential use of an impact pile driver during the construction of the Dos Rios light rail station would be expected to generate the highest vibration levels during construction. Impact pile drives typically generate vibration levels of 0.644 in/sec PPV at a distance of 25 feet. Assuming an impact pile driver would be used during the construction of the proposed station, sensitive receptors located within approximately 30 feet of impact pile driving activities would be exposed to vibration levels that would exceed the City of Sacramento allowed construction vibration standard of 0.5 in/sec PPV. Since there are no existing sensitive receptors within 30 feet of the proposed light rail station and the construction of the station would be completed prior to building occupation of the Expansion Area, there would be no vibration impacts related to impact pile driving.

Since the demolition of the existing structures on the existing Housing Complex site would be completed in phases, there would be onsite existing residences near where onsite demolition activities would occur. During onsite demolition, the potential use of a large bulldozer is expected

to generate the highest vibration levels. Large bulldozers typically generate vibration levels of 0.089 in/sec PPV at a distance of 25 feet, which is below the City of Sacramento allowed construction vibration standard of 0.5 in/sec PPV. Since there are no existing or planned receptors located close enough to where onsite impact pile driving and demolition would occur, this impact would result in a **less than significant impact** under CEQA.

NV-5. Would the project permit adjacent residential and commercial areas to be exposed to peak particle vibration velocities greater than 0.5 inches per second due to light rail operations?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

A vibration impact would occur if vibration levels generated by light rail pass-by events are above the City of Sacramento significance threshold of 0.5 in/sec PPV. According to the FTA's *Guidance Manual for Transit Noise and Vibration Impact Assessment*, the typical ground-surface vibration levels for light rail trains traveling at a speed of 50 miles per hour (mph) and at a distance of 10 feet is 0.05 in/sec PPV, which is below the City of Sacramento vibration impact threshold of 0.5 in/sec PPV (FTA, 2006). The construction of the light rail station would result in train speeds being reduced from this conservative 50 mph assumption, since trains would be slowing and stopping as they moved through the station; RT's speed limit entering and exiting stations is 25 mph, and train speeds would be further limited by 20-mph curves south of the station and 15-mph curves north of the station. Therefore, future onsite residences in Expansion Area would be exposed to vibration levels from light rail traffic along North 12th Street that would result in a **less than significant impact** under CEQA.

NV-6. Would the project permit historic buildings and archaeological sites to be exposed to peak particle vibration velocities greater than 0.2 inches per second due to project construction and light rail traffic?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As previously discussed in Impact NV-5, the highest vibration levels would occur during construction of the Dos Rios light rail station, which may require the use of an impact pile driver.

Impact pile drives typically generate vibration levels of 0.644 in/sec PPV at a distance of 25 feet. Assuming an impact pile driver would be used during the construction of the proposed station, sensitive receptors located within approximately 55 feet of where the impact pile would be used would be exposed to vibration levels that would exceed the City of Sacramento allowed vibration standard for historical structures of 0.2 in/sec PPV. As discussed in Section 3.4, Cultural and Paleontological Resources, there are no known archaeological sites or historical structures located within the project area or within 55 feet of the proposed project site that would be exposed to vibration levels above the City of Sacramento 0.2 in/sec PPV threshold. Therefore, this would be considered a **less than significant impact** under CEQA.

NV-7. Would the project exceed applicable noise impact criteria as established by the Department of Housing and Urban Development?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

HUD has established interior and exterior noise standards for residential development projects (CFR Title 24, Volume 1, Part 51, Subpart B – Noise Abatement and Control). For interior spaces, it is a HUD goal that noise levels shall not exceed 45 dBA L_{dn}. For exterior noise, the following site acceptability standards have been established by HUD for residential development: L_{dn} less than 65 dBA would be considered "Acceptable"; L_{dn} above 65 dBA but not exceeding 75 dBA would be considered "Normally Unacceptable," and L_{dn} above 75 dBA would be considered "Unacceptable".

The HUD Day/Night Noise Level Calculator requires assessing noise impacts from roadways potentially affecting the project site of up to 1,000 feet away and railways potentially affecting the site of up to 3,000 feet away. The planned on-site residential units would be located on both the existing Twin Rivers Community Housing Complex site and the Expansion Area. These proposed residential dwelling units would be located within approximately 1,000 feet from adjacent roadway centerlines near Richards Boulevard, Dos Rios Street, North 12th Street and North 16th Street and within 3,000 feet of the light rail line along 12th Street.

As discussed under Impact NV-1 and shown in Table 3.10-6, the calculated traffic noise generated by the proposed project from roadway segments surrounding the project site would range from approximately 54.0 to 68.9 dBA L_{dn} under existing plus project conditions and the rail noise generated by light rail traffic at the proposed light rail station along North 12th Street would be about 75 dBA L_{dn} from a distance of 50 feet from the center of the rail tracks. As noted in the discussion of *Applicable Policies and Regulations*, the combined roadway and light rail noise levels would fall within the HUD's "normally unacceptable" range between 65 and 75 dBA L_{dn}. Therefore, this impact would result in an **adverse effect** with respect to HUD noise standards.

However, implementation of **Mitigation Measures 3.10-1 and 3.10-2** would reduce this impact to a **no adverse effect** under NEPA.

NV-8. Would the project exceed the Moderate or Severe noise impact criteria as defined by the Federal Transit Administration?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

The noise impact criteria used by the FTA is discussed earlier in this section in *Applicable Policies and Regulations*. Figure 3.10-2 shows the FTA noise impact criteria for human annoyance. Depending on the magnitude of the cumulative noise increases, FTA categorizes impacts as (1) no impact; (2) moderate impact; or (3) severe impact.

The proposed project would include the construction of a multi-family building in the Expansion Area east of North 12th Street. The Dos Rios light rail station would also be constructed in this area, immediately adjacent to the proposed multi-family dwellings. However, the proposed light rail station would be constructed prior to construction and occupancy of the multi-family dwellings, so the eventual occupants of the dwellings would not be subject to construction noise during construction of the light rail station.

Once the multi-family dwelling units in the Expansion Area are completed and occupied, these future residences would be subjected to frequent light rail noise during operation of the station and associated light rail tracks. As discussed in Impact NV-1 above, the operational rail noise generated at the proposed station would be approximately 75 dBA L_{dn} at a distance of 50 feet from the center of the rail tracks. Since it is likely that residences within the Expansion Area would be located within 50 feet of the station, for this analysis, the baseline for existing environmental noise levels in this area is 75 dBA L_{dn}. As shown in Figure 3.10-2, a moderate and severe noise impact would occur if the future residences in the Expansion Area are exposed to a day-night noise level above 73 and 65 dBA L_{dn}, respectively.

Assuming a 6 dBA per doubling of distance drop-off rate, residences within the Expansion Area located within 80 feet of the light rail centerline would be exposed to rail noise that would result in a severe impact. Moderate noise impacts would occur at distances greater than 80 feet. Although the exact location of the multi-family dwelling units within the Expansion Area is unknown at this time, at least some of the dwelling units would likely be located within 80 feet of the proposed light rail station and would be exposed to rail noise that would result in severe noise impact. There could therefore be **adverse effect** with respect to FTA noise standards. However, implementation of **Mitigation Measures 3.10-1 and 3.10-2** would reduce this potential impact to a **no adverse effect** under NEPA.

NV-9. Would the project exceed Moderate and Severe vibration impact criteria as defined by the Federal Transit Administration?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Under this alternative, the proposed project would be constructed and would become operational. At the existing Twin Rivers Community Housing Complex, the existing housing would be replaced with new residential structures, community facilities, and landscaping. A new housing facility and a light rail station would be developed on the Twin Rivers Community Housing Complex Expansion Area and Dos Rios Light Rail Station parcel.

Construction Vibration Impacts

Construction activities would include the construction of the Dos Rios light rail station, construction of housing structures in the Expansion Area, demolition of the existing structures on the current Twin Rivers site and new building construction. Construction activities may generate perceptible vibration when heavy equipment or impact tools such as impact pile drivers, jackhammers, hoe rams, or impact wrenches are used. As previously discussed, the proposed project could include the use of an impact pile driver during the construction of the station and dozer during the demolition of the existing structures on the existing Twin Rivers site. Construction of the station would be expected to begin in the fall of 2017 and would be completed in approximately 18 months.

A vibration impact would occur if construction vibration levels are above the FTA impact threshold for human annoyance. According to the FTA guidance as shown in Table 3.10-3, the vibration threshold for infrequent events (i.e., less than 70 vibration events per day) is 80 VdB for Category 2 land uses (i.e., residences and buildings where people normally sleep). Since the nature of construction would be infrequent in nature, the FTA vibration threshold of 80 VdB is used to assess construction vibration impacts. Therefore, existing residential receptors located exposed to construction vibration levels exceeding 80 VdB would result in an **adverse effect**.

As previously discussed under Impact NV-4, the potential use of an impact pile driver during the construction of the light rail station would be expected to generate the highest vibration levels during construction. Impact pile drives typically generate vibration levels of 104 VdB at a distance of 25 feet. Assuming an impact pile driver would be used during the construction of the station, sensitive receptors located within approximately 165 feet of where the impact pile would be used would be exposed to vibration levels that would exceed the FTA vibration threshold. Since there are no existing sensitive receptors within 165 feet of the proposed station and the construction of the station would be completed prior to building occupation of the Expansion Area, there would be no vibration impacts related to impact pile driving. There would therefore be **no adverse effect** with the FTA vibration standards with respect to construction vibration.

Light Rail Station Vibration Impacts

As previously discussed, the proposed project would construct residences in the Expansion Area. These residences would be located adjacent to the proposed Dos Rios light rail station, which would be constructed and operational prior to building occupation in the Expansion Area. According to the FTA's *Guidance Manual for Transit Noise and Vibration Impact Assessment*, vibration impacts from rail traffic must be assessed if a project is located within 150 feet of a light rail transit facility. The closest proposed onsite residential units to the existing light rail line would be located in the Expansion Area, approximately 55 feet from the light rail centerline. These future onsite residential receptors would be located within the FTA vibration impact screening distance. There is a potential for these residences to be exposed to perceptible vibration levels from light rail pass-bys.

A vibration impact would occur if vibration levels generated by light rail activity are above the FTA impact threshold for human annoyance. According to the FTA guidance as shown in Table 3.10-7, the vibration threshold for frequent events (i.e., more than 70 vibration events per day) is 72 VdB for Category 2 land uses (i.e., residences and buildings where people normally sleep). Therefore, existing residential receptors exposed to construction vibration levels from light rail operation exceeding 72 VdB would result in an adverse effect.

The typical ground-surface vibration level for light rail trains traveling at a speed of 50 miles per hour (mph) and at a distance of 10 feet is 82 VdB (FTA, 2006). RT's speed limit for light rail trains entering a station is 25 mph. However, the track curve geometry entering and leaving the station is the governing constraint at Dos Rios Station. The curves at the south end of the station limit approach and departure speeds to 20 mph; the curves at the north end of the station limit approach and departure speeds to 15 mph. Using an FTA speed correction factor, the adjusted vibration level for a rapid transit or light rail vehicle traveling at a speed of between 5 and 15 mph at a distance of 10 feet is 62 and 71.5 VdB, respectively, which are both below the FTA impact threshold of 72 VdB for frequent transit vibration events. Therefore, there would therefore be **no adverse effect** with the FTA vibration standards with respect to operational vibration.

Mitigation Measures

Mitigation Measure 3.10-1: During the design and construction of exterior residential elements in the Twin Rivers Community Housing Expansion Area, the project applicant shall consult with a certified acoustical professional to design and implement appropriate noise attenuation elements that are of sufficient effectiveness to reduce noise levels to below the City exterior noise standard as shown in General Plan Table EC-1 for residential land uses. The effectiveness of these measures shall be demonstrated to the satisfaction of the City Community Development Department prior to the issuance of occupancy permits.

Mitigation Measure 3.10-2: If transfer power substation (TPSS) units are placed nearer than 110 feet from proposed residential uses, the applicant shall submit engineering and acoustical specifications for project air conditioning equipment to the City prior to the issuance of building permits. The engineering and acoustical specification shall demonstrate to the City's satisfaction that the air conditioning equipment design (types, location, enclosure, specification) will control noise from the equipment to at least 10 dBA below existing ambient levels at nearby residential and other noise sensitive receptors.

Mitigation Measure 3.10-3: Prior to the issuance of building permits for residential projects within the Twin Rivers Community Housing Expansion Area, the City shall require project applicants for residential development to submit a detailed noise analysis, prepared by a qualified acoustical professional, to identify design measures to be implemented to achieve the City interior standard of 45 L_{dn} in the proposed new residences. The resulting study shall be submitted to the City for review and approval. Design measures such as the following could be required, depending on the specific findings of the noise study: double-paned glass windows facing noise sources; solid-core doors; increased sound insulation of exterior walls (such as through staggered- or double-studs, multiple layers of gypsum board, and incorporation of resilient channels); weather-tight seals for doors and windows; or sealed windows with an air conditioning system installed for ventilation. The building plans submitted for building permit approval shall be accompanied by certification of a licensed engineer that the plans include the identified noise-attenuating design measures and satisfy the requirements of City standards.

Mitigation Measure 3.10-4: The City of Sacramento and the project contractor(s) shall implement the following measures as feasible and appropriate during all phases of project construction:

- Whenever construction occurs within 130 feet of occupied residences (on- or off-site), temporary barriers shall be constructed around the construction sites to shield the ground floor of the noise-sensitive uses. These barriers shall be of ¾-inch Medium Density Overlay (MDO) plywood sheeting, or other material of equivalent utility and appearance, and shall achieve a Sound Transmission Class of STC-30, or greater, based on certified sound transmission loss data taken according to ASTM Test Method E90 or as approved by the City of Sacramento Building Official.

- Construction equipment staging areas shall be located as far as feasible from residential areas while still serving the needs of construction contractors.

- Use of auger displacement installation techniques for installation of foundation piles shall be used, if feasible. If impact pile driving is required, sonic pile drivers shall be used, unless engineering studies are submitted to the City that show this is not feasible, based on geotechnical considerations.

References

California Department of Transportation (Caltrans). 2013. *Traffic Noise Technical Noise Supplement to the Traffic Noise Analysis Protocol.*

City of Sacramento. 2016. Major League Soccer Stadium. Available: http://www.cityofsacramento.org/Community-Development/Planning/Major-Projects/Railyards-Project/Major-League-Soccer-Stadium. Accessed on November 14, 2016.

Downtown Sacramento Partnership. 2016. Inside the Creamery at Alkali Flat. Available: https://godowntownsac.com/new-to-the-neighborhood/inside-the-creamery-at-alkali-flat. Accessed on November 14, 2016.

Federal Highway Administration (FHWA). 1978. *FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108).*

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06).*

Federal Highway Administration (FHWA). 2006. *FHWA Roadway Construction Noise Model User's Guide*.

NCRF Holdings, Inc. 2016. Township Nine in the River District. Available: http://www.t9ontheriver.com/about/faq.php. Accessed on November 14, 2016.

Puron, 2005. *48PG03-28 Product Data*. p. 10 – 11.

Sacramento Bee. 2016. *Construction starts of downtown Sacramento housing complex.* March 2.

Sacramento Regional Transit. 2016. RT Bus & Light Rail Routes & Schedules. Available: https://www.sacrt.com/schedules/current/routes/R533.htm. Accessed on July 1, 2016.

U.S. Environmental Protection Agency (USEPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA 550/9-79-100).

3.11 Public Services and Recreation

3.11.1 Introduction

This section discusses existing public services available in the vicinity of the project site and examines the effects of implementation of the proposed project on those services. The services evaluated in this section include fire protection, police protection, schools, and park and recreational facilities.

3.11.2 Environmental Setting

Fire Protection Services

Fire protection is provided to the project site by the City of Sacramento Fire Department (SFD). According to SFD's 2015 annual report, SFD serves approximately 480,000 residents within the city (City of Sacramento Fire Department, 2015). Although SFD does not have an official staffing ratio goal, SFD uses a number of measures to determine the need for fire protection services, which include the provision of one station for every 1.5 mile service radius, one station for every 16,000 residents, and one station in areas where a company could expect call volumes exceeding 3,500 in a year.

SFD responded to approximately 80,000 calls in 2015. Station 14 is the closest SFD station to the project site, located approximately 350 feet south of the project site at 1341 North C Street. In 2015, Station 14 responded to approximately 2,962 "first-in" calls and an additional 620 dispatches for mutual aid. Based on the above call volume criterion, Station 14 has additional capacity to provide emergency response. According to the SFD 2014 annual report, Station 14 was constructed in 1939 and is slated to be relocated and reconstructed in the general area.

Police Protection Services

Police protection services are provided by the City of Sacramento Police Department (SPD). According to the SPD 2016 annual report, the department had 697 sworn officers on staff that responded to 351,472 calls for service (City of Sacramento Police Department, 2016).

The project site is situated within SPD District 3, Central Command. The substation that currently serves the project site is the Richards Police Facility, which is located approximately 0.75 mile west of the project site at 300 Richards Boulevard. This facility serves both the SPD's Central and East Commands. The Sacramento 2035 Master EIR used an unofficial staffing goal of 2.0 to 2.5 sworn police officers per 1,000 residents and one civilian support staff per two sworn officers.

School Facilities

The project site is within the Twin Rivers Unified School District (TRUSD). The District currently has 28 elementary schools, five junior high schools, five high schools (when counting Grant Union High School's Main and West Campuses as separate schools), three dependent

charter schools, one independent charter school, and eight alternative/special program facilities. The District has a design capacity for 18,117 elementary, 5,521 middle school, and 9,999 high school students, and currently has 14,497 elementary, 3,107 middle school, and 5,561 high school students enrolled District-wide (Twin Rivers Unified School District, 2015a, 2015b).

The project site is within the attendance boundaries of the following public schools:

- Woodlake Elementary School, grades K-6, 700 Southgate Road
  Student capacity 674, open seats 195
- Rio Tierra Junior High School, grades 6-8, 3201 Northstead Drive
  Student capacity 762, open seats 246
- Grant Union High School, grades 9-12, Main Campus at 1400 Grand Avenue or West Campus at 1333 South Avenue
  Student capacity 2,684, open seats 759

Grant Union students would attend either the Main Campus or West Campus based on particular classes and student needs. The capacity data is reported for the 2013-14 school year. Several alternative school sites are available, including Creative Connections Arts Academy, Smythe Academy of Arts and Sciences (across Richards Boulevard from the project site), Westside Preparatory Charter School, Keema High School, NOVA Opportunity Program, Pacific Career and Technology High School, and Vista Nueva High School. Special education students aged 18-22 would attend Richmond School. TRUSD allows for intra-district transfers between schools in different attendance areas.

Parks and Open Space

The project area is served by nearby parks operated by the City of Sacramento and the American River Parkway operated by Sacramento County. The City of Sacramento Parks and Recreation Department (SPRD) oversees and manages park and recreation resources within the city limits. The City currently owns and operates 226 parks and parkways totaling nearly 3,200 acres of land including developed and passive parks, golf courses, bikeways and trails, lakes/ponds and beaches, dog parks, community gardens, skate parks and other recreational facilities. The City also operates other types of recreational facilities including a senior center, numerous community centers, and several clubhouses (i.e., activity buildings available for rental by the public small parties, gatherings, and meetings).

Table 3.11-1 presents the park service level goals for each category of park as outlined in SPRD's most recent Parks and Recreation Master Plan (SPRD, 2009), with updates based on recently adopted Title 17 of the Planning and Development Code (17.512 Parks and Recreation Facilities) and Park Impact Fee Nexus Study Update (both adopted February 14, 2017). A detailed description of each category is provided below along with an inventory of current acreage per category.

TABLE 3.11-1
CITY OF SACRAMENTO PARKS AND RECREATION DEPARTMENT PARK SERVICE LEVEL GOALS

Park Type	Acres/1,000 Residents	Size Guidelines	Service Area Guidelines
Neighborhood Serving			
Urban Plaza / Pocket Parks	0.875	Less than 5 acres	½ mile
Neighborhood Parks		5-10 acres	½ mile
Community Serving			
Community Parks	0.875	10 – 60 acres	Drivable from several neighborhoods, 3 miles
Citywide / Regionally Serving			
Regional Parks, Open Space, Parkways	8.0	Varies; may be larger than community parks and/or have destination attractions.	Citywide and beyond
Linear Parks/Parkways and Trails/Bikeways (off and on street)	• Along all major public waterways in City limits, contributing to interconnected regional system of open space/trails/bikeways • 0.5 linear miles / 1,000 population of trails/bikeways implemented per adopted City Bikeways, Pedestrian, and Trail Master Plans • Locate next to compatible uses (greenbelts, multi-use trail corridors, schools, waterways, and parks)		
Open Space	Implementation dependent on numerous factors, including but not limited to: current and future mitigation requirements, land set aside for community separators, protection of sensitive habitat/wetlands, etc. Locate near existing open space, parks, urban forest, wildlife preserve, nature area or parkway, drainage area, wetland, environmentally sensitive area. Locate near existing or proposed trail system. Locate to take advantage of scenic vista, existing cultural or historical significance, and passive recreation and education potential. Provide adequate access for Fire, Emergency, and Maintenance.		

SOURCE: City of Sacramento 2009; with updated based on Title 17 of the Planning and Development Code (17.512 Parks and Recreation Facilities) and Park Impact Fee Nexus Study Update (2017)

Neighborhood Parks

Neighborhood parks are generally 5 to 10 acres in size and are intended to be used primarily by residents within a half-mile radius. Some neighborhood parks are situated adjacent to elementary schools, and improvements are generally oriented toward the recreation needs of children. In addition to landscaping, improvements might include irrigation, turf, trees, site furniture, walkways, entry improvements, signage, drinking fountains, children's play areas (tot lots and adventure areas), picnic areas with shade structure, sports courts, and sports fields.

Urban plazas and pocket parks also fall under the category of neighborhood serving parks and tend to be less than 5 acres in size. These parks are more appropriate for areas of denser urban mixed-use development.

Community Parks

Community parks are generally 10 to 60 acres in size and have a service area of approximately three miles, which encompasses several neighborhoods and meets the requirements of a large portion of the city. In addition to neighborhood park elements, a community park might also have

restrooms, on-site parking, a community center, a swimming pool, lighted sports fields or courts, and other specialized facilities not found in a neighborhood park. Some of the smaller community parks may be dedicated to one use, and some elements of the park could be leased to community groups.

Citywide/Regional Parks and Parkways

Citywide/regional parks are larger sites developed with a wide range of improvements usually not found in local neighborhood or community facilities to meet the needs of the entire city population. In addition to neighborhood and community park type improvements, regional parks may include a golf course, marina, amusement area, zoo, nature area, and other region-wide amenities. Some elements in the park may be under lease to community groups. Parkways, typically linear and narrow, may be situated along an existing corridor such as a railroad line, roadway, waterway, or other common corridor.

Open Space

Open space areas are natural areas that are set aside primarily to enhance the city's environmental amenities. Recreational use of these sites is generally limited to natural features of the sites, such as native plant communities or wildlife habitat. Parkways are similar to open space areas because they also have limited recreational uses and are primarily used as corridors for pedestrians and bicyclists, linking residential uses to schools, parks, and commercial developments.

Existing Parks and Recreational Facilities

City of Sacramento

The SPRD's recreational grounds are divided into ten community planning areas. Twin Rivers development would be located in Community Planning Area 1 – Central City. **Table 3.11-2** summarizes the existing citywide/regionally serving parks in the central city.

TABLE 3.11-2
ACREAGE OF EXISTING PARKS SERVING THE CITY OF SACRAMENTO

Park Type	Existing Acreage
Regional Acres	1,965.8
Parkway Acres	409.9
Neighborhood/Community Serving Acres[1]	142.0
Total Acres	**4,779.2**

NOTES:

[1] While Regional Park and Parkway Acres have a service area of citywide and beyond, portions of most regional park sites also meet neighborhood/community acreage requirements of adjacent neighborhoods.

SOURCE: City of Sacramento 2009

County of Sacramento Regional Parks

The County operates a system of 42 park and open space facilities, mostly of large region-serving scale. The American River Parkway is the closest regional park to this proposed project. The parkway provides an important link in a 70-mile regional trail system that includes the American River Parkway, the Ueda Parkway, the proposed Dry Creek Greenway, and Folsom Lake State Park.

River District Specific Plan Area Parks

The closest open spaces to the project site are the Muir Children's Park , about 0.5-mile to the south at 1515 C Street; Matsui Waterfront Park, about 1.1-mile to the west at 450 Jibboom Street; and Tiscornia Park, about 1.2-mile to the west at 195 Jibboom Street.

The eight acre Robert T. Matsui Waterfront Park was completed in 2007. It features an interactive water fountain, a grassy area overlooking the Sacramento River and a network of pedestrian walkways, benches and shade trees. The Water Intake Facility has been incorporated into the park and provides visitors a unique overlook on the Sacramento River. Tiscornia Park is almost 10 acres in size, has a sandy beach, picnic area and boat access to the American River. Both Tiscornia and Robert T. Matsui Waterfront Parks are connected via the Sacramento River Parkway, a Class 1 bicycle and pedestrian trail running along the Sacramento River. In addition, while not included within the boundaries of the River District Specific Plan area, the planned Sutter's Landing Regional Park is located about a mile and a half upstream along the American River. Plans are in place to connect Sutter's Landing Regional Park to the River District via an extension of the Two Rivers Trail.

Another regional recreational feature in close proximity to the project site is the American River Trail, which is a 32-mile-long multi-use trail that runs along the southern bank of the American River between the City of Folsom and Old Town Sacramento. The trail lies approximately 1,000 feet north of the project site.

3.11.3 Applicable Policies and Regulations

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statues of 1998)

Senate Bill (SB) 50 is a school construction funding measure that was approved on the November 1998 ballot. SB 50 created the School Facility Program for eligible school districts to obtain State bond funds. State funding requires matching local funds that generally come from developer fees. The passage of SB 50 eliminated the ability of cities and counties to require full mitigation of school impacts and replaced it with the ability for school districts to assess fees directly to offset the costs associated with increasing school capacity as a result of new development. Although SB 50 states that payment of developer fees are "deemed to be complete and full mitigation" of the impacts of new development, fees and State funding do not fully fund new school facilities.

Quimby Act

California Government Code Section 66477, Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fee are based upon the residential density and housing type, land cost, and other factors. Land dedicated and fees collected pursuant to the Quimby Act may be used for developing new, or rehabilitating existing park or recreational facilities.

3.11.4 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

Chapter 4.9 of the Master EIR considered the effects of the 2035 General Plan on the City's existing parkland, urban forest, recreational facilities and recreational services. The General Plan identified a goal of providing an integrated park and recreation system in the City (Goal ERC 2.1). The City has set a park acreage service level of 1.75 acres of community and neighborhood parks per 1,000 population in the Central City Community Plan Area, which includes the project site (Policy ERC 2.2.4). New residential development is required to dedicate land, pay in-lieu fees or otherwise contribute a fair share to the acquisition and development of parks and recreation facilities (Policy ERC 2.2.5). Impacts were considered less than significant after application of the applicable policies.

Chapter 4.10 of the Master EIR evaluated the potential effects of the 2035 General Plan on various public services. These include police, fire protection, schools, libraries and emergency services.

The General Plan provides that adequate staffing levels for police and fire are important for the long-term health, safety and well-being of the community (Goal PHS 1.1, PHS 2.1). The Master EIR estimated that development anticipated under the 2035 General Plan would require the addition of up to 620 new police staff (sworn officers and civilian support staff) with implementation of the General Plan's policies. Likewise, buildout of the General Plan would require at least 10 new fire stations and additional personnel. The Master EIR concluded that effects of development that could occur under the General Plan would be less than significant with implementation of the adopted Public Services policies.

According to the General Plan Master EIR analysis, a total of 23,565 students would be added to area public school district rolls with full build-out. This analysis also found that these districts had a combined capacity to accommodate an additional 36,000 students. The Master EIR found that General Plan policies that call for the City to consider impacts of new development on schools (see, for example, Policy ERC 1.1.2 setting forth locational criteria, and Policy ERC 1.1.4 that encourages joint-use development of facilities) would reduce impacts on schools to a less-than-significant level. Impacts on library facilities were considered less than significant.

River District Specific Plan EIR

The River District Specific Plan EIR evaluated the potential for the buildout of the proposed River District Specific Plan (RDSP) to impact open space, recreation, and public services.

The City of Sacramento's parkland dedication requirements are outlined in City Code, Chapter 17.512 , which establishes the formulas for the provision of parkland required for new development. Meeting these requirements is intended to provide the public with opportunities to access parks within reasonable walking or driving distance of all residences. The EIR concluded that with implementation of these requirements, together with existing and planned public park facilities, payment of in-lieu fees for planned projects, and private recreation facilities within the development boundaries, impacts to open space and recreational resources would be less than significant.

A similar finding was made for police, fire, and school services. Payment of development fees for these services would reduce potential impacts to less than significant levels.

3.11.5 Impact Assessment and Mitigation Measures

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to public services and recreation are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The project alternatives would have a significant adverse effect if they would:

- Result in the need for new or altered services related to fire protection, police protection, school facilities, or other governmental services beyond what was anticipated in the 2035 General Plan.
- Cause or accelerate substantial physical deterioration of existing area parks or recreational facilities or create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2035 General Plan.

Department of Housing and Urban Development Evaluation Criteria

The online HUD Exchange provides guidance documents for considering context and intensity impacts associated with public services and recreation. Specific factors to consider include the project's effects on educational facilities, commercial facilities, health care services and facilities, social services, public safety services, open space and recreation, and cultural facilities. These factors generally mirror those listed in the standards of significance listed above.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

PSR-1. Would the project result in the need for new or altered services related to fire protection, police protection, school facilities, or other governmental services beyond what was anticipated in the 2035 General Plan?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition, with no increase in resident population. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As discussed in Chapter 2, Alternatives, the existing Twin Rivers Community Housing Complex houses approximately 550 residents in 218 housing units. This equates to a residential population occupancy rate of 2.53 persons per unit. The U.S. Census Bureau's 2010-2014 American Community Survey (ACS) 5-Year Estimates indicate that the estimated population for the tract that includes the project site is 1,052 residents in 348 housing units. This equates to a residential population occupancy rate of 3.03 persons per unit in this tract. Using this higher occupancy rate with the project's proposed 487 units, the proposed project would be expected to result in 1,475 residents within the project site. Subtracting the existing 550 residents, the proposed project would result in a net increase of 925 residents.

Fire Protection

As discussed above, the SFD does not have an official staffing ratio goal. Station 14 would serve the project site and, when considering the annual call threshold, has capacity to provide emergency response. The proposed project would add approximately 923 new residents. This amount of new residents would not meet the unofficial threshold of requiring a new station (based on one station per 16,000 residents). When considered with the 2035 General Plan Master EIR analysis, which included this development in its analysis, any potential impact would be addressed with implementation of General Plan policies. For example, impact fees are required for development projects, which would fund additional fire personnel and facilities. Additionally, a new joint fire and police station has been proposed for construction as part of the nearby Railyards Specific Plan, approximately 900 feet southwest of the project site. Therefore, the proposed project would be adequately served by existing and planned fire protection services.

Based on the information above, there would be **no adverse effect** to fire protection services under NEPA. Under CEQA, the impact would be **less than significant**.

Police Protection

As discussed above, the SPD uses an unofficial goal of providing 2.0 to 2.5 sworn officers per 1,000 residents. The proposed project would add 925 new residents, which would require one additional sworn officer. When considered with the General Plan Master EIR analysis, which

included this development in its analysis, any potential impact would be addressed with implementation of General Plan policies. For example, impact fees are required for development projects, which would fund additional police personnel and facilities. Additionally, a new joint fire and police station is proposed for construction as part of the nearby Railyards Specific Plan, approximately 900 feet southwest of the project site. Therefore, the proposed project would be adequately served by existing and planned police protection services.

Based on the information above, there would be **no adverse effect** to police protection services under NEPA. Under CEQA, the impact would be **less than significant**.

School Facilities

Based on the student generation rate from the 2010 U.S. Census, the number of new students that would be generated by the proposed project is calculated in **Table 3.11-3** below:

TABLE 3.11-3
NEW STUDENT GENERATION

Grade Group	Students per Housing Unit	New Students[1]
K-6	0.285	77
7-8	0.072	19
9-12	0.118	32
Total	*0.475*	*128*

[1] Calculated based on 269 new residential units.

SOURCE: Twin Rivers Unified School District, 2016. School Facility Fee Justification Report for Residential, Commercial, and Industrial Development Project for the Twin Rivers Unified School District. Page 5, Table 1-1.

The overall number of new students that would be generated by the proposed project would be approximately 128. As of the 2013-14 school year, the three schools which would likely receive these additional students have a combined open seat capacity of 1,200. This proposed project's new students alone would not warrant the expansion or construction of school facilities. Therefore, there would be **no adverse effect** to school facilities under NEPA. Under CEQA, the impact would be **less than significant**.

PSR-2. Would the project cause or accelerate substantial physical deterioration of existing area parks or recreational facilities or create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2035 General Plan?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

City of Sacramento 2035 General Plan Policy ERC 2.2.4 states that it is the City's goal to provide 1.75 acres of neighborhood and community parks and other recreational facilities/sites per 1,000 population within the Central City Community Plan Area. Based on occupancy rates for the Central City as determined by SPRD in its 2017 Park Impact Fee Nexus Study, the proposed project would require approximately 1.5 acres of onsite park facilities to fully meet the City's parkland requirements.

The proposed project is anticipated to provide a number of recreational facilities, including an approximately 1.15-acre central park area. Other amenities would include a swimming pool/amenity space, a child care playground, several tot lots and other open space areas. The project could receive partial credit for these additional facilities that could be applied towards its parkland dedication requirements. If any shortfall to the dedication requirement were identified during the project's final design, the difference would be made up by payment of in-lieu fees. As such, the project's dedication requirements would be met by a combination of onsite parks and recreational facilities, and payment of fees. Therefore, the proposed project would meet the City's General Plan policy regarding park acreage service levels, and access to quality recreational facilities would be improved from what is currently available.

Based on the information above, there would be a **beneficial** effect to parks and recreational facilities under NEPA. Under CEQA, the impact would also be **beneficial**.

Mitigation Measures

None required.

References

City of Sacramento. 2016. Sacramento Parks. Accessed June 29, 2016. Available https://www.cityofsacramento.org/ParksandRec/Parks

City of Sacramento. 2015. *City of Sacramento 2035 General Plan Master Environmental Impact Report*. Certified March 3, 2015.

City of Sacramento Fire Department. 2015. *Sacramento Fire Department Annual Report 2015*. Available at: http://www.cityofsacramento.org/Fire/About/Key-Documents. Accessed November 7, 2016.

City of Sacramento Police Department. 2016. *Sacramento police Department 2016 Annual Report*. Available at: http://www.cityofsacramento.org/Police/About-SPD/Annual-Report. Accessed June 6, 2017.

City of Sacramento Parks and Recreation. Department. 2009. *City of Sacramento Parks and Recreation Master Plan 2005-2010.* Available: https://www.cityofsacramento.org/ ParksandRec/Parks/Park-Planning-Development/MasterPlan-PRPG. Accessed June 6, 2017.

Sacramento Housing and Redevelopment Agency (SHRA). 2012. *Choice Neighborhoods Initiative – Community Needs Assessment.* Page 20.

Twin Rivers Unified School District. 2015a. *2015 Long-Range Facility Master Plan*. pp. 3.16 and 3.17; Tables 3-9, 3-10, and 3-11.

Twin Rivers Unified School District. 2015b. Gordon Jenkins, Manager, Facility Planning and Energy Management. E-mail communication with Matthew Pruter, ESA, December 18, 2015.

U.S. Census Bureau. *2010-2014 American Community Survey 5-Year Estimates*. Table DP05 – ACS Demographic and Housing Estimates. Accessed June 27, 2016.

U.S. Department of Transportation. Section 4(f) at a Glance. Available https://www.environment.fhwa.dot.gov/4f/4fAtGlance.asp. Accessed November 8, 2016.

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3.12 Transportation and Traffic

3.12.1 Introduction

This section evaluates the potential traffic and transportation effects, including potential transit, bicycle, and pedestrian effects, that would result from implementation of the proposed project.

The potential off-site traffic impacts of the project are analyzed under existing and cumulative conditions. Impacts to bicycle, pedestrian, and transit circulation, as well as temporary impacts during project construction are also evaluated. Access to the project site is analyzed for all modes of travel.

The cumulative impacts on roadway segments, freeway segments, transit, bicycle facilities, pedestrian circulation, and parking from development associated with the Sacramento 2035 General Plan were identified and analyzed in the General Plan Master EIR, and the analysis in this section reviews such issues on a project-specific basis only. Project impacts on intersections were included in the transportation evaluation to determine the project's conformity with the Mobility Elements of the adopted 2035 General Plan, and to confirm that no substantial new or additional information indicates that the impacts on the roadway system will be more significant than as described in the Master EIR for this document.

Travel Demand

California Senate Bill 743 (2013) provided guidance for analyzing and defining significant impacts to vehicle miles traveled (VMT), as stated below.

Public Resources Code Section 21155.4:

a) Except as provided in subdivision (b), a residential, employment center, as defined in paragraph (1) of subdivision (a) of Section 21099 of the Public Resources Code, or mixed use development project, including any subdivision, or any zoning, change that meets all of the following criteria is exempt from the requirements of this division:

   1) The project is proposed within a transit priority area, as defined in subdivision (a) of Section 21099 of the Public Resources Code

   2) The project is undertaken to implement and is consistent with a specific plan for which an environmental impact report has been certified.

   3) The project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy for which the State Air Resources Board, pursuant to subparagraph (H) of paragraph (2) of subdivision (b) of Section 65080 of the Government Code, has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the greenhouse gas emissions reduction targets.

b) Further environmental review shall be conducted only if any of the events specified in Section 21166 have occurred."

For the purpose of the analysis for the proposed project, "transit priority areas" were defined based on Public Resources Code Section 21099(a)(7), in which transit priority areas are defined as follows:

> "Transit priority area" means an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations.

Further, the California Office of Planning and Research (OPR) has stated in its SB 743 implementation guidance (OPR, 2016) that lead agencies can presume that residential, retail, office, or mixed use projects proposed within half- mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less than significant impact on VMT. OPR defines a "major transit stop" as a site containing an existing rail transit station or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. OPR defines a high-quality transit corridor as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. The proposed project site is within a half mile of two existing rail transit stations (Township 9 Station and Alkali Flat/La Valentina Station), and includes the construction of a new infill rail transit station as part of the proposed project. Furthermore, the proposed project is consistent with the adopted River District Specific Plan and the Sustainable Communities Strategy (SCS) prepared and adopted by SACOG. Based on each of these considerations, and the directives contained with Public Resources Code Section 21155.4(a), analysis of VMT impacts for the proposed project is not required.

Readers should refer to the "Cumulative Impacts" discussion in this section for additional information regarding the travel demand model used for this evaluation and to the City's website (at http://portal.cityofsacramento.org/Community-Development/Resources/Online-Library/Sustainability) for additional information pertaining to VMT. The project is also being evaluated for its consistency with Sacramento Area Council of Governments' (SACOG) Sustainable Communities Strategy (SCS). Projects that achieve this distinction are granted certain CEQA streamlining benefits under SB 375.

Study Area

In urban environments such as the project area, roadway capacity is governed by the operation of intersections. For this reason, and because roadway segments were included in the traffic analysis for the 2035 General Plan, the City of Sacramento determines impacts on the roadway system based upon the operations of intersections.

The study area for the traffic impact analysis conducted for this IS/EA includes 12 existing intersections and nine planned or proposed intersections identified below that are located in the vicinity of the proposed project. These intersections were selected based on their proximity to the project site, expected usage by project traffic, and susceptibility for being impacted. Output from the Sacramento Metropolitan (SACMET) regional travel demand model was used to assist with the determination of the study area and the selection of study intersections. The resulting list was

reviewed and approved by the City's Department of Public Works. Refer to **Figure 3.12-1** for a map that depicts the location of the project and each of the study intersections. The study area also includes bicycle, pedestrian, and transit facilities within the project vicinity.

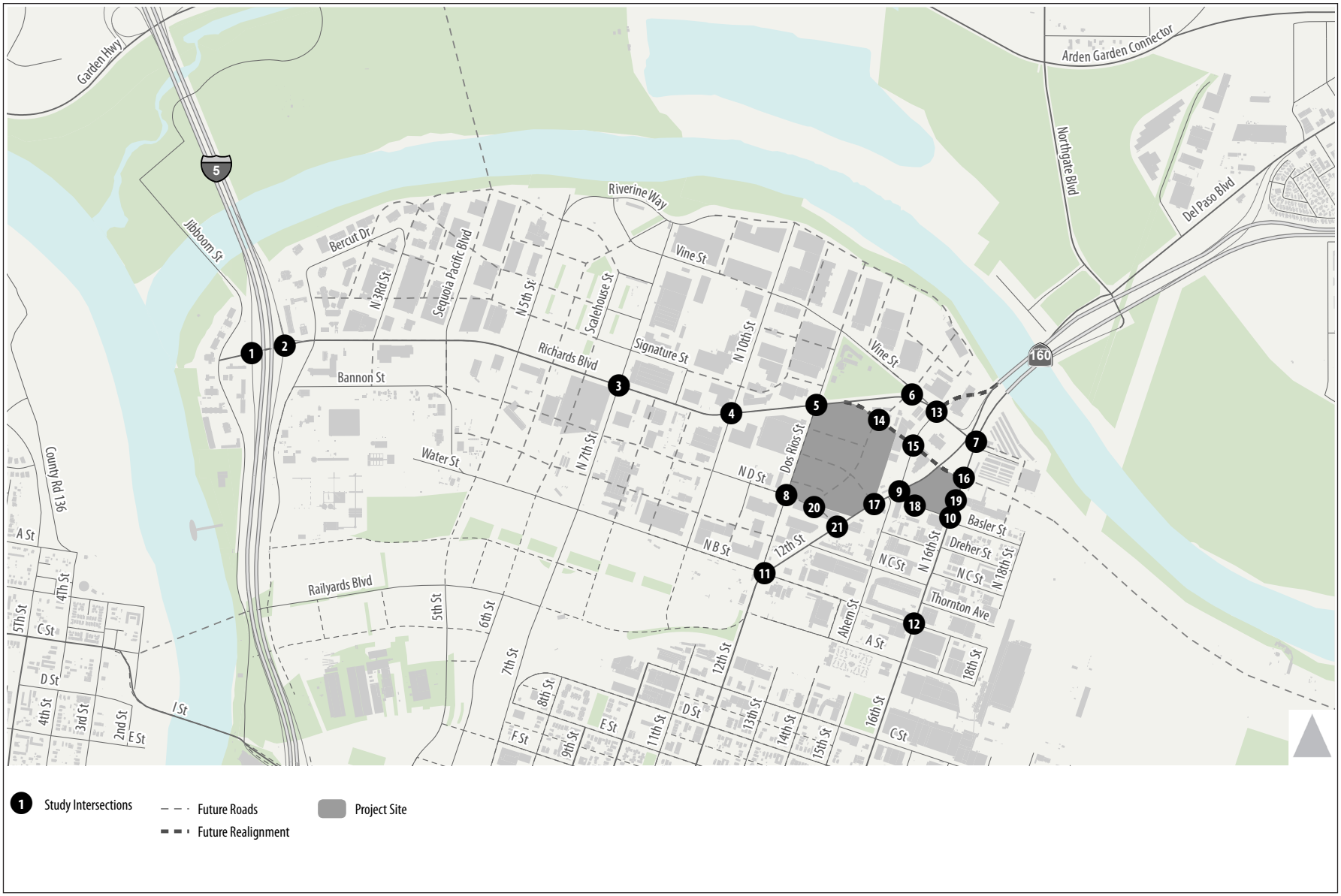
Study Intersections

Current Intersections

1. Richards Boulevard/Interstate 5 Southbound Ramps
2. Richards Boulevard/Interstate 5 Northbound Ramps
3. Richards Boulevard/North 7th Street
4. Richards Boulevard/North 10th Street
5. Richards Boulevard/Dos Rios Street
6. Richards Boulevard/Vine Street (becomes Vine Street/Street W for future scenarios)
7. Richards Boulevard/North 12th Street/North 16th Street (becomes Vine Street/North 16th Street for future scenarios)
8. Dos Rios Street/North D Street (becomes Dos Rios Street/Bannon Street for future scenarios)
9. North 12th Street/Sunbeam Avenue/Sproule Avenue (becomes North 12th Street/Sproule Avenue for future scenarios)
10. North 16th Street/Sproule Avenue/Basler Street
11. North 12th Street/North B Street/Dos Rios Street
12. North 16th Street/North B Street

Future Intersections

13. Vine Street/North 12th Street
14. Richards Boulevard/Street W
15. Richards Boulevard/North 12th Street
16. Richards Boulevard/North 16th Street
17. North 12th Street/Project Access
18. Sproule Avenue/Project Access
19. North 16th Street/Project Access
20. Street W/Bannon Street
21. North 12th Street/Bannon Street



SOURCE: Fehr & Peers

Twin Rivers Transit-Oriented Development and Light Rail Station Project . 140202

Figure 3.12-1
Study Area

Analysis Scenarios

The following scenarios are analyzed in this study:

- **Existing Conditions** – Represents the baseline condition on the current roadway network, upon which project impacts are measured.

- **Existing Plus Project Conditions** – Reflects changes in travel conditions associated with implementation of the proposed project.

- **Cumulative Plus Project Conditions** – Analyzes conditions for a cumulative scenario, which includes reasonably foreseeable land uses, planned transportation improvement projects, and proposed project implementation. Refer to "Cumulative Impacts" section for a discussion of specific assumptions for this scenario.

3.12.2 Environmental Setting

This section describes the environmental setting, which is the baseline scenario upon which project-specific impacts are evaluated. The baseline for the traffic study represents conditions based on field observations conducted in November 2015. The environmental setting for transportation includes baseline descriptions for the roadway, bicycle, pedestrian, transit, and rail systems.

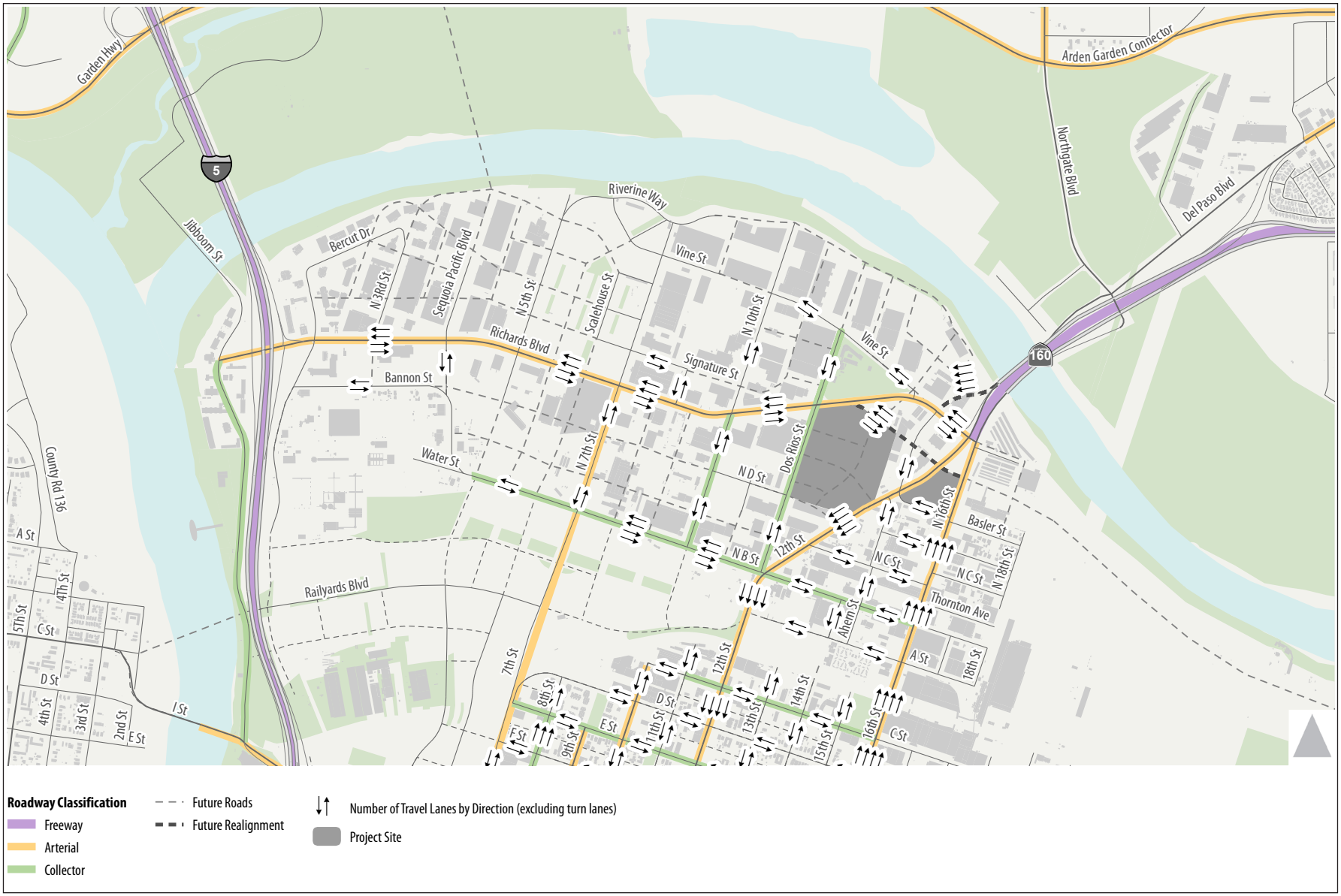
Roadway System

Figure 3.12-2 illustrates the study roadway facilities including the number and direction of travel lanes, as well as roadway classifications. The study area is located within the River District Specific Plan area in the City of Sacramento. This area is located between Interstate 5 and State Route 160, which provide regional access to the project site. Key roadways that comprise the regional and local roadway system that would serve trips associated with the proposed project are described below. It should be noted that the 2035 General Plan Mobility Element includes the proposed realignment of Richards Boulevard and North 12th Street in the immediate vicinity of the project site. These realignments are also described below.

- **Interstate 5 (I-5)** is a north-south freeway traversing the length of California and into Oregon and Washington. Within the study area, I-5 runs along the western edge of downtown Sacramento generally paralleling the Sacramento River, and serves as a vital link between the primarily residential neighborhoods to the north and south of Downtown and the Central Business District. The closest interchange on I-5 to the project site is located at Richards Boulevard, approximately 1 mile west of the proposed project.

- **Lincoln Highway (SR 160)** is an east-west state highway connecting the 16th Street Bridge over the American River to Business 80, also known as the Capital City Freeway. State Route 160 begins just northeast of the project site, and provides a key connection across the American River. Westbound SR 160 traffic feeds into North 12th Street, which provides direct access to the project site, while North 16th Street feeds into eastbound SR 160.

- **Richards Boulevard** extends east from its interchange at I-5 as a four-lane arterial, terminating at the North 12th Street/North 16th Street/SR 160 at-grade signalized intersection. This facility provides access into downtown (via 7th Street), while also serving a variety of industrial, office,



SOURCE: Fehr & Peers

Figure 3.12-2
Roadway Facilities

and residential uses in the area. Its posted speed limit ranges from 35 to 40 mph depending on location. Richards Boulevard features on-street bicycle lanes on both sides of the roadway west of Vine Street.

As shown on Figure M4A of the 2035 General Plan Mobility Element, Richards Boulevard east of Dos Rios Street would be realigned slightly south and extended further east to Business 80 (Capital City Freeway). This realignment and extension would be a 4-lane arterial bordering the project site on its north. It would create study intersections 14 through 16 listed above. The existing segment of Richards Boulevard east of Vine Street would be re-designated as an extension of Vine Street, which would then terminate at its intersection with North 16th Street.

- **North B Street** is an east-west four-lane roadway, running generally parallel to Richards Boulevard between Bannon Street and just east of North 16th Street. The roadway has Class II on-street bicycle lanes on both sides between North 7th Street and North 16th Street. West of North 7th Street, it is a two-lane undivided street with a posted speed limit of 35 mph. East of North 7th Street, it consists of two westbound lanes and one eastbound lane, widening to two undivided lanes in each direction from west of North 10th Street to North 12th Street. It has a posted speed limit of 35 mph.

- **North 7th Street** is a two-lane north-south roadway that connects the study area to Downtown Sacramento, and features an undercrossing of the Union Pacific Railroad (UPRR) tracks. Between G Street and North B Street, it has one lane in each direction with a posted speed limit of 35 mph. Between North B Street and Richards Boulevard, two northbound lanes and one southbound lane are present. Light rail trains operate on this roadway between G Street and Richards Boulevard. Between Richards Boulevard and North B Street, the Green Line Light Rail runs at-grade in mixed-flow traffic for northbound service and in a dedicated lane for southbound service.

- **North 12th Street** is four-lane one-way road that travels southbound, connecting SR 160 WB to Downtown Sacramento. South of the study area, North 12th Street traverses the UPRR tracks via an undercrossing and continues into Downtown. Though North 12th Street is one-way, the Sacramento Regional Transit (RT) Blue Line provides bidirectional service along the eastern side of the roadway, fully separated from vehicular traffic north of Sproule Avenue, and partially in mixed-flow traffic south of Sproule Avenue (southbound service operates in mixed-flow, while northbound service operates in dedicated right-of-way). The roadway forms a couplet with North 16th Street, and has a posted speed limit of 35 mph.

  Figure M4A of the 2035 General Plan Mobility Element shows the current SR 160 southbound approach to intersection 7 realigned to the west at intersection 13 listed above, feeding into the realigned North 12th Street. The Mobility Element shows North 12th Street realigned to the west along the existing footprint of Sunbeam Avenue from its existing intersection with Richards Boulevard (future Vine Street) on the north end to the intersection of North 12th Street/Sproule Avenue to the south.

- **North 16th Street** is a four-lane one-way road that travels northbound and feeds into eastbound SR 160 and runs along the eastern edge of the study area. South of the study area, North 16th Street connects to Downtown Sacramento via an undercrossing of the UPRR tracks. The roadway forms a couplet with North 12th Street, and has a posted speed limit of 35 mph.

Truck Routes

All federal and state highways within the City of Sacramento have been designated as truck routes by Caltrans, including I-5 and SR 160 within the study area. The City identified 31 two-way streets as City truck routes in a 1983 resolution, in addition to all one-way streets (City of Sacramento, 2017). Within the study area, the following streets are considered City truck routes:

- Richards Boulevard
- North B Street
- North 7th Street
- North 10th Street
- North 12th Street
- North 16th Street

3.12.3 Methodology

Traffic operations at all study intersections were analyzed for weekday AM and PM peak-hour conditions using procedures and methodologies contained in the Highway Capacity Manual (Transportation Research Board, 2010) for calculating delay at intersections. These methodologies were applied using the SimTraffic software program, which considers the effects of lane utilization, turn pocket storage lengths, upstream/downstream queue spillbacks, coordinated signal timings, pedestrian crossing activity, and other conditions on intersection and overall corridor operations. Utilization of SimTraffic microsimulation analysis is appropriate given the presence of coordinated signal timing plans, close spacing of signalized intersections, and overall levels of traffic and peak-hour congestion within the study area. Reported results are based on an average of 10 runs. The following procedures and assumptions were applied in the development of the SimTraffic model:

- Roadway geometric data were gathered using aerial photographs and field observations.
- Peak-hour traffic volumes were entered into the model according to the peak hour of the study area.
- The peak-hour factor (PHF) was set at 1.0, in accordance with City of Sacramento Traffic Impact Study Guidelines.
- The counted pedestrian and bicycle volumes were entered into the model according to the peak-hour measurements.
- Signal phasing and timings were based on existing signal timing plans provided by the City of Sacramento and field observations.
- Speeds for the model network were based on the posted speed limits.

Each study roadway facility was analyzed using the concept of Level of Service (LOS). LOS is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions. **Table 3.12-1** displays the delay range associated with each LOS category for signalized and unsignalized intersections.

TABLE 3.12-1
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Average Control Delay (seconds/vehicle)[1]	
	Signalized	Unsignalized
A	0 – 10.0	0 – 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

NOTES:
[1] Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay based on Highway Capacity Manual (Transportation Research Board, 2010).

SOURCE: Fehr & Peers, 2017.

For signalized intersections, the LOS is based on the average delay experienced by all vehicles passing through the intersection. For side-street stop controlled intersections, the delay and LOS for the worst-case movement is reported along with the average delay for the entire intersection.

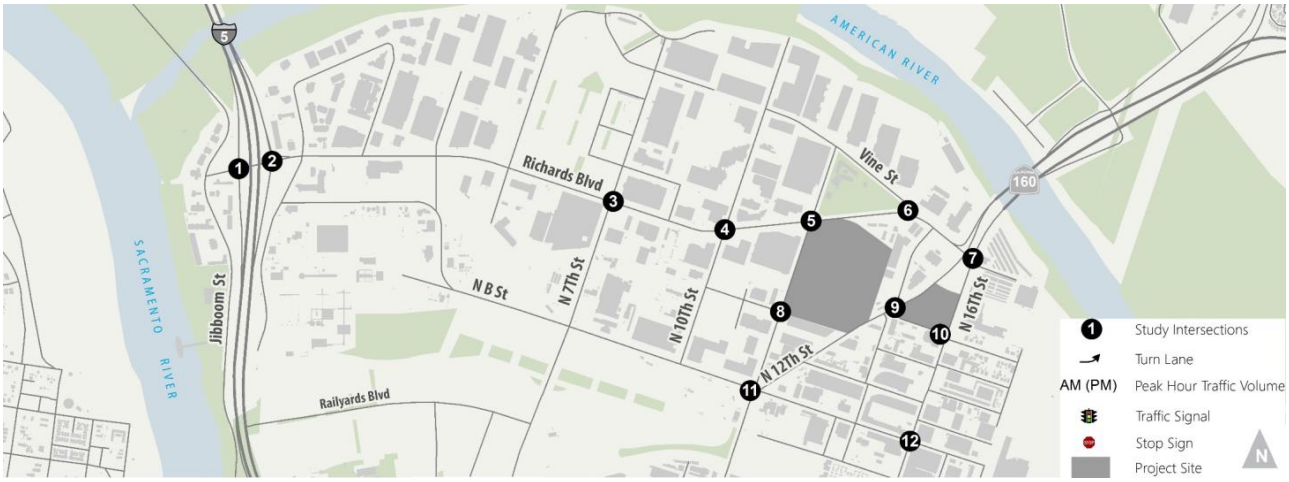
Traffic Counts

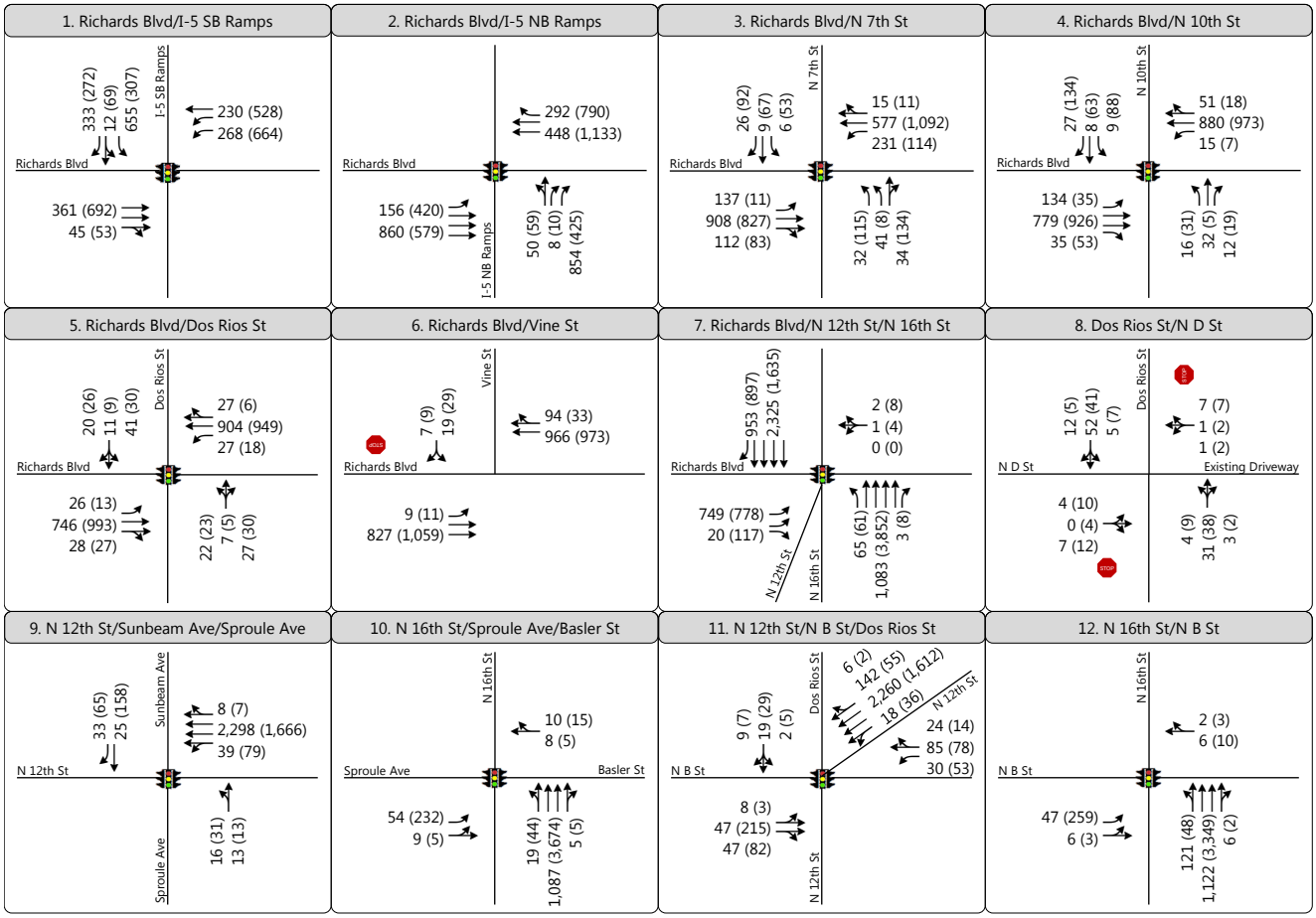
Traffic counts were collected at the study intersections on Thursday, April 3, 2014; Wednesday, May 20, 2015; Wednesday, October 28, 2015, or on Tuesday, November 17, 2015 during the AM (7-9) and PM (4-6) peak periods. During all counts, weather conditions were generally dry, no unusual traffic patterns were observed, and local schools including the Twin Rivers Unified School District and Sacramento City Unified School District were in full session. In addition to collecting vehicle turning movements at the study intersections, all counts included pedestrian and bicycle activity.

Figure 3.12-3 shows the existing AM and PM peak-hour intersection turning movement volumes, traffic controls, and lane configurations. In general, the AM peak hour within the study area occurred from 7:30 to 8:30, and the PM peak hour occurred from 4:30 to 5:30.

Existing Levels of Service

Table 3.12-2 summarizes the existing peak-hour intersection operations at the study intersections (refer to **Appendix D** for detailed calculations). As shown, all of the study intersections operate with an average of LOS D or better during both the AM and PM peak hours, except for the intersection of North 16th Street/Sproule Avenue/Basler Street, which operates at LOS E during the PM peak hour. The higher delay at this location during the PM peak hour is primarily due to queue spillback along northbound North 16th Street from the Richards Boulevard/North 12th Street/North 16th Street intersection. During the PM peak hour, North 16th Street experiences heavy commuter traffic flows leaving Downtown Sacramento and traveling north through the study area to access SR 160.





SOURCE: Fehr & Peers

Figure 3.12-3
Peak Hour Traffic Volumes and Lane Configurations
Existing Conditions

TABLE 3.12-2
INTERSECTION OPERATIONS – EXISTING CONDITIONS

Intersection	Control Type	Peak Hour	Level of Service	Average Delay[1] in seconds
1. Richards Boulevard/I-5 SB Ramps	Traffic Signal	AM PM	B C	18 24
2. Richards Boulevard/I-5 NB Ramps	Traffic Signal	AM PM	B C	16 20
3. Richards Boulevard/N 7th Street	Traffic Signal	AM PM	C C	25 25
4. Richards Boulevard/N 10th Street	Traffic Signal	AM PM	B A	13 10
5. Richards Boulevard/Dos Rios Street	Traffic Signal	AM PM	B A	12 9
6. Richards Boulevard/Vine Street	Side-Street Stop	AM PM	A (D) A (E)	5 (27) 6 (48)
7. Richards Boulevard/N 12th Street/ N 16th Street	Traffic Signal	AM PM	C D	28 53
8. Dos Rios Street/N D Street	Side-Street Stop	AM PM	A (A) A (A)	1 (4) 2 (4)
9. N 12th Street/Sunbeam Avenue/Sproule Avenue	Traffic Signal	AM PM	B B	13 11
10. N 16th Street/Sproule Avenue/ Basler Street	Traffic Signal	AM PM	B E	12 63
11. N 12th Street/N B Street/ Dos Rios Street	Traffic Signal	AM PM	B B	17 19
12. N 16th Street/N B Street	Traffic Signal	AM PM	A B	7 15

NOTES:
[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For side-street stop controlled intersections, the delay is reported in seconds per vehicle for the overall intersection and the worst movement (in parentheses).

SOURCE: Fehr & Peers, 2017.

Existing Freeway Off-Ramp Queues

Table 3.12-3 summarizes the maximum queues at the two study freeway off-ramps. As shown, both the I-5 Northbound and Southbound off-ramps at Richards Boulevard remain within their storage areas (measured from the intersection stop bars to the freeway gore point) during the AM and PM peak hours.

TABLE 3.12-3
OFF-RAMP QUEUING – EXISTING CONDITIONS

Location	Available Storage	Peak Hour	Maximum Queue
Interstate 5 SB Off-Ramp at Richards Boulevard	1,050 feet	AM PM	300 feet 200 feet
Interstate 5 NB Off-Ramp at Richards Boulevard	1,000 feet	AM PM	350 feet 150 feet

NOTES: Maximum queue length is based upon output from SimTraffic microsimulation software, rounded up to nearest 25 feet.
SOURCE: Fehr & Peers, 2017.

Bicycle System

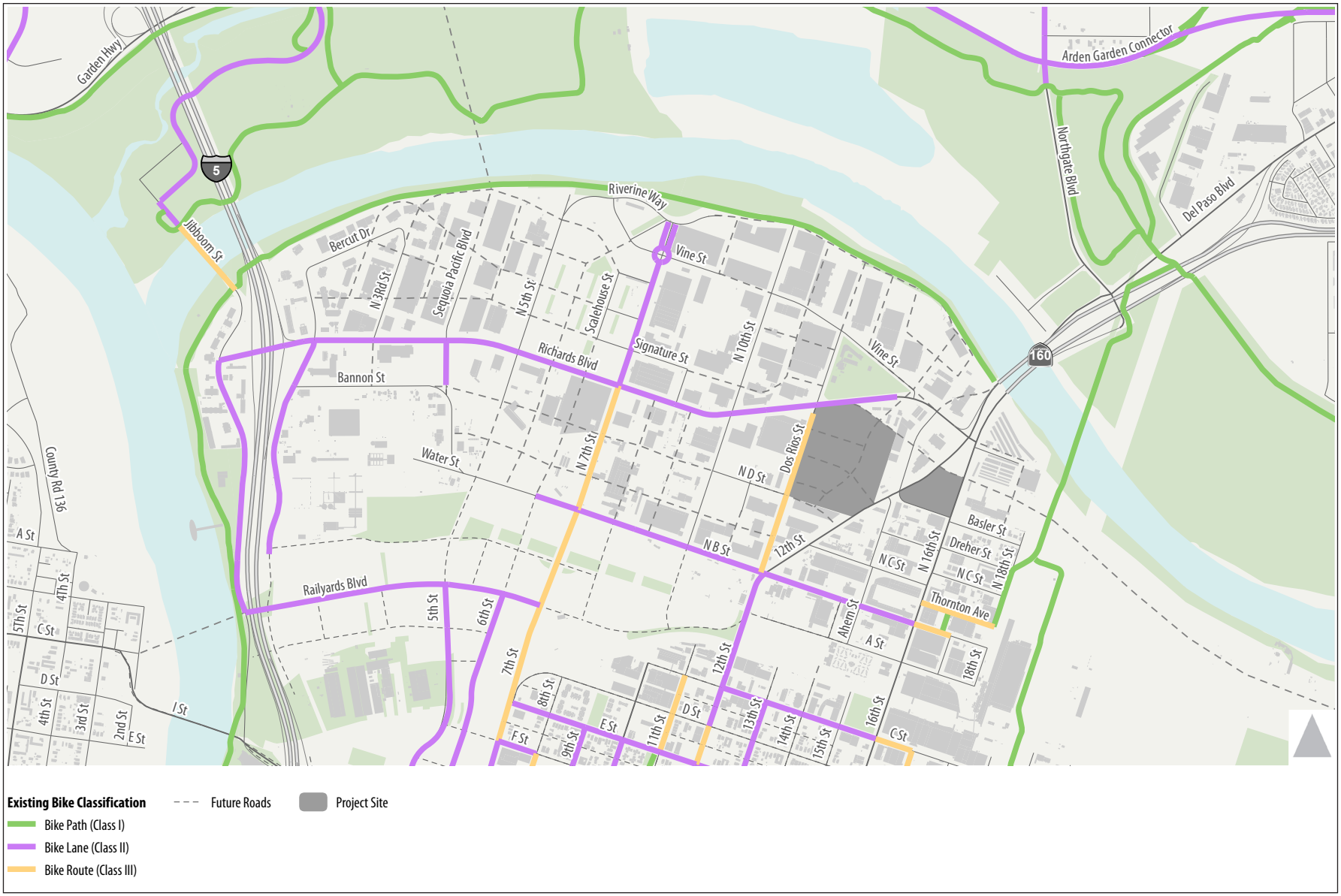
Figure 3.12-4 displays existing bicycle facilities located in the vicinity of the proposed project site based upon data provided by the City of Sacramento and field observations. Several roadways within the study area feature bicycle facilities. The following types of bicycle facilities currently exist within the study area:

- **Multi-use paths (Class I)** – are paved trails that are separated from roadways and allow for shared use by both cyclists and pedestrians.
- **On-street bike lanes (Class II)** – are designated for use by bicycles by striping, pavement legends, and signs.
- **On-street bike routes (Class III)** – are designated by signage for shared bicycle use with vehicles, but do not necessarily include any additional pavement width.

Streets with Class II bicycle lanes within the study area include Richards Boulevard and North B Street. Major Class I off-street bikeways within the study area include the Two Rivers Bike Trail, which runs along the south bank of the American River from SR 160 to the confluence of the Sacramento River, where it connects with the Sacramento River Bike Trail. The Sacramento North Bike Trail also runs north-south along the eastern edge of the study area, and provides a connection between the study area and the American River Bike Trail (Jedediah Smith Memorial Trail) via a bridge over the American River. The American River Bike Trail continues eastward along the north bank of the American River into the suburbs of Sacramento before terminating in the City of Folsom.

Pedestrian System

Currently, there are pedestrian sidewalks on both sides of most streets within the study area, exceptions including the east side of North 12th Street (for the light rail tracks) and the north side of Sproule Avenue, or on either side of Ahern Street. There are pedestrian crossings for nearly all legs at signalized study intersections, with exceptions including the east leg of Richards Boulevard/I-5 Southbound Ramps, the east leg of Richards Boulevard/I-5 Northbound Ramps, the east leg of Richards Boulevard/North 10th Street, the north leg of Richards Boulevard/North 12th Street/North 16th Street, the southeast leg of North 12th Street/Sunbeam Avenue/Sproule Avenue, and the north leg of North B Street/North 16th Street.



SOURCE: Fehr & Peers

Figure 3.12-4
Roadway Facilities

Although the study area has these pedestrian facilities in place, field observations and counts indicate relatively low demand for these facilities. This is due in part to surrounding land uses, which are mostly industrial and service-related.

Transit System

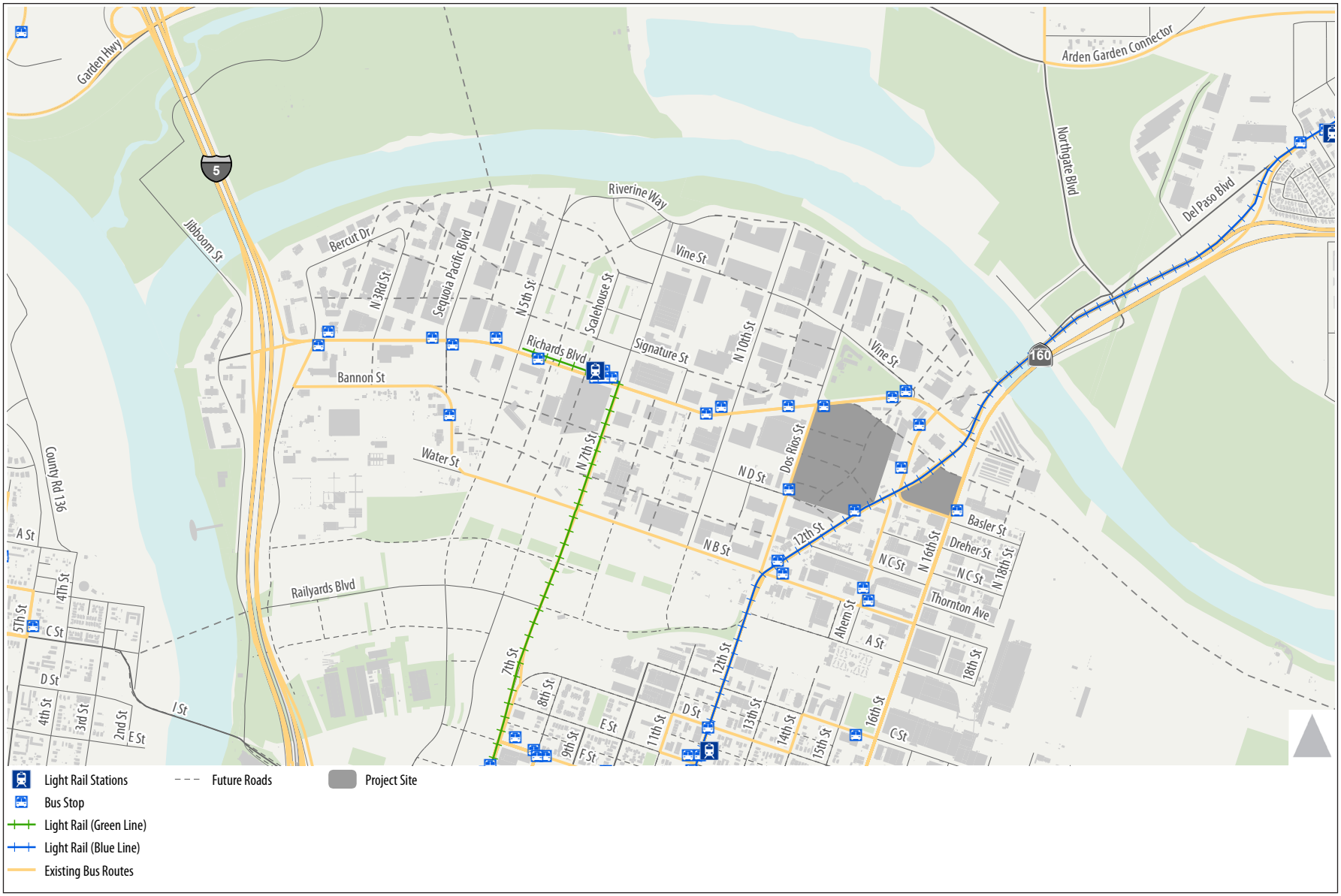
Local transit service within the study area is provided by Sacramento Regional Transit District (RT), which operates 69 bus routes and 42.9 miles of light rail on three lines (Blue Line, Gold Line, and Green Line) throughout a 418-square-mile service area. Buses and light rail run 365 days a year, using 87 light rail vehicles, 211 buses, and 29 shuttle vans. RT's annual ridership has steadily increased on both its bus and light rail systems from 14 million passengers in 1987 to more than 25 million passengers in Fiscal Year 2016. Currently, weekday light rail ridership averages about 34,000, and weekday bus ridership is approximately 38,500 passengers per day.

Light rail service operates on 15-minute headways during the day and 30-minute headways in the evening and on weekends and holidays. In the area of the proposed project site, the RT Blue Line operates from about 4 AM through 1:00 AM Monday through Friday, from about 4:30 AM through 1:00 AM on Saturday, and from about 5 AM through 11:00 PM on Sunday and holidays. **Figure 3.12-5** displays the locations of existing transit facilities within the study area. The project site is currently located approximately 0.7 mile from the nearest light rail station on the RT Blue Line (Alkali Flat/La Valentina Station) to the south and approximately 0.4 mile from the Township 9 Station on the RT Green Line to the west. As previously discussed, the proposed project includes construction of a new light rail station on the Blue Line at the intersection of Sproule Avenue/Sunbeam Avenue/North 12th Street. The Blue Line currently travels 1.7 miles between the Alkali Flat/La Valentina Station and the Globe Station to the north without a stop.

Multiple RT bus lines also serve the study area, including Route 11, Route 15, and Route 33. Routes 15 and 33 both have stops adjacent to the project site. Fixed-route bus service operates on headways ranging from 15 to 75 minutes, depending upon the route. These routes are described in detail below:

- **Route 11** connects Club Center Drive in Natomas to the north of the project site and Downtown Sacramento to the south. It runs along Richards Boulevard and has stops at the North 7th Street/Richards Boulevard/Township 9 Light Rail Station and the Sacramento Valley Station, all to the west of the project site. Stops along 7th Street are the closest to the site. On weekdays, Route 11 operates between 6 AM and 8 PM and on Saturdays it operates between 7 AM and 8 PM. There is no Sunday or holiday service on this route. Weekday peak headways are 30 minutes, while off-peak and Saturday headways are 60 minutes.

- **Route 15** provides connections between the Watt/I-80 Light Rail Station to the northeast and the 8th Street and O Street Light Rail Station downtown to the south. Its weekday operation runs from 5:30 AM to 9:30 PM, the Saturday operation runs from 7 AM to 9 PM, and the Sunday/holiday operation runs from 8 AM to 9:30 PM. Route 15 runs along Richards Boulevard and has a stop at the Richards Boulevard/Dos Rios Street intersection at the northwest corner of the existing Twin Rivers Community Housing Complex (i.e., project site). Weekday headways are 30 minutes and Saturday/Sunday/holiday headways are 60 minutes.



SOURCE: Fehr & Peers

Figure 3.12-5
Existing Transit Facilities

- **Route 29** is a commuter route from Carmichael to Downtown and makes stops along North 12th Street and 16th Street. This route makes two AM and two PM trips on weekdays only.

- **Route 33** loops around much of the Downtown area and the River District, connecting the two neighborhoods via North 12th Street and Dos Rios Street. This route operates between 6:30 AM and 5:30 PM on weekdays, with no service on Saturday, Sunday, or holidays. Route 33 loops around the existing Twin Rivers site and serves a stop at Richards Boulevard/ Dos Rios Street at the northwest corner of the site. Route 33 runs every 20 to 30 minutes. Route 33 was created primarily to serve the River District, and particularly the Twin Rivers neighborhood, in the absence of a light rail station on the Blue Line.

Light Rail Crossings

Two light rail tracks run through the study area. Both tracks run at-grade in the street with traffic crossing multiple City streets. Several signalized intersections have separate traffic signal phases to facilitate light rail train movements through the intersections or to provide priority for on-coming trains. Of the 12 existing study intersections, four have light rail trains using the intersection. The intersections of North 12th Street/North B Street/Dos Rios Street, North 12th Street/Sunbeam Avenue/Sproule Avenue, and Richards Boulevard/North 7th Street are controlled using traffic signals and do not use crossing gates. The study intersection of Richards Boulevard/North 12th Street/North 16th Street includes crossing gates, in addition to traffic signals programmed to provide vehicle traffic clearing.

3.12.4 Applicable Policies and Regulations

Federal Regulations

There are no federal regulations specifically addressing transportation facilities or services which would apply to the proposed project.

State Regulations

According to the Guide for the Preparation of Traffic Impact Studies (Caltrans 2002), if a freeway facility currently operates at an unacceptable LOS (e.g., LOS F), then the existing LOS should be maintained. A project impact occurs if the addition of project trips exacerbates existing LOS F conditions and leads to a perceptible increase in density on freeway mainline segments or ramp junctions, or a perceptible increase in service volumes in a weaving area. In addition, a project impact occurs when the addition of project trips causes a queue on the off-ramp approach to a ramp terminal intersection to extend beyond its storage area and onto the freeway mainline.

Potential safety impacts related to freeway off-ramp queues extending from study intersections onto the freeway mainline are evaluated.

Regional Plans and Programs

SACOG is responsible for the preparation of, and updates to, the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS, SACOG 2016) and the corresponding

Metropolitan Transportation Improvement Program (MTIP) for the six-county Sacramento region. The MTP/SCS provides a 20-year transportation vision and corresponding list of projects. The MTIP identifies short-term projects (7-year horizon) in more detail. The current MTP/SCS was adopted by the SACOG board in 2016.

Local Plans and Programs

Sacramento 2035 General Plan

On March 3, 2015, the City of Sacramento City Council adopted the 2035 General Plan. The Mobility Element of the City of Sacramento's 2035 General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following LOS Policy is relevant to this study:

> ***Policy M 1.2.2*****:** The City shall implement a flexible Level of Service (LOS) standard, which will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions including the AM and PM peak hour with certain exceptions mapped on Figure M-1 (and listed in the actual General Plan document).
>
> a. Core Area (Central City Community Plan Area) – LOS F allowed
>
> b. Priority Investment Areas – LOS F allowed
>
> c. LOS E roadways (11 distinct segments listed). LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of a light rail stations.
>
> d. LOS F roadways (24 distinct segments listed)
>
> e. If maintaining the above LOS standards would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4A (2035 General Plan Roadway Classification and Lanes).

As shown on Figure M1 (Vehicle Level of Service Exception Areas) of the 2035 City of Sacramento General Plan, the project site is situated within one of three Tier 1 Priority Investment Areas. The project site is also located within the Core Area, which is bounded by the Sacramento River, American River, Broadway, and Alhambra Boulevard. All study intersections are located within the Core Areas as well as a Priority Investment Area.

The Mobility Element of the City of Sacramento's 2035 General Plan also includes the following policies related to connectivity, walking, biking, transit, and parking that are relevant to this study:

Goal M 1.2.1: Multimodal System. Increase multimodal accessibility (i.e., the ability to complete desired personal or economic transactions via a range of transportation modes and routes) throughout the city and region with an emphasis on walking, bicycling, and riding transit.

***Policy M 2.1.5: Housing and Destination Connections*.** The City shall require new subdivision and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops and stations, schools, parks, and shopping centers.

Policy M 3.1.1: Transit for All. The City shall support a well-designed transit system that provides accessibility and mobility for all Sacramento residents, workers, and visitors. The City shall enhance bicycle and pedestrian access to stations.

Policy M 3.1.14: Direct Access to Stations. The City shall ensure that development projects located in the Central City and within ½ mile walking distance of existing and planned light rail stations provide direct pedestrian and bicycle access to the station area, to the extent feasible.

Policy M 3.1.18: Developer Contributions. Consistent with the City's established transportation impact analysis and mitigation guidelines, the City shall require developer contributions for bus facilities and services and related improvements.

Goal M 4.3: Neighborhood Traffic. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.

Policy M 4.3.1: Neighborhood Traffic Management. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management and traffic calming techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.

Goal M 5.1: Integrated Bicycle System. Create and maintain a safe, comprehensive, and integrated bicycle system and set of support facilities throughout the city that encourage bicycling that is accessible to all. Provide bicycle facilities, programs, and services and implement other transportation and land use policies as necessary to achieve the City's bicycle mode share goals as documented in the Bicycle Master Plan.

Policy M 5.1.1: Bicycle Master Plan. The City shall maintain and implement a Bicycle Master Plan that carries out the goals and policies of the General Plan. All new development shall be consistent with the applicable provisions of the Bicycle Master Plan.

Policy M 5.1.2: Appropriate Bikeway Facilities. The City shall provide bikeway facilities that are appropriate to the street classifications and type, number of lanes, traffic volumes, and speed on all rights-of-way.

***Policy M 5.1.5: Motorists, Bicyclists, and Pedestrian Conflicts*.** The City shall develop safe and convenient bikeways, streets, roadways, and intersections that reduce conflicts between bicyclists and motor vehicles on streets between bicyclists and pedestrians on multi-use trails and sidewalks, and between all users at intersections.

Goal M 6.1: Managed Parking. Provide and manage parking such that it balances the citywide goals of economic development, livable neighborhoods, sustainability, and public safety with the compact multi-modal urban environment prescribed by the General Plan.

***Policy M 6.1.1: Appropriate Parking*.** The City shall manage public parking and regulate the provision and management of private parking to support parking availability and auto access to neighborhoods across the city, with consideration for access to existing and funded transit service, mixed-use development, and shared parking opportunities.

3.12.5 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

Transportation and circulation were discussed in the Master EIR in Chapter 4.12. Various modes of travel were included in the analysis, including vehicular, transit, bicycle, pedestrian and aviation components. The analysis included consideration of roadway capacity and identification of levels of service, and effects of the 2035 General Plan on the public transportation system. Provisions of the 2035 General Plan provide substantial guidance with respect to transportation and traffic. Goals and policies applicable to the project area include the following:

Policy M 1.2.2: Level of Service Standard. The City shall implement a flexible Level of Service (LOS) standards, which will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions including the AM and PM peak hour with certain exceptions mapped on Figure M-1 (and listed in the actual General Plan document).

a. Core Area (Central City Community Plan Area) – LOS F allowed

b. Priority Investment Areas – LOS F allowed

c. LOS E roadways (11 distinct segments listed). LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of a light rail station.

d. LOS F roadways (24 distinct segments listed)

e. If maintaining the above LOS standards would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be

accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

According to Figure M1 (Vehicle Level of Service Exception Areas) of the 2035 City of Sacramento General Plan, the Core Area is bounded by the Sacramento River, American River, Broadway, and Alhambra Boulevard. All study intersections are located within the Core Areas as well as a Priority Investment Area.

The Mobility Element of the City of Sacramento's 2035 General Plan also includes the following policies related to connectivity, walking, biking, transit, and parking that are relevant to this study:

Goal M 1.1: Comprehensive Transportation System. Provide a multimodal transportation system that supports the social, economic, and environmental vision, goals, and objectives of the City, and is effectively planned, funded, managed, operated, and maintained.

Policy M 2.1.5: Housing and Destination Connections. The City shall require new subdivision and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops and stations, schools, parks, and shopping centers.

Policy M 3.1.1: Transit for All. The City shall support a well-designed transit system that provides accessibility and mobility for all Sacramento residents, workers, and visitors. The City shall enhance bicycle and pedestrian access to stations.

Policy M 3.1.14: Direct Access to Stations. The City shall ensure that development projects located in the Central City and within ½ mile walking distance of existing and planned light rail stations provide direct pedestrian and bicycle access to the station area, to the extent feasible.

Policy M 3.1.18: Developer Contributions. Consistent with the City's established transportation impact analysis and mitigation guidelines, the City shall require developer contributions for bus facilities and services and related improvements.

Goal M 4.3: Neighborhood Traffic. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.

Policy M 4.3.1: Neighborhood Traffic Management. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management and traffic calming techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.

Goal M 5.1: Integrated Bicycle System. Create and maintain a safe, comprehensive, and integrated bicycle system and set of support facilities throughout the city that encourage bicycling that is accessible to all. Provide bicycle facilities, programs, and services and

implement other transportation and land use policies as necessary to achieve the City's bicycle mode share goals as documented in the Bicycle Master Plan.

Policy M 5.1.1: Bicycle Master Plan. The City shall maintain and implement a Bicycle Master Plan that carries out the goals and policies of the General Plan. All new development shall be consistent with the applicable provisions of the Bicycle Master Plan.

Policy M 5.1.2: Appropriate Bikeway Facilities. The City shall provide bikeway facilities that are appropriate to the street classifications and type, number of lanes, traffic volumes, and speed on all rights-of-way.

Policy M 5.1.5: Motorists, Bicyclists, and Pedestrian Conflicts. The City shall develop safe and convenient bikeways, streets, roadways, and intersections that reduce conflicts between bicyclists and motor vehicles on streets between bicyclists and pedestrians on multi-use trails and sidewalks, and between all users at intersections.

Goal M 6.1: Managed Parking. Provide and manage parking such that it balances the citywide goals of economic development, livable neighborhoods, sustainability, and public safety with the compact multi-modal urban environment prescribed by the General Plan.

Policy M 6.1.1: Appropriate Parking. The City shall manage public parking and regulate the provision and management of private parking to support parking availability and auto access to neighborhoods across the city, with consideration for access to existing and funded transit service, mixed-use development, and shared parking opportunities.

While the General Plan includes numerous policies that direct the development of the City's transportation system, the Master EIR concluded that the General Plan development would result in significant and unavoidable effects. See Impacts 4.12-3 (roadway segments in adjacent communities, and Impact 4.12-4 (freeway segments).

River District Specific Plan EIR

The River District Specific Plan (RDSP) EIR evaluated a number of transportation-related improvements that would be carried out as part of the RDSP's implementation. These included the realignment of Richards Boulevard and the construction of the proposed Dos Rios light rail station.

While the RDSP EIR included numerous policies and mitigations that direct the development of the area's transportation system, the EIR concluded that the RDSP development would result in significant and unavoidable effects. See Impact 5.10-1 (intersections in 2015), Impact 5.10-2 (roadway segments in 2015), Impact 5.10-3 (freeway mainline segments in 2015), Impact 5.10-4 (freeway interchanges in 2015), Impact 5.10-5 (freeway off-ramp queues in 2015), Impact 5.10-10 (intersections in 2035), Impact 5.10-11 (roadway segments in 2035), Impact 5.10-12 (freeway mainline segments in 2035), Impact 5.10-13 (freeway interchanges in 2035), and Impact 5.10-14 (freeway off-ramp queues in 2035).

3.12.6 Impact Assessment and Mitigation Measures

The following impact analysis is presented in two scenarios: Existing Plus Project and Cumulative Plus Project. The Existing Plus Project scenario assesses the potential impact of the project on the existing roadway network and other transportation facilities. This allows for a view of the project impacts alone without contribution of outside influences. The Cumulative Plus Project scenario assessed the project's potential impacts in the context of the future condition. This scenario includes any proposed changes to the existing roadway network and other transportation facilities, such as road realignments, new intersection controls, etc. This cumulative scenario also includes the contribution of any reasonably foreseeable projects which would also add traffic and ridership to area transportation facilities.

Standards of Significance

The significance criteria used to evaluate the project impacts to transportation and traffic under CEQA are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, and thresholds of significance adopted by the City in applicable general plans and previous environmental documents, including the 2035 General Plan Master EIR (City of Sacramento, 2014).

The following describes the significance criteria used to identify project-specific and cumulatively considerable impacts to the transportation and circulation system for the proposed project.

Intersections

Impacts to the roadway system are considered significant if:

- The traffic generated by the project degrades the overall roadway system operation to the extent that the project would not be consistent with General Plan Policy M 1.2.2 relating to the City's Level of Service Policy.

General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:

- All study intersections are located in the Core Area and are governed by Policy M 1.2.2 (a). LOS F is acceptable at these locations during peak hours, provided that the project provides improvements to other parts of the citywide transportation system within the project site vicinity (or within the area affected by the project's vehicular traffic impacts) to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. Road widening or other improvements to road segments are not required.

Freeway Facilities

Impacts to the roadway system are considered significant if:

- Project traffic causes off-ramp traffic to queue back to beyond the freeway gore point, or worsens an existing/projected queuing problem on a freeway off-ramp.

Bicycle Facilities

Impacts to bicycle facilities are considered significant if the proposed project would:

- Adversely affect existing or planned bicycle facilities, or
- Fail to adequately provide for access by bicycle.

Pedestrian Circulation

Impacts to pedestrian circulation are considered significant if the proposed project would:

- Adversely affect existing or planned pedestrian facilities, or
- Fail to adequately provide for access by pedestrians.

Transit

Impacts to the transit system are considered significant if the proposed project would:

- Adversely affect public transit operations, or
- Fail to adequately provide access to transit.

Construction-Related Traffic Impacts

The project would have a temporarily significant impact during construction if it would:

- Degrade an intersection or roadway to an unacceptable level;
- Cause inconveniences to motorists due to prolonged road closures; or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

The first significance criterion bullet listed above under "Intersections" is the City's interpretation of how General Plan Policy M 1.2.2 should be applied in the Core Area and Priority Investment Areas of the City. This policy allows these areas to have intersections that operate at LOS F. However, such conditions should not be detrimental toward other General Plan circulation policies (including but not limited to policies M 1.2.1, 1.2.4, 1.3.3, and 1.3.5), which pertain to providing high-quality transit, walkable neighborhoods and business districts, continuous and connected bikeways, transportation demand management, emergency response, and other circulation considerations. So, while a single intersection operating at LOS F during the peak hour may be considered acceptable, an entire roadway system that experiences severe gridlock, and hampers all modes of travel is generally not considered acceptable. To this end, the evaluation of this significance criterion focuses on the totality of system operations to assess consistency with General Plan Policy M 1.2.2.

Department of Housing and Urban Development Evaluation Criteria

HUD has not promulgated specific regulatory guidance relevant to evaluation of transportation and traffic impacts.

Other Applicable Evaluation Criteria

FTA has not promulgated specific regulatory guidance relevant to evaluation of transportation and traffic impacts.

Methods of Analysis

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts of the proposed project on the transportation system. This section first describes the anticipated travel characteristics of the proposed project. It then presents the expected conditions of the transportation system with the addition of the proposed project.

To analyze impacts to LOS, the City has developed specific policies included in the 2035 General Plan that clearly define acceptable LOS in various areas of the City. The LOS thresholds included in General Plan policy M 1.2.2 are used to evaluate whether traffic associated with the proposed project would result in a significant impact (as stated in the Thresholds of Significance).

All study intersections are within the Core Area of the City and are governed by General Plan Policy M 1.2.2(a). In developing this policy, the City evaluated the benefits of allowing lower levels of service in order to promote infill development within an urbanized high density area of the city that reduces VMT and supports more transportation alternatives, including biking, walking, and transit, as compared to requiring a higher level of service that would accommodate more cars but may also require widening roads and would result in increased vehicle miles traveled and greenhouse gas emissions. Based on this evaluation, the City determined that LOS F is considered acceptable during peak hours within the Core Area, provided that the project provides improvements to other parts of the citywide transportation system within the project site vicinity (or within the area affected by the project's vehicular traffic impacts) to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. Road widening or other improvements to road segments are not required for roads within the Core Area.

The City's LOS policy was adopted to allow decreased levels of service (e.g. LOS F) in the urbanized Core Area of the City that supports more transportation alternatives and places residents proximate to employment, entertainment, retail and neighborhood centers and thus reduces overall vehicle miles travelled and results in environmental benefits (e.g., improved air quality and reduced GHG emissions).

Trip Generation

The motor vehicle trip generation of the 218 existing public housing units on the site was measured using traffic counts of all access points to/from the site, collected during the weekday AM and PM peak periods on Tuesday, November 17, 2015. The calculated peak hour trip generation rates, based on this data, are shown in **Table 3.12-4** for the "public housing replacement" units. Note that although the table documents the trip generation of public housing replacement units, they are subtracted from the net trip generation estimate since these units exist today and all trips associated with them would not be considered "new" trips generated by the proposed project.

TABLE 3-12.4
PROJECT TRIP GENERATION

Land Use	Dwelling Units	Trip Rates						AM Peak Hour Trips			PM Peak Hour Trips		
		AM	In %	Out %	PM	In %	Out %	In	Out	Total	In	Out	Total
Public Housing Replacement[1]	218	0.50	40%	60%	0.49	45%	55%	44	65	109	48	59	107
Townhouse (ITE 230)[2]	42	0.62	17%	83%	0.71	67%	33%	4	22	26	20	10	30
Apartment (ITE 220)[2]	250	0.50	20%	80%	0.62	65%	35%	25	101	126	101	54	155
Total External Vehicle Trips								73	188	261	169	123	292
Existing Trips To/From Project Site								-44	-65	-109	-48	-59	-107
Net New External Vehicle Trips								**29**	**123**	**152**	**121**	**64**	**185**

NOTES:
[1] Trip generation for the public housing replacement units based on traffic counts conducted for the existing Twin Rivers public housing development.
[2] Trip generation for the townhouses and apartments follow the methodology identified in the *Trip Generation Handbook 3rd Edition* (ITE, 2014) and from data published in *Trip Generation Manual 9th Edition* (ITE, 2012). The fitted curve equations were used to estimate trips for these residential uses.

SOURCE: Fehr & Peers, 2017.

The trip generation for the remainder of the residential units was conservatively calculated using published equations in the Trip Generation Manual, 9th Edition (Institute of Transportation Engineers, 2012) since the new units would include some market-rate rentals, which may generate trips at a higher rate than the existing public housing units. The trips for the multi-story townhouses and live-work residences were calculated using land use code 230 for Residential Condominium/Townhouse.

The garden apartments and multi-family apartments are represented in the description for land use code 220 for Apartment. Based on the methodology described in the Trip Generation Handbook, 3rd Edition (Institute of Transportation Engineers, 2014), the fitted curve equations for both land use types were used to calculate the project generated trips. As shown in Table 3.12-4, this results in rates that are higher than the measured trip rates during both peak hours, except for the townhouse housing type during the AM peak hour, which is slightly lower than the measured AM peak hour rate of 0.50. Table 3.12-4 summarizes the resulting trip generation of the proposed project.

It should be noted that the trip generation estimate in Table 3.12-4 does not include external vehicle trip adjustments to account for transit, bike, or walk trips beyond the levels that are built in to the ITE rates. Although the proposed project includes the construction of a new light rail station that would serve the residents of the project and the project would likely have higher than average transit usage, the analysis of the proposed project conservatively includes no reduction for transit trips to/from the site, but does account for train movements associated with the proposed light rail station in the intersection operations analysis.

Trip Distribution/Assignment

The distribution of project trips was estimated using a variety of sources and analytical techniques. The following lists the various sources and analytical techniques used to develop the inbound and outbound trip distribution percentages:

- Project-only traffic assignment using the base year SACMET regional travel demand model.
- Review of existing traffic count data.

Figures 3.12-6A and **3.12-6B** show the expected distribution of inbound and outbound project trips for Existing Plus Project conditions. It was necessary to develop separate distributions for inbound/outbound trips due to the number of one-way streets and the location of freeway on- and off-ramps within the study area. It was necessary to develop separate near-term and cumulative distributions due to planned major roadway projects within the study area (refer to Cumulative Conditions section for additional information).

Environmental Analysis: Project Impacts

As noted above, this analysis has been divided into two impact scenarios. Impact questions TRA-1 though TRA-6 address effects attributable to the Existing Plus Project scenario. Impact questions TRA-7 through TRA-12 assess project effects together with future conditions in the study area (e.g., roadway improvements, other projects), referred to as the Cumulative Plus Project scenario.

TRA-1. Would the project have an adverse effect on intersections?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Project trips were assigned to the existing study area intersections (i.e., Intersections 1 through 12) in accordance with the trip generation and distribution calculations discussed above. These project trips were then added to the existing volumes and proposed project driveways (i.e., Intersections 17, 18, 19). **Figure 3.12-7A** and **3.12-7B** shows the resulting volumes at the existing study intersections that represent full build-out of the proposed project.

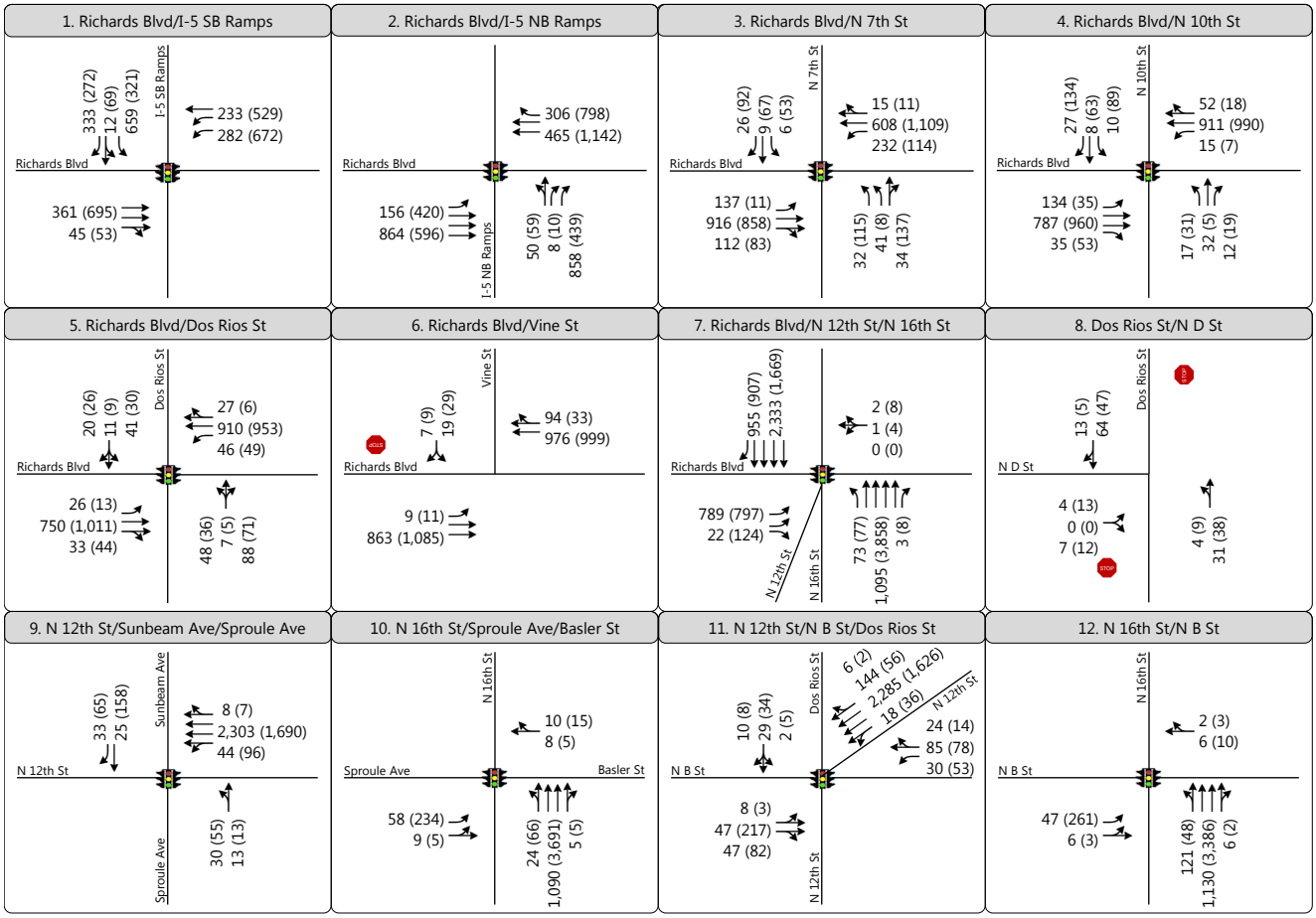
The existing study intersection LOS were then analyzed under Existing Plus Project conditions, which includes the project, but no changes to land uses or to the transportation system within the study area other than those related to implementation of the proposed project. **Table 3.12-5** summarizes the Existing Plus Project intersection analysis results. Detailed technical calculations are presented in Appendix D.

SOURCE: Fehr & Peers

Figure 3.12-6A
Inbound Trip Distribution -
Existing Plus Project Conditions

SOURCE: Fehr & Peers

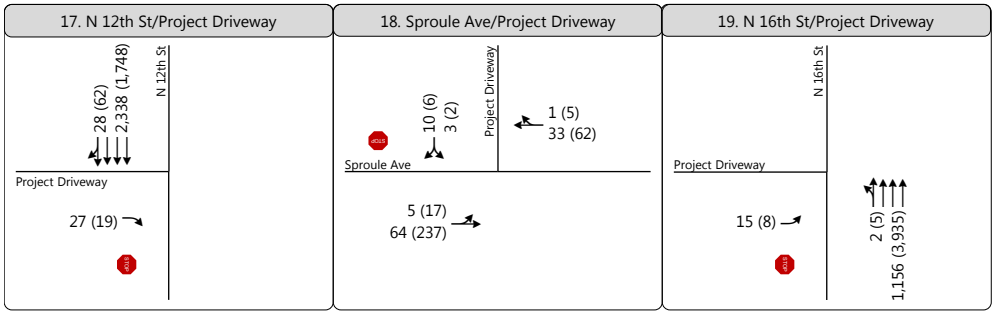
Figure 3.12-6B
Outbound Trip Distribution -
Existing Plus Project Conditions



SOURCE: Fehr & Peers

Figure 3.12-7A

Peak Hour Traffic Volumes and Lane Configurations
Existing Plus Project Conditions



SOURCE: Fehr & Peers

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Figure 3.12-7B
Peak Hour Traffic Volumes and Lane Configurations
Existing Plus Project Conditions

TABLE 3.12-5
INTERSECTION OPERATIONS – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control	Peak Hour	Existing		Existing Plus Project	
			LOS	Average Delay	LOS[1]	Average Delay
1. Richards Boulevard/I-5 SB Ramps	Traffic Signal	AM PM	B C	18 24	B C	18 24
2. Richards Boulevard/I-5 NB Ramps	Traffic Signal	AM PM	B C	16 20	B C	18 20
3. Richards Boulevard/N 7th Street	Traffic Signal	AM PM	C C	25 25	C C	26 27
4. Richards Boulevard/N 10th Street	Traffic Signal	AM PM	B A	13 10	B B	12 12
5. Richards Boulevard/Dos Rios Street	Traffic Signal	AM PM	B A	12 9	B B	15 14
6. Richards Boulevard/Vine Street	Side-Street Stop	AM PM	A (D) A (E)	5 (27) 6 (48)	A (D) A (F)	6 (33) 6 (66)
7. Richards Boulevard/N 12th Street/N 16th Street	Traffic Signal	AM PM	C D	28 53	C D	33 55
8. Dos Rios Street/N D Street	Side-Street Stop	AM PM	A (A) A (A)	1 (4) 2 (4)	A (A) A (A)	1 (3) 2 (5)
9. N 12th Street/Sunbeam Avenue/Sproule Avenue	Traffic Signal	AM PM	B B	13 11	B C	15 20
10. N 16th Street/Sproule Avenue/ Basler Street	Traffic Signal	AM PM	B E	12 63	B E	13 65
11. N 12th Street/N B Street/Dos Rios Street	Traffic Signal	AM PM	B B	17 19	B C	19 25
12. N 16th Street/N B Street	Traffic Signal	AM PM	A B	7 15	A B	7 17
17. N 12th Street/Project Driveway	Side-Street Stop	AM PM	- -	- -	A (B) A (A)	2 (12) 2 (8)
18. Sproule Avenue/Project Driveway (Expansion Area)	Side-Street Stop	AM PM	- -	- -	A (A) A (A)	1 (2) 2 (3)
19. N 16th Street/Project Driveway (Expansion Area)	Side-Street Stop	AM PM	- -	- -	A (A) B (F)	2 (6) 14 (174)

NOTES:
[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For side-street stop controlled intersections, the delay is reported in seconds per vehicle for the overall intersection and the worst movement (in parentheses).

SOURCE: Fehr & Peers, 2017.

As shown in Table 3.12-5, all study intersections would continue to operate with an overall intersection LOS of D or better during both peak hours with implementation of the proposed project, except for the intersection of North 16th Street/Sproule Avenue/Basler Street (Intersection 10), which operates at LOS E during the PM peak hour. It is noted that this LOS is unchanged from the existing condition. The delay at this location during the PM peak hour is primarily due to queue spillback along northbound North 16th Street from the Richards Boulevard/North 12th Street/North 16th Street intersection (Intersection 7). During the PM peak

hour, North 16th Street experiences heavy commuter traffic flow leaving Downtown Sacramento and traveling north through the study area to access SR 160.

When considered with the significance criteria for effects to intersections, the project would not degrade roadway system operation to the extent that the project would not be consistent with General Plan Policy M 1.2.2. As discussed above, the City's policy was adopted to allow decreased levels of service (e.g. LOS F) in the urbanized Core Area of the City that supports more transportation alternatives and places residents proximate to employment, entertainment, retail and neighborhood centers and thus reduces overall vehicle miles travelled and results in environmental benefits (e.g., improved air quality and reduced GHG emissions). Based on this evaluation, the City determined that LOS F is considered acceptable during peak hours within the Core Area. Therefore, under NEPA, there would be **no adverse effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-2. Would the project have an adverse effect on area freeway facilities?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Table 3.12-6 presents the maximum expected I-5 freeway off-ramp queue lengths within the study area during the AM and PM peak hours at Richards Boulevard. As shown, all study freeway off-ramp queues remain within the available storage area during both the AM and PM peak hours under Existing Plus Project conditions.

TABLE 3.12-6
OFF-RAMP QUEUING – EXISTING PLUS PROJECT CONDITIONS

Location	Available Storage	Peak Hour	Existing Maximum Queue	Existing Plus Project Maximum Queue
Interstate 5 SB Off-Ramp at Richards Boulevard	1,050 feet	AM PM	330 feet 200 feet	250 feet 225 feet
Interstate 5 NB Off-Ramp at Richards Boulevard	1,000 feet	AM PM	350 feet 150 feet	400 feet 175 feet

NOTES: Maximum queue length is based upon output from SimTraffic microsimulation software, rounded up to nearest 25 feet.

SOURCE: Fehr & Peers, 2017.

When considered with the significance criteria for effects to freeway facilities, the project would not cause extended vehicle queues onto the I-5 freeway deceleration lane or mainline, deteriorate the ramps' LOS relative to the freeway LOS, or otherwise deteriorate beyond Caltrans thresholds. Therefore, under NEPA, there would be **no adverse effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-3. Would the project have an adverse effect on transit operations or access to transit?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As described above, multiple transit options operate within the study area, including the RT Blue Line light rail and RT bus routes 11, 15, 29, and 33. Routes 15 and 33 have stops immediately adjacent to the project site. RT has indicated that it would likely eliminate or re-route Route 33 if the proposed Dos Rios Station opens, as the bus route and the light rail line would serve redundant functions.

The project also includes construction and operation of a new infill light rail station (Dos Rios Station) on the existing RT Blue Line and the Expansion Area site. The proposed new infill station would be located approximately 0.7 mile north of the existing Alkali Flat/La Valentina Station and approximately 1 mile south of the existing Globe Station, reducing the spacing of stations along the line to a distance that is more consistent with station spacing within downtown and mid-town areas on the remainder of the RT light rail system. Construction of the proposed new station would enhance transit access within the study area.

This station is included in the operations analysis of the Existing Plus Project scenario. Due to the proximity of the Expansion Area project driveway on Sproule Avenue (Intersection 18) to the Blue Line light rail crossing and Dos Rios Station, left-turn queuing from the driveway was evaluated to determine if the queue spill back would extend back (west on Sproule Avenue) to the light rail crossing. The distance between the driveway and the intersection of North 12th Street/ Sunbeam Avenue/Sproule Avenue at the light rail crossing is approximately 260 feet. The maximum queue (rounded up to the nearest 25 feet) of the eastbound left/through movement into the project driveway from Sproule Avenue is 0 feet during the AM peak hour and 25 feet during the PM peak hour. Therefore, implementation of the proposed project is not anticipated to cause traffic queuing across the light rail tracks and interfere with light rail operations.

Addition of the new Dos Rios Station on the Blue Line would increase light rail travel times between downtown and the areas north of the American River. As a condition of a 2015 Community Design Grant, the Sacramento Area Council of Governments (SACOG) required, "[SACOG] Staff recommends funding [the Dos Rios Station] project as part of a contingent action that would require Regional Transit to examine ways to not increase travel times along the Blue Line (Gold Line for Horn Road) if this station is constructed. This could be achieved by closing an underperforming Blue Line rail station and/or system improvements that improve travel time along the corridor." On February 22, 2016, the RT Board of Directors subsequently adopted Resolution 16-02-0018, which directed the RT General Manager and staff to take

necessary actions to pursue permanent closure of the St. Rose of Lima Park (7th & K) Station. The 7th & K Station was subsequently closed effective October 1, 2016, satisfying in advance the requirement to avoid increases in light rail travel times along the corridor.

Based on this analysis, the proposed project would not disrupt any existing or proposed transit service or facility, or degrade access to transit. In fact, the project would provide increase public transit options in the area with the establishment of an infill station at the project site. Therefore, under NEPA, there would be **a beneficial effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-4. Would the project have an adverse effect on bicycle facilities or would it fail to provide adequate access for bicycle users?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As previously documented, Class II on-street bicycle lanes are currently provided near the project frontage on North B Street and Richards Boulevard. In addition, the construction of Street W through the project site would include Class II bike lanes on both sides of the street. Implementation of the proposed project would not remove any existing bicycle facility, including the existing Class II bicycle lanes. Implementation of the proposed project would contribute facilities to the planned bicycle network identified in the City's Bicycle Master Plan. Under NEPA, there would be a **beneficial effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-5. Would the project adversely affect pedestrian circulation or fail to provide access for pedestrian users?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Currently, sidewalks are located on both sides of all streets surrounding the project site, except for the east side of North 12th Street and the north side of Sproule Avenue. The project would include construction of sidewalks along the project frontage, as well as on both sides of all new streets internal to the project site. Construction of the Dos Rios light rail station would also include the

construction of new sidewalks to facilitate pedestrian access to and from the station. The proposed project would not disrupt existing pedestrian facilities, but would provide improved and additional pedestrian linkages in the project area. Under NEPA, there would be a **beneficial effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-6. Would the project result in impacts related to construction-related activities?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Construction of the proposed project would generate truck and employee trips during demolition of existing structures on the project site and construction of the proposed project. Since the magnitude of these trips during peak hours would be less than that of the proposed project, absolute impacts (in terms of delay and queuing) when compared to Existing Plus Project operations would not be significant. Construction staging and lane closures could cause adverse effects if not carefully planned. Thus, the project could potentially cause a temporary impact due to lane closures, traffic hazards to bikes/pedestrians, damage to roadbed, or truck traffic on roadways not designated as truck routes.

For these reasons, construction of the proposed project would create temporary, but **adverse**, effects to the area's transportation facilities under NEPA. Likewise, these project impacts during construction are **potentially significant** under CEQA. **Mitigation Measure 3.12-1** is proposed requiring implementation of a Construction Management Plan to address impacts stemming from various elements of project construction. Implementation of **Mitigation Measure 3.12-1** would reduce this impact to **less than significant** under CEQA and **no adverse effect** under NEPA.

Environmental Analysis: Cumulative Impacts

Cumulative impacts refer to the combined effect of project impacts with the impacts of other past, present, and reasonably foreseeable future projects. This cumulative impact analyses does not rely on a list of specific pending or reasonably foreseeable development proposals in the vicinity of the proposed project. As has been noted in this section, this cumulative assessment relies on existing and future development accommodated under the City's General Plan, which is included in regional travel demand modeling.

For transportation and traffic impacts, the geographic focus of the cumulative analysis is the study area and intersections previously identified in Figure 3.12-1.

Impact questions TRA-7 through TRA-12 assess project effects together with future conditions in the study area (e.g., roadway improvements, other projects).

Traffic Forecasts

The most recent version of the SACMET regional travel demand model developed and maintained by SACOG was used to forecast cumulative (year 2035) traffic volumes within the study area. The cumulative version of this model accounts for planned land use growth within the City of Sacramento according to the City's 2035 General Plan, as well as within the surrounding region. The SACMET model also accounts for planned improvements to the surrounding transportation system, and incorporates the current MTP/SCS for the Sacramento region. The version of the model used to develop the forecasts was modified to include the most recent planned land uses and transportation projects within the City of Sacramento.

For the project, the model has been modified to include additional transportation network and land use detail within the study area to improve accuracy. Previous modifications to the model involving similar enhancements within the City surrounding major land development and transportation projects were also incorporated. These projects include the Entertainment Sports Center (ESC), the Railyards Specific Plan Update (RPSU), and the McKinley Village land development projects, as well as the I Street Bridge Replacement and the re-alignment and installation of a two-way cycle track along North 12th Street.

A forecasting procedure known as the "difference method" was utilized to develop the cumulative background forecasts. This method accounts for potential differences between the base year model and existing traffic counts that could otherwise transfer to the future year model and traffic forecast. This forecasting procedure is calculated as follows:

Cumulative Traffic Forecast =
Existing Volume + (Cumulative TDM Forecast – Base Year TDM Forecast)

Trips associated with the proposed project were then layered on top of the cumulative forecasts using the same trip generation, distribution, and assignment procedures described in the Methods of Analysis. **Figures 3.12-8A** and **3.12-8B** show the expected distribution of inbound and outbound project trips under Cumulative Plus Project conditions. It was necessary to develop separate cumulative trip distributions than under near-term due to planned major roadway projects within the study area. **Figures 3.12-9A** and **3.12-9B** display shows the resulting Cumulative Plus Project peak-hour traffic forecasts at the study intersections.

TRA-7. Would the project have an adverse cumulative effect on intersections?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

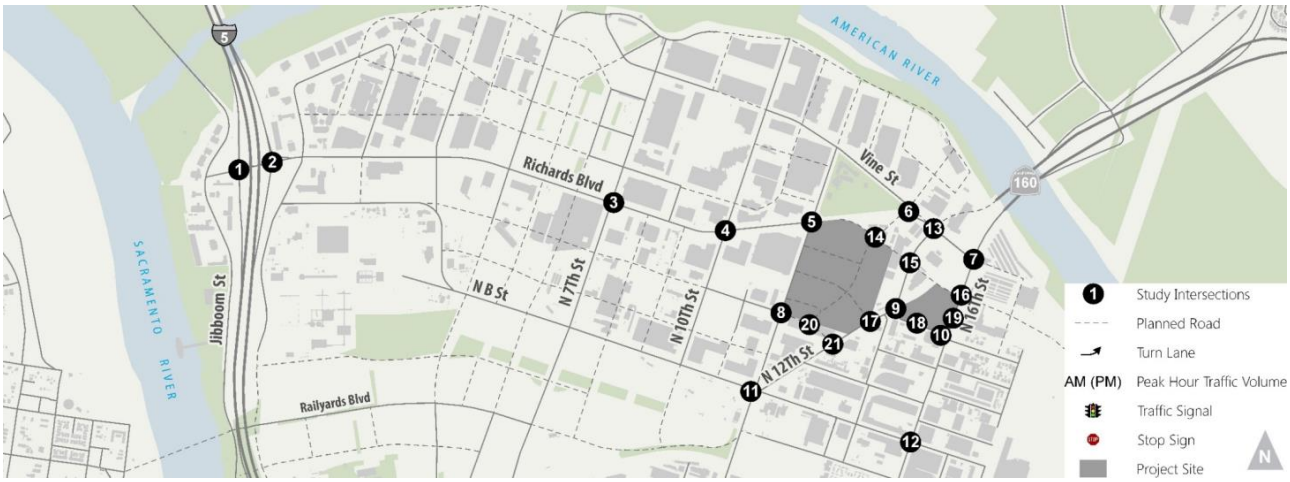
SOURCE: Fehr & Peers

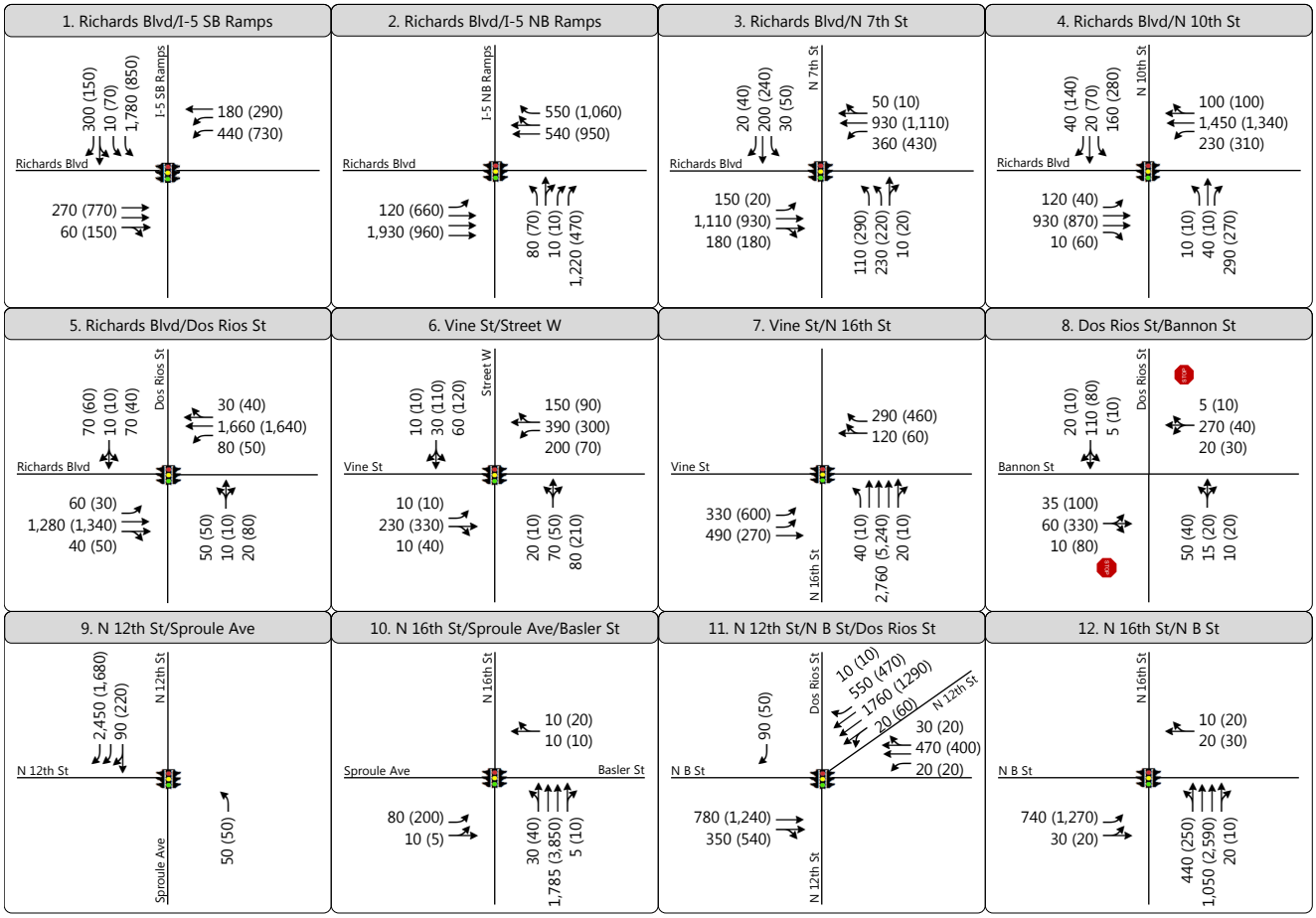
Twin Rivers Transit-Oriented Development and Light Rail Station Project . 140202

Figure 3.12-8A
Inbound Trip Distribution -
Cumulative Plus Project Conditions

SOURCE: Fehr & Peers

Figure 3.12-8B
Outbound Trip Distribution -
Cumulative Plus Project Conditions

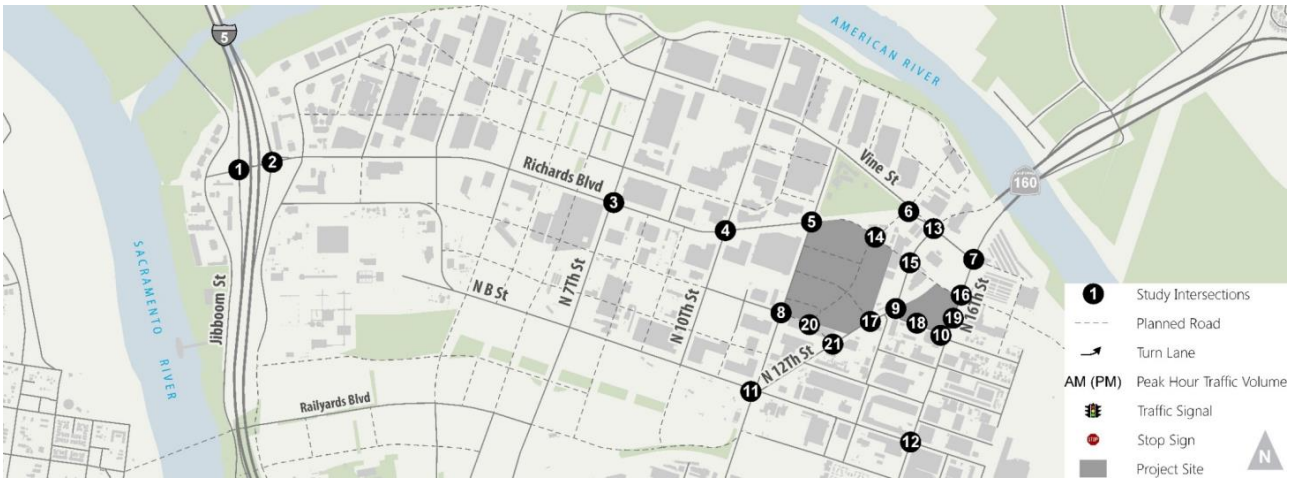


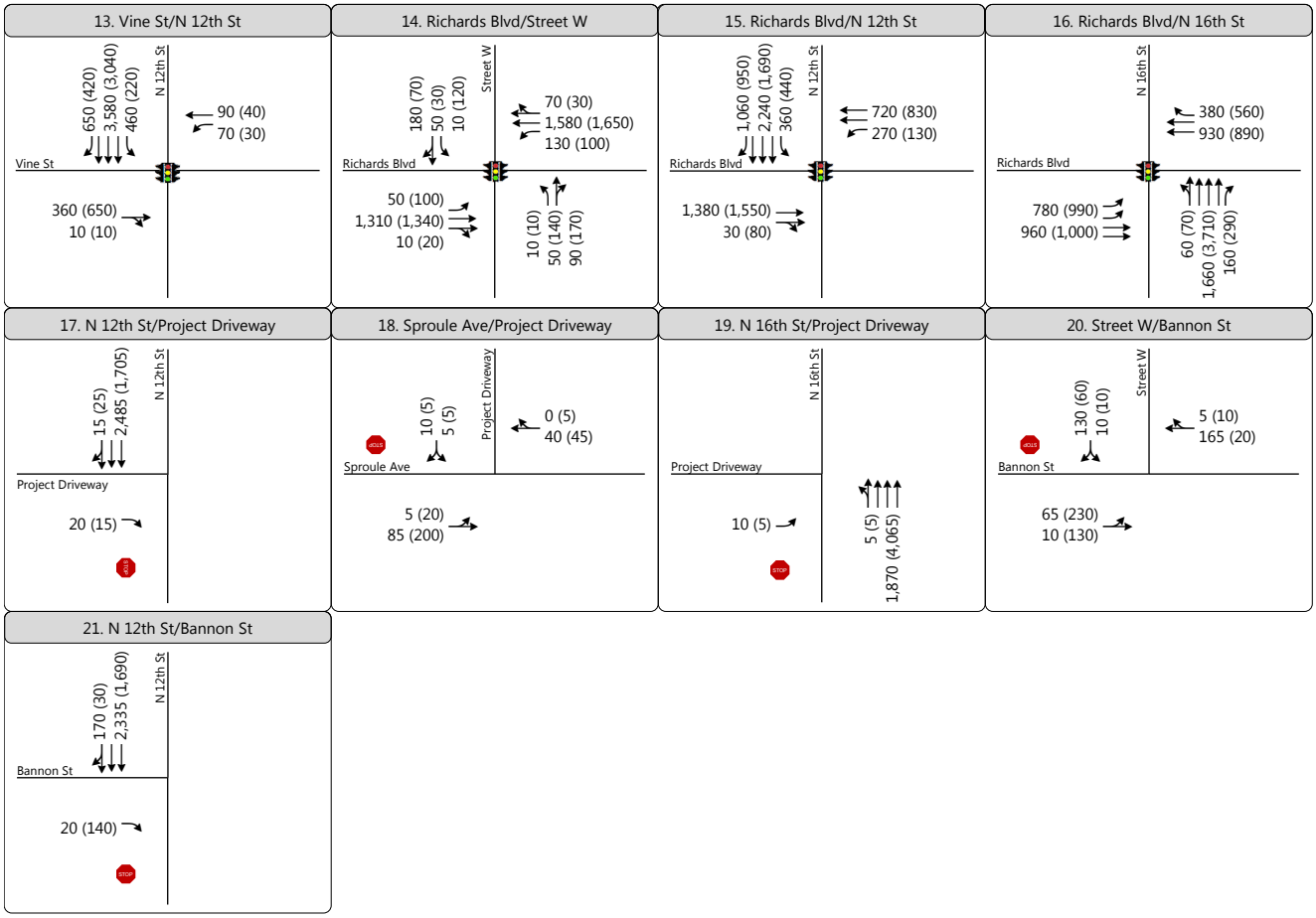


SOURCE: Fehr & Peers

Figure 3.12-9A

Peak Hour Traffic Volumes and Lane Configurations
Cumulative Plus Project Conditions





SOURCE: Fehr & Peers

Figure 3.12-9B
Peak Hour Traffic Volumes and Lane Configurations
Cumulative Plus Project Conditions

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Table 3.12-7 summarizes the Cumulative Plus Project intersection analysis results. Detailed technical calculations are presented in Appendix D. As shown in Table 3.12-7, during the AM peak hour, two intersections operate at LOS E (Intersections 2 and 16) and two intersections operate at LOS F (Intersections 1 and 13). These intersections include the Richards Boulevard/ Interstate 5 ramp terminal intersections. Furthermore, excessive queueing occurs in both directions of Richards Boulevard between Dos Rios Street.

During the PM peak hour, two intersections operate at LOS E (Intersections 1 and 14) and five intersections operate at LOS F (Intersections 6, 10, 12, 13, and 16). The study intersection that experiences the highest average level of delay under Cumulative Plus Project conditions is the North 12th Street/Vine Street intersection (Intersection 13). Substantial queueing occurs along both directions of Richards Boulevard, as well as southbound on North 12th Street and northbound on North 16th Street.

Although a number of intersections have been found to operate at LOS E or F, implementation of the proposed project under the Cumulative Plus Project condition would not result in unacceptable intersection operations. As noted above, the 2035 General Plan Policy M 1.2.2 allows LOS F at intersections located within the Core Area and/or a Priority Investment Area. All affected intersections fall under this policy. Further, the project would construct improvements to non-auto travel modes within the study area to enhance the transportation system also in furtherance of 2035 General Plan goals, including a new light rail station and new sidewalks improving pedestrian linkages.

Therefore, implementation of the proposed project would not result in unacceptable intersection operations under the Cumulative Plus Project condition. Under NEPA, there would be **no adverse effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-8. Would the project have an adverse cumulative effect on area freeway facilities?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Table 3.12-8 presents the maximum expected freeway off-ramp queue lengths within the study area during the AM and PM peak hours at Richards Boulevard. As shown, during the AM peak hour, the maximum queue for the Interstate 5 Southbound Off-Ramp and Interstate 5 Northbound Off-Ramp extend farther than the available storage length under Cumulative Plus Project conditions.

TABLE 3.12-7
INTERSECTION OPERATIONS – CUMULATIVE PLUS PROJECT CONDITIONS

Intersection	Control	Peak Hour	Level of Service	Average Delay[1] in seconds
1. Richards Boulevard/I-5 SB Ramps	Traffic Signal	AM PM	F E	141 59
2. Richards Boulevard/I-5 NB Ramps	Traffic Signal	AM PM	E B	72 19
3. Richards Boulevard/N 7th Street	Traffic Signal	AM PM	D D	41 47
4. Richards Boulevard/N 10th Street	Traffic Signal	AM PM	C D	23 37
5. Richards Boulevard/Dos Rios Street	Traffic Signal	AM PM	D D	38 46
6. Vine Street/Street W2	Traffic Signal	AM PM	D F	54 131
7. Vine Street/N 16th Street3	Traffic Signal	AM PM	C D	24 43
8. Dos Rios Street/Bannon Street4	Side-Street Stop	AM PM	A (A) A (B)	5 (8) 9 (12)
9. N 12th Street/Sproule Avenue5	Traffic Signal	AM PM	A B	9 13
10. N 16th Street/Sproule Avenue/ Basler Street	Traffic Signal	AM PM	A F	8 144
11. N 12th Street/N B Street/Dos Rios Street	Traffic Signal	AM PM	C D	26 54
12. N 16th Street/N B Street	Traffic Signal	AM PM	B F	18 86
13. N 12th Street/Vine Street	Traffic Signal	AM PM	F F	152 203
14. Richards Blvd/Street W	Traffic Signal	AM PM	D E	41 71
15. Richards Blvd/N 12th Street	Traffic Signal	AM PM	D D	44 50
16. Richards Blvd/N 16th Street	Traffic Signal	AM PM	E F	64 81
17. N 12th Street/Project Driveway	Side-Street Stop	AM PM	A (C) A (A)	1 (17) 1 (6)
18. Sproule Avenue/Project Driveway	Side-Street Stop	AM PM	A (A) A (A)	1 (3) 2 (7)
19. N 16th Street/Project Driveway	Side-Street Stop	AM PM	B (F) C (F)	12 (60) 23 (292)
20. Street W/Bannon Street	Side-Street Stop	AM PM	A (A) A (A)	3 (5) 4 (6)
21. N 12th Street/Bannon Street	Side-Street Stop	AM PM	A (B) A (B)	4 (13) 3 (12)

NOTES:
[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for the overall intersection. For side-street stop controlled intersections, the delay is reported in seconds per vehicle for the overall intersection and the worst movement (in parentheses).
[2] Formerly Richards Boulevard/Vine Street
[3] Formerly Richards Boulevard/N 12th Street/N 16th Street
[4] Formerly Dos Rios Street/N D Street
[5] Formerly N 12th Street/Sunbeam Avenue/Sproule Avenue

SOURCE: Fehr & Peers, 2017.

TABLE 3.12-8
OFF-RAMP QUEUING – CUMULATIVE PLUS PROJECT CONDITIONS

Location	Available Storage	Peak Hour	Maximum Queue[1]
Interstate 5 SB Off-Ramp at Richards Boulevard	1,050 feet	AM PM	1,450 feet 350 feet
Interstate 5 NB Off-Ramp at Richards Boulevard	1,000 feet	AM PM	1,125 feet 150 feet

NOTES:
[1] Maximum queue length is based upon output from SimTraffic microsimulation software, rounded up to nearest 25 feet.

SOURCE: Fehr & Peers, 2017.

Table 3.12-8 shows that queues for both the southbound and northbound ramps extend back to the mainline from the study ramp terminal intersections during the AM peak period. This would be a **potentially significant impact** under CEQA and an **adverse effect** under NEPA. On April 5, 2016, the City approved the I-5 Subregional Corridor Mitigation Fee Program (SCMP) and certified its Supplemental EIR (SCH #2011012081). The SCMP would increase ridesharing during peak periods and add ramp meters and auxiliary and transition lanes on I-5 to improve traffic operations. The SCMP provides the option for development projects to monetarily contribute to the program, which would constitute mitigation for a project's impacts to the area's freeway system. To reduce the project's queuing impacts shown in Table 3.12-8, the project would participate in the SCMP through **Mitigation Measure 3.12-2**. Therefore, the project would not have cumulatively considerable impacts to freeway facilities in the area. Implementation of **Mitigation Measure 3.12-2** would reduce this impact to **less than significant** under CEQA and **no adverse effect** under NEPA.

TRA-9. Would the project have an adverse cumulative effect on transit operations or access to transit?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As noted above, multiple transit options operate within the study area, including the RT Blue Line light rail and RT bus routes 11, 15, and 33. Routes 15 and 33 have stops immediately adjacent to the project site.

The project also includes construction and operation of a new infill light rail station (Dos Rios Station) on the existing RT Blue Line and the Expansion Area site. The proposed new infill station would be located approximately 0.7 mile north of the existing Alkali Flat/La Valentina

Station and 1 mile south of the existing Globe Station, reducing the spacing of stations along the line to a distance that is more consistent with station spacing within downtown and mid-town areas on the remainder of the RT light rail system. Construction of the proposed new station would enhance transit access within the study area.

This station is included in the operations analysis of the Cumulative scenario. Due to the proximity of the Expansion Area project driveway located on Sproule Avenue (Intersection 20) to the Blue Line light rail crossing and Dos Rios Station, left-turn queuing from the driveway was evaluated to determine if the queue spill back would extend back (west on Sproule Avenue) to the light rail crossing. The distance between the driveway and the intersection of North 12th Street/Sunbeam Avenue/Sproule Avenue at the light rail crossing is approximately 260 feet. There would be no queue for the eastbound left/through movement into the project driveway from Sproule Avenue during the AM and PM peak hours. Therefore, implementation of the proposed project is not anticipated to cause queuing across the light rail tracks and interfere with light rail operations.

Based on this analysis, the proposed project would not disrupt any existing or proposed transit service or facility, or degrade access to transit. In fact, the project would provide increased public transit options in the area with the establishment of an infill station at the project site. Therefore, the project would not have cumulatively considerable impacts to transit services or facilities in the area. Under NEPA, there would be **a beneficial effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-10. Would the project have an adverse cumulative effect on bicycle facilities or would it fail to provide adequate access for bicycle users?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

As previously documented, Class II on-street bicycle lanes are currently provided along the project frontage on North B Street and Richards Boulevard. Under cumulative conditions, the realignment of North 12th Street includes the construction of a separated, two-way cycle track (Class I bike facility). In addition, the construction of Street W through the project site would include Class II bike lanes on both sides of the street. Implementation of the proposed project would not remove any existing bicycle facilities, including the existing Class II bicycle lanes, or interfere with the construction of any planned bicycle facilities. Implementation of the proposed project would contribute facilities to the planned bicycle network identified in the City's Bicycle Master Plan. Therefore, the project would not have cumulatively considerable impacts to bicycle facilities in the area. Under NEPA, there would be **a beneficial effect** on bicycle facilities or impede user access to such facilities. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-11. Would the project result in an adverse cumulative effect on pedestrian circulation or fail to provide access for pedestrian users?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Currently, sidewalks are located on both sides of all streets surrounding the project site, except for the east side of North 12th Street and the north side of Sproule Avenue. The project would include construction of sidewalks along the project frontage, as well as on both sides of all new streets internal to the project site. Construction of the Dos Rios light rail station would also include the construction of new sidewalks to facilitate pedestrian access to and from the station. Furthermore, a new sidewalk would be constructed on the east side of North 12th Street from North B Street to Richards Boulevard as a part of the North 12th Street Streetscape Improvements Project. The proposed project would not disrupt existing or planned pedestrian facilities, or conflict with adopted City pedestrian plans, guidelines, policies, or standards. Therefore, the project would not have cumulatively considerable impacts to pedestrian facilities in the area. Under NEPA, there would be **a beneficial effect**. Under CEQA, the impact would be **less-than-significant impact** with respect to this criterion.

TRA-12. Would the project result in adverse cumulative impacts related to construction activities?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Project construction is anticipated to occur over a seven-year period, which would coincide with the implementation of other projects in the area and potentially contribute cumulatively to widespread construction-related impacts. Construction of these projects would generate a variety of truck and employee trips. Since the magnitude of these trips during peak hours would be less than that of the proposed project, absolute impacts (in terms of delay and queuing) when compared to Plus Project operations would not be significant. Construction staging and lane closures could cause adverse effects if not carefully planned. Thus, the project could potentially

cause a temporary impact due to lane closures, traffic hazards to bikes/pedestrians, damage to roadbed, or truck traffic on roadways not designated as truck routes.

For these reasons, construction of the proposed project concurrently with other area projects would create temporary but **adverse** effects to the area's transportation facilities under NEPA. Likewise, these project impacts during construction would be **potentially significant** under CEQA. **Mitigation Measure 3.12-1** is proposed requiring implementation of a project-specific Construction Traffic Management Plan to address impacts stemming from various elements of project construction. Implementation of this mitigation would reduce the project's contribution to cumulative impacts due to construction of other area projects on parallel construction schedules. Therefore, implementation of **Mitigation Measure 3.12-1** would reduce this impact to **less than significant with mitigation** under CEQA and **no adverse effect** under NEPA.

Mitigation Measures

Mitigation Measure 3.12-1: Construction Traffic Management Plan. The City shall require the project applicant to develop a Construction Traffic Management Plan. The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. At a minimum, the plan shall include, but not be limited to:

- Description of trucks including: number and size of trucks per day, expected arrival/departure times, truck circulation patterns.
- Description of staging area including: location, maximum number of trucks simultaneously permitted in staging area, use of traffic control personnel, specific signage.
- Description of street closures and/or transit, bicycle and pedestrian facility closures including: duration, advance warning and posted signage, safe and efficient access routes for emergency vehicles, use of manual traffic control, and roadway detours.
- Description of driveway access plan including: provisions for safe vehicular, pedestrian, and bicycle travel, minimum distance from any open trench, special signage, and private vehicle accesses.

Pursuant to City code, the management plan shall be reviewed by the City's Traffic Engineer and any affected agencies, incorporate any requested revisions, and then approved by the City's Traffic Engineer prior to the commencement of project construction. This management plan shall be distribute and implemented by all contractors and subcontractors involved in any project construction activity.

Mitigation Measure 3.12-2: I-5 Freeway Subregional Corridor Mitigation Program (SCMP). To mitigate the freeway mainline and off-ramp queuing impacts under the Cumulative Plus Project scenario, the project proponent shall remit monetary payment to the I-5 Freeway Subregional Corridor Mitigation Program (SCMP), This remittance shall be completed prior to the commencement of construction.

References

City of Sacramento. 2011. River District Specific Plan. Available at: http://www.cityofsacramento.org/Community-Development/Planning/Long-Range/Specific-Plans. Accessed July 20, 2016.

City of Sacramento. 2012. Climate Action Plan. Adopted February 14, 2012.

City of Sacramento. 2015. Sacramento 2035 General Plan. Adopted March 3, 2015. Website: http://www.cityofsacramento.org/Community-Development/Planning/Long-Range/General-Plan. Accessed January 5, 2016.

City of Sacramento. 2017. City Truck Routes Map. Available at: http://portal.cityofsacramento.org/Public-Works/Transportation/Traffic-Data-Maps. Accessed February 27, 2017.

Office of Planning and Research. 2016. Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA. Available at: https://www.opr.ca.gov/s_sb743.php. Accessed June 2, 2017.

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3.13 Utilities

3.13.1 Introduction

This section discusses the utility systems that would service the project site, and the potential impacts of the project on those systems. This analysis describes the effects on water supply, sewer and storm drainage, solid waste, electricity and natural gas, and telecommunications (telephone and cable television).

3.13.2 Environmental Setting

Water Supply

The City has surface water rights to divert both Sacramento and American River water. In addition, the City and the U.S. Bureau of Reclamation (USBR) have a contract that controls the amount of water that can be diverted from the two rivers. In return, the contract requires the USBR to make enough water available in the two rivers for the agreed-upon diversions by the City. The City's water rights in conjunction with the USBR contract provide the City with a reliable and secure water supply (City of Sacramento, 2015).

On average, groundwater use has consisted of 15 to 20 percent of the city's supply between 2006 and 2012 (City of Sacramento, 2015). The City is signatory to two groundwater management plans that commit to not exceed the long-term sustainable yield of the groundwater basins. There are no municipal wells within the River District Specific Plan (RDSP) area, of which the project site is a part (City of Sacramento, 2010).

The City has two water treatment plants. The Sacramento River Water Treatment Plant (SRWTP) serves the project area and is located within the RDSP area on Bercut Drive, approximately one mile west of the project site. Water from the Sacramento River is diverted to the plant. The capacity of the plant is 160 million gallons per day (mgd). In 2011-2012, the SRWTP treated an average of approximately 64 mgd (City of Sacramento, 2015).

The City of Sacramento complies with the California Water Code, which requires urban water suppliers to prepare and adopt Urban Water Management Plan (UWMPs) every five years. The most recent UWMP was adopted in June 2016, and includes an analysis of water demand sufficiency under normal, single dry year, and multiple dry year scenarios. Water supply and demand projections include future planned development until 2045. Based, in part, on these projections, the City's water entitlements are sufficient to serve the entire city (including future expansions of the city limits) and also provide water to other local water purveyors in need of additional water supply (City of Sacramento, 2016).

Wastewater and Stormwater

As identified in section 3.8 Hydrology, the public wastewater collection system within the City is composed of two systems: it includes a combined sewer system (CSS) that extends throughout the older central region of the City including partially within the River District area, and a newer separated sewer system (sanitary sewer) in the remaining areas of the City (City of Sacramento, 2004).

The CSS is an underground pipe network system that conveys both storm drain flows and sanitary sewer flows through a single pipe. Currently stormwater from the CSS region enters a series of stormdrain pipes and is delivered to Sump 11, near the northerly terminus of North 5th Street, from where it is discharged into the American River. Meanwhile, the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (SASD) provide both collection and treatment services within their service area for the portions of the city served by the separated sewer system. The Sacramento Regional Wastewater Treatment Plant is located just south of the city limits in Elk Grove and is owned and operated by SRCSD. The plant provides sewage treatment for the entire 2035 General Plan Policy Area (City of Sacramento, 2015).

Solid Waste Disposal

As discussed in the City's 2035 General Plan Background Report, multifamily residences with five units or more are considered commercial and thus served by private haulers franchised by the Sacramento Solid Waste Authority (SWA).

The Sacramento County Kiefer Landfill is the primary location for the disposal of waste in the City of Sacramento. The landfill accepts municipal waste and industrial waste and is permitted to accept up to 10,815 tons per day, averaging 6,300 tons per day. This is further limited, however, by Section 17, Condition 26 and Table 2 of Kiefer's Solid Waste Permit, which limits the 2013 peak to 5,928 TPD and average to 3,487 TPD (CalRecycle, 2013). It is the only landfill facility in Sacramento County permitted to accept household waste from the public. Current peak and average daily disposal is much lower than the current permitted amounts. As of 2012, 305 acres of the 660 acres contain waste. The landfill facility sits on 1,084 acres. As a result, the Kiefer Landfill should be able to serve the area until the year 2065 (City of Sacramento, 2015).

Electricity and Natural Gas

The Sacramento Municipal Utility District (SMUD) is responsible for the generation, transmission, and distribution of electrical power to its 900 square mile service area, which includes most of Sacramento County and a small portion of Placer County. SMUD buys and sells energy and capacity on a short-term basis to meet load requirements and reduce costs. The Pacific Gas & Electric Company (PG&E) provides natural gas service to residents and businesses within the City of Sacramento.

3.13.3 Applicable Policies and Regulations

National Pollutant Discharge Elimination System

Federal and state laws relating to wastewater primarily focus on the regulation of pollutant discharges that could contaminate surface waters or groundwater. As such, the Federal Clean Water Act and National Pollutant Discharge Elimination System (NPDES) and the State Porter-Cologne Water Quality Control Act regulate wastewater treatment and the discharge of treated effluent.

California Senate Bill 610 and Senate Bill 221

Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) precludes projects from being approved without specific evaluations being performed and documented by the local water provider that indicate that water is available to serve the project. The provisions of SB 610 amend the Water Code sections 10910 through 10915, and SB 221 is incorporated in the Subdivision Map Act.

SB 610 requires the preparation of a Water Supply Assessment (WSA) for large-scale development projects.[1] The WSA evaluates the water supply available for new development based on anticipated demand.

SB 221 requires the local water provider to provide "written verification" of "sufficient water supplies" to serve the Project. Sufficiency under SB 221 differs from SB 610 in that it is determined by considering the availability of water over the past 20 years; the applicability of any urban water shortage contingency analysis prepared per Water Code Section 10632; the reduction in water supply allocated to a specific use by an adopted ordinance; and the amount of water that can be reasonably relied upon from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer. In most cases, the WSA prepared under SB 610 would meet the requirement for proof of water supply under SB 221.

Senate Bill 365

Existing provisions of the California Water Code declare that the use of potable water for certain non-potable uses "is a waste or an unreasonable use of water." SB 365 amends and expands the Water Code to strengthen the provision that the use of potable water for the irrigation of residential landscaping, floor-trap priming, cooling towers, or air-conditioning devices is wasteful and unsound if reclaimed water suitable for these purposes is available. SB 365 also gives the power to any public agency—including a state agency, city, county, district, or any other political

[1] All projects that meet any of the following criteria require a WSA: 1) a proposed residential development of more than 500 dwelling units; 2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 ft^2 of floor space; 3) a proposed commercial office building employing more than 1,000 persons or having more than 250,000 ft^2 of floor space; 4) a proposed hotel or motel, or both, having more than 500 rooms; 5) a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; 6) a mixed-use project that includes one or more of the projects specified in this subdivision; or 7) a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

subdivision of the state—to require the use of reclaimed water for these purposes if certain conditions are met. The conditions that must be met are:

- Reclaimed water meeting the requirements of existing law (Section 13550 of the Water Code) is available to the user.
- The use of reclaimed water does not cause any loss or diminution of any existing water right.
- Public health concerns regarding exposure to mist or spray must be addressed, if appropriate.
- The water user must prepare an engineering report pursuant to Title 22 regulations governing the use of reclaimed water.

The requirements of the law are applicable to all new industrial facilities and subdivisions for which the Department of Health Services has approved the use of reclaimed water, and for which a building permit is issued on or after March 15, 1994; or, if a building permit is not required, new structures for which construction begins on or after this date.

Assembly Bill 1881

In September 2009 the state adopted Assembly Bill 1881 (AB 1881), the Water Conservation in Landscaping Act of 2006, which directs local governments to require the use of low-flow plumbing fixtures and the installation of drought-tolerant landscaping in all new development. As of January 2010 all jurisdictions were required to implement this law.

State Health and Safety Code Section 64562

Section 64562 of the California Health and Safety Code requires each public water system to have sufficient water available from its water sources and distribution reservoirs to supply adequately, dependably, and safely the total requirements of all its users under maximum demand conditions before an agreement can be made to permit additional service connections to that system.

Water Code Sections 10608 et seq. ("SB 7" or "SB X7 7")

Water Code Sections 10608 require urban retail water suppliers to set and achieve water use targets that will help the state achieve 20 percent per capita urban water use reduction by 2020.

California Integrated Waste Management Act of 1989 and SB 1016

The California Integrated Waste Management Act of 1989, or Assembly Bill (AB) 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans and also mandated that local jurisdictions divert at least 50 percent of all solid waste generated away from landfills, through source reduction, recycling, and composting activities beginning January 1, 2000. In 2006, SB 1016 updated the requirements. The new per capita disposal and goal measurement system moves the emphasis from an estimated diversion measurement number to using an actual disposal measurement number as a factor, along with evaluating program implementation efforts. These two factors will help determine each

jurisdiction's progress toward achieving its Integrated Waste Management Act (AB 939) diversion goals. The CalRecycle works with municipalities to help improve recycling programs. The State generally places the burden of responsibility for waste stream reduction on local municipalities (i.e., cities and counties).

California Code of Regulations Title 24

The California Code of Regulations Title 24, Part 11, or the California Green Building Standards Code (CALGreen) is designed to reduce impacts by providing guidelines and requirements on the following categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality.

With regards to solid waste, CALGreen requires that at least 50 percent of weight of non-hazardous job site debris generated by new construction be recycled, reused, or otherwise diverted from landfill disposal. CalGreen requires submission of plans and verifiable post-project documentation to demonstrate compliance.

Title 24, Part 6, Building Energy Efficiency Standards were developed by the California Energy Commission (CEC) and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and non-residential buildings. The CEC updates these standards periodically and adopted the latest standards in 2008; 2013 standards went into effect in July 1, 2014 (CEC, 2016). A new development project is required to incorporate the most recent Title 24 standards in effect at the time the building permit application is submitted.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 – 10656). The Act requires that every urban water supplier that provides water to 3,000 or more customers or that provides over 3,000 acre-feet of water annually shall prepare and adopt an urban water management plan. Water suppliers are to prepare an urban water management plan within a year of becoming an urban water supplier and update the plan at least once every five years. The Act also specifies the content that is to be included in an urban water management plan.

It is the intention of the Legislature to permit levels of water management planning commensurate with the number of customers served and the volume of water supplied. The Act states that urban water suppliers should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act also states that the management of urban water demands and the efficient use of water shall be actively pursued to protect both the people of the State and their water resources.

The State Department of Water Resources (DWR) has designed its urban planning assistance program to assist urban water suppliers to meet the requirements of the Act. Program staff assists urban water suppliers with preparing comprehensive and useful water management plans, implementing water conservation programs, and understanding the requirements of the Act.

DWR staff reviews all of the urban water management plans that are submitted to DWR in accordance with the Act. Results are provided to local and regional water suppliers through a review letter and compiled into a Legislative Report provided to the California Legislature one year after plans are due to DWR.

20x2020 Water Conservation Plan

In February 2010, the 20x2020 Water Conservation Plan was released as part of an effort to reduce stress on the environment of the Sacramento-San Joaquin Delta. The plan sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities. The draft of this plan served as the basis for Senate Bill X7-7, which set a goal to achieve a 20 percent reduction in urban per capita water use in California by the year 2020. The law requires urban water suppliers to establish water conservation targets for the years 2015 and 2020.

The plan recommends nine categories of action to contribute to a statewide strategic approach of achieving the goals of the plan. These categories are (1) to establish a foundation for a statewide conservation strategy, (2) reduce landscape irrigation demand, (3) reduce water waste, (4) reinforce efficiency codes and related best management practices, (5) provide financial incentives, (6) implement a statewide conservation public information and outreach campaign, (7) provide new or exercise existing enforcement mechanisms to facilitate water conservation, (8) investigate potential flexible implementation measures, and (9) increase the use of recycled water and non-traditional sources of water.

The 20x2020 Plan was developed through a collaborative effort consisting of state and federal agencies including the Department of Water Resources, State Water Resources Control Board, California Energy Commission, Department of Public Health, California Public Utilities Commission, Air Resources Board, California Bay-Delta Authority, and the US Bureau of Reclamation (State of California, 2010).

Assembly Bill 1465

In 2009, the State Legislature passed Assembly Bill 1465 requiring urban water suppliers to include their water demand management measures in the Urban Water Management Plan. Suppliers are required to describe opportunities to offset potable water use by utilizing water that is already available through stormwater recapture or recycled water use.

Sacramento City Code, Chapter 13.08

Sacramento City Code, Chapter 13.08 outlines the requirements for permitted discharges to the sewer service system. Article V of the chapter establishes charges and fees for customers receiving sewer service and storm service from the City.

Combined Sewer System Development Fee

The City of Sacramento adopted a sewer ordinance for the CSS in 2005, which requires payment of a development fee for projects that add sewer flows within the CSS service boundary. Key

aspects of the CSS development fee include: a fee per equivalent single-family dwelling unit that will be subject to periodic adjustments; CSS development fees may be fully or partially offset by constructing or cost sharing in the construction of a mitigation project approved by the City Department of Utilities; the fee approximates the cost to construct local storage to mitigate downstream impacts; and fees will be collected and deposited in a fund for the City to construct larger projects to mitigate multiple developments.

Sacramento Regional County Sanitation District and Sacramento Area Sewer District

The SRCSD and the SASD are both separate political subdivisions of the State of California formed under the State of California Health and Safety Code. As such, the districts' policies must conform to the statutes of the State Health and Safety Code. Additionally, the Districts are separately-funded entities that do not depend upon Sacramento County for funding capital improvements, maintenance, or operations. User fees provide for the systems' operation and maintenance, while hookup fees provide most of the funding for new trunks and interceptors.

The SRCSD requires a regional connection fee be paid to the District for any users connecting to or expanding sewer collection systems (SRCSD Ordinance No. SRCSD-0043).

Stormwater Quality/Urban Runoff Management

The County of Sacramento and the Cities of Sacramento, Folsom, Citrus Heights, Elk Grove, Rancho Cordova, and Galt have a joint NPDES permit (No. CAS082597) that was originally granted in 1990, and was most recently reissued in 2008. The permittees listed under the joint permit have the authority to develop, administer, implement, and enforce storm water management programs within their own jurisdiction. The permit is intended to implement the Basin Plan through the effective implementation of BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable (MEP).

City Code Chapter 15.92 Water Efficient Landscape Requirements

New landscape projects and rehabilitated landscape projects with a landscape area equal to or greater than two thousand five hundred (2,500) square feet are required to install water-efficient landscapes.

City of Sacramento Design Standards

Section 13 of the City's Design Standards sets forth requirements regarding the design and operation of water distribution facilities. Those requirements include standards for pipe design, fire hydrants, and specific requirements for residential, commercial, and industrial water service.

City of Sacramento 2035 General Plan

The City of Sacramento adopted its 2035 General Plan on March 3, 2015. The General Plan includes policies and implementation measures relevant to the provision of water, wastewater,

and storm drainage service. For wastewater and storm drainage services, policies relevant to the proposed project include provision of adequately sized sewer and drainage facilities, developing plans for sewer line extensions to developed areas where service is lacking, and developing and implementing appropriate funding mechanisms.

The General Plan includes redevelopment of the Twin Rivers Community Housing Complex and the construction of the proposed Dos Rios LRT Station in its long range plans. A summary of General Plan EIR, and specific policies relevant to the proposed project is provided below.

River District Specific Plan

The River District Specific Plan (RDSP) was adopted in 2011 and established planning and design standards for the redevelopment of approximately 773 acres of land (City of Sacramento, 2010). The RDSP area includes the entirety of the proposed project area under consideration in this IS/EA, and includes utility related elements that are directly applicable to the proposed project.

3.13.4 Summary of Analysis under the 2035 General Plan Master EIR and River District Specific Plan EIR

2035 General Plan Master EIR

The Master EIR evaluated the effects of development under the 2035 General Plan on water supply, sewer and storm drainage, solid waste, electricity, natural gas and telecommunications. See Chapter 4.11 of the Master EIR.

The Master EIR evaluated the impacts of increased demand for water that would occur with development under the 2035 General Plan. Policies in the general plan would reduce the impact generally to a less-than-significant level (see Impact 4.11-1) but the Master EIR concluded that the potential increase in demand for potable water in excess of the City's existing diversion and treatment capacity, and which could require construction of new water supply facilities, would result in a significant and unavoidable effect (Impact 4.11-2). The potential need for expansion of wastewater treatment facilities was identified as having a less-than-significant effect (Impact 4.11-4). Impacts on solid waste facilities were less than significant (Impact 4.11-5). Implementation of energy efficient standards as set forth in Titles 20 and 24 of the California Code of Regulations for residential and non-residential buildings, would reduce effects for energy to a less-than-significant level.

Utility related policies applicable to the project area include the following:

> **Goal U 1.1: High-Quality Infrastructure and Services.** Provide and maintain efficient, high- quality public infrastructure facilities and services throughout the city.
>
> > ***Policy U 1.1.1: Provision of Adequate Utilities*.** The City shall continue to provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the city, and shall provide and maintain adequate water, wastewater, and stormwater

drainage utility services to areas in the city that do not currently receive these City services upon funding and construction of necessary infrastructure.

Policy U 1.1.2: Citywide Level of Service Standards. The City shall establish and maintain service standards [Levels of Service (LOS)] for water, wastewater, stormwater drainage, and solid waste services.

Policy U 1.1.3: Sustainable Facilities and Services. The City shall continue to provide sustainable utility services and infrastructure in a cost-efficient manner.

Policy U 1.1.4: Timing of Urban Expansion. The City shall assure that new public facilities and services are phased in conjunction with the approved urban development they are intended to serve.

Policy U 1.1.6: Growth and Level of Service. The City shall require new development to provide adequate facilities or pay its fair share of the cost for facilities needed to provide services to accommodate growth without adversely impacting current service levels.

Policy U 1.1.7: Infrastructure Finance. The City shall develop and implement a financing strategy and assess fees to construct needed water, wastewater, stormwater drainage, and solid waste facilities to maintain established service levels and to mitigate development impacts to these systems (e.g., pay capital costs associated with existing infrastructure that has inadequate capacity to serve new development). The City shall also assist developers in identifying funding mechanisms to cover the cost of providing utility services in infill areas.

Policy U 1.1.8: Infill Areas. The City shall identify and prioritize infill areas for infrastructure improvements.

Policy U 1.1.9: Joint-Use Facilities. The City shall support the development of joint-use water, drainage, and other utility facilities as appropriate in conjunction with schools, parks, golf courses, and other suitable uses to achieve economy and efficiency in the provision of services and facilities.

Policy U 1.1.10: Safe, Attractive, and Compatible Utility Design. The City shall ensure that public utility facilities are designed to be safe, aesthetically pleasing, and compatible with adjacent uses.

Policy U 1.1.11: Underground Utilities. The City shall require undergrounding of all new publicly-owned utility lines, encourage undergrounding of all privately-owned utility lines in new developments, and work with electricity and telecommunications providers to underground existing overhead lines.

Policy U 1.1.12: Impacts to Environmentally Sensitive Lands. The City shall locate and design utilities to avoid or minimize impacts to environmentally-sensitive areas and habitats.

Goal U 2.1: High-Quality and Reliable Water Supply. Provide water supply facilities to meet future growth within the City's Place of Use and assure a high-quality and reliable supply of water to existing and future residents.

Policy U 2.1.1: Exercise and Protect Water Rights. The City shall exercise and protect its water rights and entitlements in perpetuity.

Policy U 2.1.2: Increase Water Supply Sustainability. The City shall maintain a surface water/groundwater conjunctive use program, which uses more surface water when it is available and more groundwater when surface water is limited.

Policy U 2.1.3: Water Treatment Capacity and Infrastructure. The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.

Policy U 2.1.4: Priority for Water Infrastructure. The City shall give high priority in capital improvement programming to funding rehabilitation or replacement of critical infrastructure that has reached the end of its useful life.

Policy U 2.1.5: Comprehensive Water Supply Plans. The City shall prepare, implement, and maintain long-term, comprehensive water supply plans.

Policy U 2.1.6: High-Quality Service Provision. The City shall provide water service that meets or exceeds State and Federal drinking water standards.

Policy U 2.1.7: Water Supply During Emergencies. The City shall, to the extent feasible, maintain adequate water supply during emergencies.

Policy U 2.1.8: Emergency Water Conservation. The City shall reduce water use during periods of water shortages and emergencies.

Policy U 2.1.9: New Development. The City shall ensure that water supply capacity is in place prior to granting building permits for new development.

Policy U 2.1.15: Landscaping. The City shall continue to require the use of water-efficient and river-friendly landscaping in all new development, and shall use water conservation gardens (e.g., Glen Ellen Water Conservation Office) to demonstrate and promote water conserving landscapes.

Policy U 2.1.16: River-Friendly Landscaping. The City shall promote "River Friendly Landscaping" techniques which include the use of native and climate appropriate plants; sustainable design and maintenance; underground (water-efficient) irrigation; and yard waste reduction practices.

Policy U 3.1.4: In keeping with its Combined Sewer System (CSS) Long Term Control Plan (LTCP), the City will continue to rehabilitate the CSS to decrease flooding, CSS outflows and CSOs. Through these improvements and new development requirements the City will also insure that development in the CSS does not result in increased flooding, CSS outflows or CSOs.

Policy U 4.1.1: Adequate Drainage Facilities. The City shall ensure that all new drainage facilities are adequately sized and constructed to accommodate stormwater runoff in urbanized areas.

Policy U 4.1.4: Watershed Drainage Plans. The City shall require developers to prepare watershed drainage plans for proposed developments that define needed drainage

improvements per City standards, estimate construction costs for these improvements, and comply with the City's National Pollutant Discharge Elimination System (NPDES) permit.

Policy U 4.1.5: Green Stormwater Infrastructure. The City shall encourage "green infrastructure" design and Low Impact Development (LID) techniques for stormwater facilities (i.e., using vegetation and soil to manage stormwater) to achieve multiple benefits (e.g., preserving and creating open space, improving runoff water quality).

Policy U 4.1.6: New Development. The City shall require proponents of new development to submit drainage studies that adhere to City stormwater design requirements and incorporate measures, including "green infrastructure" and Low Impact Development (LID) techniques, to prevent on- or off-site flooding.

Goal ER 1.1: Water Quality Protection. Protect local watersheds, water bodies and groundwater resources, including creeks, reservoirs, the Sacramento and American Rivers and their shorelines.

Policy ER 1.1.3: Stormwater Quality. The City shall control sources of pollutants and improve and maintain urban runoff water quality through storm water protection measures consistent with the City's National Pollution Discharge Elimination System (NPDES) Permit.

Policy ER 1.1.4: New Development. The City shall require new development to protect the quality of water bodies and natural drainage systems through site design (e.g., cluster development), source controls, storm water treatment, runoff reduction measures, best management practices (BMPs) and Low Impact Development (LID), and hydromodification strategies consistent with the City's NPDES Permit.

Policy ER 1.1.5: Limit Stormwater Peak Flows. The City shall require all new development to contribute no net increase in stormwater runoff peak flows over existing conditions associated with a 100-year storm event.

Policy ER 1.1.6: Post-Development Runoff. The City shall impose requirements to control the volume, frequency, duration, and peak flow rates and velocities of runoff from development projects to prevent or reduce downstream erosion and protect stream habitat.

Policy ER 1.1.7: Construction Site Impacts. The City shall minimize disturbances of natural water bodies and natural drainage systems caused by development, implement measures to protect areas from erosion and sediment loss, and continue to require construction contractors to comply with the City's erosion and sediment control ordinance and stormwater management and discharge control ordinance.

Goal U 5.1: Solid Waste Facilities. Provide adequate solid waste facilities, meet or exceed State law requirements, and utilize innovative strategies for economic and efficient collection, transfer, recycling, storage, and disposal of refuse.

Policy U 5.1.1: Zero Waste. The City shall achieve zero waste to landfills by 2040 through reusing, reducing, and recycling solid waste; and using conversion technology if appropriate. In the interim, the City shall achieve a waste reduction goal of 75 percent diversion from the waste stream over 2005 levels by 2020 and 90 percent diversion over

2005 levels by 2030, and shall support the Solid Waste Authority in increasing commercial solid waste diversion rates to 30 percent.

Policy U 5.1.8: Diversion of Waste. The City shall encourage recycling, composting, and waste separation to reduce the volume and toxicity of solid wastes sent to landfill facilities.

Policy U 5.1.14: Recycled Materials in New Construction. The City shall encourage the use of recycled materials in new construction.

Policy U 5.1.15: Recycling and Reuse of Construction Wastes. The City shall require recycling and reuse of construction wastes, including recycling materials generated by the demolition and remodeling of buildings, with the objective of diverting 85 percent to a certified recycling processor.

Policy U 5.1.20: Multi-family Recycling Ordinance. The City shall support the Solid Waste Authority to inform and advise multifamily rental property owners and managers of the recycling requirements contained in the Multi-family Recycling Ordinance (SWA Ordinance 21).

Policy U 6.1.5: Energy Consumption per Capita. The City shall encourage residents and businesses to consume 25 percent less energy by 2030 compared to the baseline year of 2005.

Policy U 6.1.7: Solar Access. The City shall ensure, to the extent feasible, that sites, subdivisions, landscaping, and buildings are configured and designed to maximize passive solar access.

Policy U 6.1.8: Other Energy Generation Systems. The City shall promote the use of locally shared solar, wind, and other energy generation systems as part of new planned developments.

Policy U 6.1.11: Energy Efficiency Improvements. The City shall develop and implement energy efficiency standards for existing buildings, and provide incentives for property owners to make improvements necessary to meet minimum energy efficiency standards.

Policy U 6.1.13: Energy Efficient Incentives. The City shall develop incentives to encourage the use of energy efficient vehicles, equipment, and lighting.

Policy U 6.1.16: Energy Efficiency Appliances. The City shall encourage builders to supply Energy STAR appliances and HVAC systems in all new residential developments, and shall encourage builders to install high-efficiency boilers where applicable, in all new non-residential developments.

Policy U 7.1.7: Household Telecommunication Systems. The City shall encourage the installation of telecommunications systems (e.g., internet) in every city household to facilitate resident access to information about public services, transit, emergencies, and other information.

Policy U 7.1.8: City Operations/Public Services. The City shall continue to use telecommunications to enhance the performance of internal City operations and the delivery of public services.

River District Specific Plan EIR

The RDSP EIR considered the effects of the buildout of the proposed RDSP on public utilities. Chapter 5.9 of the RDSP Draft EIR evaluated the potential effects of the RDSP on the demand for potable water and the capacity of the existing potable water system to supply this need, as well as the capacities' of the wastewater and storm drainage systems to provide adequate collection (Impacts 5.9-1 through -5). The RDSP Draft EIR concluded all impacts to public would be less than significant with implementation of mitigation measures as identified in the previous 2030 General Plan EIR.

Utility related policies applicable to the project area include the following:

> ***Policy I 1a:*** Encourage the installation of techniques such as bio-swales, permeable pavement and greywater systems to reduce stormwater runoff.
>
> ***Policy I 1b*****:** Encourage the installation of techniques such as water conserving appliances and low-flow fixtures in buildings to reduce water consumption.
>
> ***Policy I 1c:*** Require water conservative irrigation methods in all landscaping plans.
>
> ***Policy I 1d:*** Encourage landscaping plans to limit the use of turf and utilize drought resistant plantings.

3.13.5 Impact Assessment and Mitigation

City of Sacramento Standards of Significance

The significance criteria used to evaluate the project impacts to utilities are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, thresholds of significance adopted by the City in applicable general plans and previous environmental documents, and professional judgment. The standards also incorporate appropriate HUD or FTA criteria, where applicable. The project alternatives would have a significant adverse effect if they would:

- Result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments, or;
- Require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts.

Department of Housing and Urban Development Evaluation Criteria

HUD regulations provide a listing of federal laws, regulations, and executive orders against which all HUD-assisted projects must be evaluated. The online HUD Exchange provides additional guidance documents for considering context and intensity impacts associated with energy consumption, solid waste disposal/ recycling, waste water/ sanitary sewers, and water supply (HUD, 2013). Specific factors to consider include energy efficiency design measures, proximity to mass transit, and energy efficient building design, as well as the availability of

landfill space for solid waste and disposal authority, the availability of adequate wastewater disposal service, and the adequacy and security of clean water to serve the project.

Other Applicable Evaluation Criteria

There are no other criteria that would be applicable to the proposed project.

Environmental Analysis

UTL-1. Would the project result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments such that the project would require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts?

Alternative 1 – No Project

The No Project alternative would result in the Twin Rivers Transit-Oriented Development and Light Rail Station Project not being constructed or operated. The project area would remain in its existing condition. Any existing activities in or around the project area would remain unchanged. Under NEPA, there would be **no adverse effect**. Under CEQA, there would be **no impact** with respect to this criterion.

Alternative 2 – Twin Rivers Transit-Oriented Development and Light Rail Station Project

Water Supply

The proposed project's on-site water conveyance system would connect to the City's water supply from ancillary water pipes that draw water from a 36-inch main in North B Street and the 42-inch main in 18th Street. Proposed domestic water and irrigation water services would be metered services protected with City- approved backflow devices in accordance with City of Sacramento cross control policies.

The projected water demand from the proposed project was accounted for in the City's 2035 General Plan and Master EIR, as the project is consistent with the General Plan land use designation. The Master EIR concluded that the City's existing water right permits and United States Bureau of Reclamation (USBR) contract are sufficient to meet the total water demand projected for buildout of the proposed 2035 General Plan, including the proposed project site. In addition, according to the 2015 Sacramento Urban Water Management Plan (UWMP), the City's available water supply would be well below the City's water demand during a multiple-dry year in 2020, 2025, 2030, 2035, and 2040. During a drought year in 2040, the City's water yearly supply is expected to be 294,419 acre feet-per-year (AFY), while the City's yearly water demand would be 162,029 AFY; it is anticipated that there would be a 132,390 AFY surplus of water supply in the year 2040 during drought. Because the City would have adequate capacity of water supply at buildout of the 2035 General Plan (as well as through to 2045 as projected in the UWMP), and the proposed project is consistent with the General Plan, the project would have a less-than-significant impact related to water supply and would not trigger a need to generate

additional water sources or infrastructure development. As such, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact**.

Wastewater and Stormwater

Onsite wastewater and stormwater conveyance under Alternative 2 would be provided by both the Combined Storm-Sewer System (CSS) and sanitary sewer mains, managed by the Sacramento Regional County Sanitation District (SRCSD). The portion of Alternative 2 located at the existing Housing Complex portion of the site would be served by the existing public sanitary sewer main lines ranging in size from 6-inch to 12-inch diameter adjacent to the project site. The proposed project improvements would utilize existing sanitary sewer services where feasible, and abandon all existing sanitary sewer services determined to be inadequate for the proposed project's needs. New sanitary sewer services would be provided in accordance with the City of Sacramento standards, and served by the aforementioned existing public sanitary sewer mainlines adjacent the project site.

The Expansion Area of the project site would be served by the CSS. Existing CSS mainlines are located within Sproule Avenue and North 16th Street, ranging in size from 8-inch to 12-inch diameter pipes. Within the CSS, the City standards require on-site sanitary sewer and on-site storm drain systems to be separated, with separate service connections to the City CSS mainlines. While the specific locations of the proposed storm and sewer services are not yet determined, the proposed project storm drain and sanitary sewer services would likely be provided from the existing CSS mainlines located within Sproule Avenue and North 16th Street.

The SRCSD has a program in place to continually evaluate demand/capacity needs, and the master planning effort provides the flexibility to respond to changes in demand that can be anticipated in advance of planned improvements so that capacity issues are addressed in a timely and cost-effective manner. Master planning efforts that would identify necessary improvement in capacity to accommodate city growth beyond the 2020 Master Plan timeframe would be initiated well in advance of 2035. To fund expansions to the conveyance systems, the SRCSD requires a regional connection fee be paid to the District for any users connecting to or expanding sewer collection systems (SRCSD Ordinance No. SRCSD-0043).

The City requires all infill developments to comply with the City's "Do No Harm" policy, which requires that all existing affected storm drainage systems function as well, or better, as a result of the new construction, and that there is no increase in flooding or in water surface elevation with negative impacts to individuals, streets, structures, infrastructure, or property. In order to comply with this standard, underground storage facilities through the use of oversized pipes, storm vaults, or similar methods, would be incorporated into the project design. A storm drain study would be submitted to the City Department of Utilities demonstrating compliance with the City's "Do No Harm" policy at time of improvement plan review.

Development under the proposed 2035 General Plan would also increase the demand for conveyance capacity in the local City-maintained sewer lines that connect to major trunk lines and interceptors in the separate sewer system. For the areas in the city that are served by the CSS, including the proposed project, there would not be a substantial increase in sewage flows to the

system because it is already limited in capacity, and flows must currently be mitigated in accordance with the Combined System Development Fee (see Section 3.8, Hydrology and Water Quality for a discussion related to the Combined System Development and SRCSD Regional Connection fees).

Therefore, because there are established plans and fee programs in place as well as enacted policies to increase conveyance capacity in response to demand, the project would be provided with adequate storm and wastewater systems and would not require new or expanded facilities. As such, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact**.

Solid Waste Disposal

The City's 2035 General Plan Master EIR examined impacts of buildout of the General Plan on solid waste facilities. The analysis determined that the remaining capacity and anticipated lifespans of City's primary landfill, the Sacramento Kiefer Landfill, to accept the City's solid waste is sufficient to accept the solid waste anticipated at full buildout of the City's General Plan through 2065. Furthermore, continued implementation of the Solid Waste Authority and Sacramento recycling requirements would continue to significantly reduce potential cumulative impacts on landfill capacity. The project would be required to adhere to all construction and operation diversion standards as outlined above.

Because the project was accounted for in the City's General Plan and Master EIR, and the project is consistent with the General Plan land use designation, this increase in solid waste production would not exhaust the remaining landfill capacity. As such, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact**.

Electricity and Natural Gas

Construction of the project would result in increased use of electricity and natural gas to support the multi-family residential units, road improvements, and light rail station. Both utility providers would install new distribution facilities, as needed, according to California Public Utilities Commission rules. Because the increased demand in energy is evaluated in the 2035 General Plan Master EIR, and because PG&E and SMUD would ensure their capability of providing an adequate level of service to the project site, this impact would be less than significant. Furthermore, because the proposed project would be required to adhere to the California Code of Regulations Title 24, Part 6, Building Energy Efficiency, as well as the 2035 General Plan, the proposed project under Alternative 2 would not result in a wasteful consumption of energy. As such, there would be **no adverse effect** under NEPA. Under CEQA, there would be **no impact**.

Mitigation Measures

None required.

References

California Energy Commission (CEC). 2016. 2013 Building Energy Efficiency Standards. Available at: www.energy.ca.gov/title24/2013standards/. Accessed January 23, 2016. Updated 2016.

CalRecycle, 2013. Solid Waste Facility Permit 34-AA-0001, updated June 2013.

City of Sacramento, 2004. Combined Sewer System Map. Available at: https://www.cityof sacramento.org/-/media/Corporate/Images/DOU/Combined-Sewer-Map.jpg?la=en.

City of Sacramento, 2010 (July). River District Specific Plan Draft Environmental Impact Report. Page 5.9-2.

City of Sacramento, 2015. City of Sacramento 2035 General Plan Background Report. Page 4-25, 44-45, Adopted March 3, 2015.

City of Sacramento, 2016. Draft 2015 Urban Water Management Plan. Prepared by West Yost Associates. Approved June 2016.

Regional San, 2015. Sacramento Regional Sanitation District Impact Fees. Available: http://www.regionalsan.com/impact-fees. Accessed January 29, 2016.

State of California, February 2010. 20x2020 Water Conservation Plan. Available: http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/docs/20x2020plan.pdf. Accessed January 23, 2017.

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3.14 Issues Not Subject to Further Evaluation

3.14.1 Introduction

A number of topical issue areas are not evaluated in detail in this IS/EA, generally because the identified environmental resources are not present within or around the project area or because implementation of the project would clearly have no effect with respect to the topic issue area. These issue areas are described in this section with an explanation of why they are not evaluated further in this IS/EA.

3.14.2 Agricultural and Forestry Resources

The project site is classified as "Urban and Built-up" by the California Farmland Mapping and Monitoring Program (California Department of Conservation, 2014), which is a classification used for lands that present constraints for agricultural use. The site is not zoned for agricultural uses, and there are no Williamson Act contracts that affect any portion of the project site. No existing agricultural or timber-harvest uses are located on or in the vicinity of the project site. Development of the site would result in no impacts to agricultural resources.

3.14.3 Energy

Structures built would be subject to Titles 20 and 24 of the California Code of Regulations, which reduce demand for electrical energy by implementing energy-efficient standards for residential and non-residential buildings. The 2035 General Plan includes goals (see 2035 General Plan Energy Resources Goal U 6.1.1) and related policies to encourage energy-efficient technology by offering rebates and other incentives to commercial and residential developers, coordination with local utility providers and recruitment of businesses that research and promote energy conservation and efficiency.

The Master EIR discussed energy conservation and relevant General Plan policies in Section 6.3 (page 6-3). The discussion concluded that with implementation of the General Plan policies and applicable energy regulations (e.g., Title 24), development allowed in the General Plan would not result in the inefficient, wasteful or unnecessary consumption of energy.

3.14.4 Section 4(f) Properties

There are no Section 4(f) resources within the limits of the proposed project, and no parklands would be affected by construction of the project. There would therefore be no effect to Section 4(f) resources.

References

California Department of Conservation. 2014. *Sacramento County Important Farmland. 2014*.

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CHAPTER 4.0
Additional Considerations

4.1 Significant and Unavoidable Impacts

Section 21100(b)(2)(A) of CEQA requires the identification of any significant environmental effects that cannot be avoided if the project were implemented. As discussed in the various topical sections contained in Chapter 3 of this IS/EA, there are no issues that have been identified with either alternative that would result in an environmental effect that could not be mitigated to below a level of significance. Therefore, there would be no significant and unavoidable impacts associated with either of the project alternatives.

4.2 Significant Irreversible Environmental Changes

Section 21100(b)(2)(B) of CEQA requires that any significant irreversible changes that would result from implementing the project be identified. Actions that may be considered significant and irreversible include uses of non-renewable resources during the construction and operational phases of a project; primary and secondary impacts that will commit future generations to similar use; and irreversible damage due to environmental accidents.

Under Alternative 2, the Twin Rivers Transit-Oriented Development and Light Rail Station Project, the wxisting Twin Rivers Community Housing Complex would be redeveloped to accommodate additional residential units. Ultimately, however, the existing use would generally remain unchanged, since the area would still be occupied by a residential housing complex and its associated amenities, albeit at a higher density that is present currently. The Expansion Area parcel east of North 12th Street is currently vacant, and constructing new residential units and a light rail station at that location would essentially permanently commit the parcel to those uses. However, the development of the site for residential uses and a light rail station has been envisioned for many years, as evidenced by the inclusion of those uses in the City 2035 General Plan, the River District Specific Plan (RDSP), and numerous community visioning efforts for the area. So while conversion of the currently vacant parcel to the proposed uses would signify a change that would for all intents and purposes be permanent and irreversible, the proposed use would not be adverse. Further, and as discussed in the various topical sections contained in Chapter 3 of this IS/EA, no significant and unavoidable impacts to the environment would occur as part of the project's implementation.

Implementation of Alternative 2 would require a commitment of construction materials, such as concrete, steel, lumber, and fabricated materials. This commitment would be considered

irretrievable. However, due to the relatively small scale of the proposed project and the identified environmental benefits of the project, it would not be considered adverse or significant.

Alternative 2 would also involve the use of potentially hazardous materials normally required for construction, operation, and maintenance of transit systems, transit vehicles, and day-to-day residential uses. Environmental accidents stemming from the inadvertent release of these materials are not considered to be adverse or significant because of the minimal volumes and concentrations that would be used with implementation of the project. In addition, federal and state regulations regulate the transport, storage, and use of these materials. Federal and state regulations also regulate specific actions to be taken in the event of an inadvertent release of these materials. Therefore, while environmental accidents may occur, they are not expected to result in irreversible damage to the public or to the environment.

4.3 Growth-Inducing Impacts

Section 15126.2(d) of the State CEQA Guidelines requires that an environmental document discuss "…the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." NEPA regulations (40 CFR Section 1508.8) require the consideration of secondary and/or indirect effects that may include growth-inducing effects. Growth can be induced in a number of ways, including through the extension of urban services or transportation facilities into previously unserved or underserved areas, the elimination of obstacles to growth, or through the stimulation of economic activity within an area.

Under Alternative 2, the Twin Rivers Transit-Oriented Development and Light Rail Station Project, approximately 292 additional residential units would be constructed in the area, and a new light rail station would also be constructed along RT's existing light rail transit line. However, as determined in the City's 2035 General Plan Master EIR and the RDSP EIR, these improvements would not induce unplanned growth in the area, and would be supportive of coherent and efficient land use patterns in the RDSP area. Therefore, implementation of Alternative 2 would not induce growth beyond that which has been projected and planned for by the City and regional planning organizations.

4.4 Short Term Environmental Goals vs. Long Term Environmental Goals

CEQA Guidelines Section 15065(a)(2) requires lead agencies to make a mandatory finding concerning a project's potential to achieve short term environmental goals at the expense of long term environmental goals. This question is closely related to the findings outlined above concerning significant and irreversible environmental changes and growth-inducing impacts. In the case of the proposed project, the long term environmental goals associated with the proposed project have been evaluated in the City's 2035 General Plan Master EIR and the RDSP EIR, and have also been considered as part of long term community visioning processes for the area. Each of those efforts has determined that the proposed project would meet a number of long term

environmental goals, including: 1) provision of affordable housing to disadvantaged populations; 2) development of housing in an infill setting in proximity to employment opportunities and other amenities; and 3) provision of enhanced access to regional transit and thus to employment and lifestyle opportunities throughout the region. Therefore, the proposed project would help the region meet many of its long term goals associated with housing, socio-economic advancement, and access to transit and opportunity.

4.5 Degradation of Fish and Wildlife Habitat, and Elimination of Examples of California's History or Prehistory

CEQA Guidelines Section 15065 requires lead agencies to make mandatory findings concerning a proposed project's impacts to fish and wildlife and also to cultural resources. As specified in Section 15065(a)(1), lead agencies must determine if the project would

> "…have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?"

As discussed in Section 3.3 of this IS/EA, one sensitive species, the valley elderberry longhorn beetle, has the potential to occur in low quality habitat on the Expansion Area site. However, the U.S. Fish and Wildlife Service (USFWS) has issued a Biological Opinion stating that with implementation of identified conservation measures, the proposed project would not be "likely to jeopardize the continued existence of the beetle" (USFWS, 2016). Therefore, the impact to sensitive biological resources and habitats would not be adverse.

With respect to cultural and historic resources, Section 3.4 of this IS/EA describes the efforts that were made to determine the presence of these resources on the site. The analysis determined that no resources eligible for listing in either the National or California Register are present, and the California Office of Historic Preservation has concurred with that determination (see Appendix F of this IS/EA). In the event that previously unknown resources are discovered during project construction, mitigation requirements already in effect per the requirements of the RDSP EIR would reduce the potential impact to a less than significant level. Therefore, the impact of project implementation on important examples of the major periods of California history or prehistory would not occur, and there would be no adverse effect.

4.6 Cumulative Impacts

CEQA Guidelines (Section 15355) define "cumulative impacts" as "…two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." NEPA defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and

reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR Section 1508.7).

The proposed project has already been considered and evaluated as part of the City's 2035 General Plan Master EIR, which considered the proposed project within the context of the many other long-term improvements and developments that are anticipated to occur throughout the region over the next 20 or so years. Because the Master EIR anticipated and evaluated development across a large geographical area (the 102-square-mile General Plan Policy Area), and also considered effects that would be expected to occur over a relatively long period of time (20 or more years), the EIR's environmental analysis was inherently cumulative in nature. The Master EIR found significant and unavoidable impacts for the following areas:

- Potential to result in long-term operational emissions of ozone precursors and particulate matter that could contribute to a violation of air quality standards;
- Contribution to regional loss of special-status plant or wildlife species or their habitat;
- Change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5;
- Change in the significance of an archaeological resource as defined in CEQA Guidelines section 15064.5;
- Increase in exterior noise levels above the upper value of the normally acceptable category for various land uses (per General Plan Table EC-1);
- Increase in residential interior noise levels of L_{dn} 45 dB or greater;
- Exposure of existing and/or planned residential and commercial areas to vibration-peak-particle velocities greater than 0.5 inches per second due to construction;
- Potential adverse effects to roadway segments located in adjacent jurisdictions resulting from planned development under the 2035 General Plan, such that the jurisdictions minimum acceptable level-of-service thresholds are not met; and
- Potential impacts to freeway segments.

Based on a review of the identified cumulative impacts associated with implementation of the City's 2035 General Plan, it can be determined that many of these identified impacts would not apply to the proposed project because the analysis contained in this IS/EA project would have no effect on those particular issues. Cumulative impacts identified in the General Plan EIR to which the proposed project would not make a cumulatively considerable contribution would include the following:

Ozone Precursors and Particulate Matter Emissions. The analysis contained in Section 3.2 of this IS/EA found that the all of the project's emissions levels would be effectively mitigated to less-than-significant levels. Further, the proposed project would offset those effects based on identified benefits associated with the project's implementation. These benefits include overall reduced emissions based on the project's transit and infill-oriented characteristics and its associated reductions in vehicular trip generation and increased access to regional transit and

public mobility. In fact, *without* the proposed project, a number of adverse cumulative impacts and effects could result, most notably impacts to air quality and traffic brought about by non-infill and non-transit-oriented development that would presumably be constructed elsewhere. Based on these considerations, the project's impacts to air emissions would not be cumulatively considerable.

Special Status Species. The analysis contained in Section 3.3 of this IS/EA included the determination by the USFWS that with implementation of specified conservation measures, the proposed project and its cumulative effects would not be likely to jeopardize the continued existence of the valley elderberry longhorn beetle, and that there would be no adverse effect on the species. The USFWS's evaluation (USFWS, 2016) was cumulative in nature since it considered the incremental and cumulative effects of the proposed project within the context of other projects that are occurring or will occur throughout the range of the beetle. Based on these considerations, the project's effect on the beetle would not be cumulatively considerable. No other special status species have the potential to occur on the project site, so the project's effects on any other special status species would also not be cumulatively considerable.

Historic and Archaeological Resources. The analysis contained in Section 3.4 of this IS/EA determined that there are no National Register or California Register-eligible historic or archaeological resources likely to be present on the project site. The California Office of Historic Preservation has concurred with that determination (see Appendix F of this IS/EA). Since eligible historic or archaeological resources are unlikely to be present on the project site, and since measures are in place to adequately mitigate any impacts if such resources are inadvertently discovered during construction, the project's impacts to these resources would not be cumulatively considerable.

Exterior and Interior Noise Levels, and Construction-Related Vibration. The analysis contained in Section 3.10 of this IS/EA determined that the project-specific noise and vibration effects of the proposed project would be non-adverse, with implementation of mitigation. The project's cumulative contribution to noise and vibration levels in the larger area would be restricted to its incremental contribution of additional traffic noise created by the project's generation of additional vehicular trips. Based on the small scale of the project, and the insubstantial increase in vehicular trips that would be brought about by the proposed project, the project's effects on regional noise and vibration would not be cumulatively considerable. Further, implementation of the noise and vibration mitigations contained in the General Plan Master EIR and project-specific mitigation measures proposed in this IS/EA would reduce the project's impacts to a **less-than-significant** level, further reducing the project's contribution to environmental impacts to less than cumulatively considerable.

Impacts to Roadway Segments and Freeway Segments. The analysis contained in Section 3.12 of this IS/EA determined that although a number of intersections have been found to currently operate at LOS E or F, implementation of the proposed project under the Cumulative Plus Project condition would not result in unacceptable intersection operations. As noted in Section 3.12, the 2035 General Plan Policy M 1.2.2 allows LOS F at intersections located within the Core Area and/or a Priority Investment Area. All affected intersections fall under this policy. Further, the

project would construct improvements to non-auto travel modes within the study area to enhance the transportation system also in furtherance of 2035 General Plan goals, including a new light rail station and new sidewalks improving pedestrian linkages. As such, the project's impact in this regard would not be cumulatively considerable.

Concerning the project's cumulative effect on freeway segments, on April 5, 2016, the City approved the I-5 Subregional Corridor Mitigation Fee Program (SCMP) and certified its Supplemental EIR (SCH #2011012081). The SCMP would increase ridesharing during peak periods and add ramp meters and auxiliary and transition lanes on I-5 to improve traffic operations. The SCMP provides the option for development projects to monetarily contribute to the program, which would constitute mitigation for a project's impacts to the area's freeway system. To reduce the project's queuing impacts, the project would participate in the SCMP through implementation of Mitigation Measure 3.12-2. CEQA Guidelines Section 15130(a)(3) provides that "a project's contribution [to a significant cumulative impact] is less than cumulatively considerable if the project is required to implement and fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." Therefore, the project would not have cumulatively considerable impacts to freeway facilities in the area.

Based on each of these considerations, implementation of the proposed project would not result in cumulatively adverse or significant impacts.

References

U.S. Fish and Wildlife Service (USFWS). 2016. Formal Consultation on the Proposed Twin Rivers Transit Oriented Development Project. Sacramento County, California. Reference Code: 08ESMF00-2016-F-2198-1. December 28, 2016.

CHAPTER 5.0
Coordination

5.1 Introduction

The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) environmental review processes are intended to ensure public awareness and to inform decision makers and the public of any potential environmental impacts resulting from implementation of the proposed project. The process also requires coordination with appropriate agencies, jurisdictions, and organizations to receive their input on the environmental review process.

This section outlines the coordination and public outreach efforts that have been undertaken to date by the participating entities. These entities include the City of Sacramento, acting in accordance with its role as lead agency for purposes of CEQA compliance and its role as Responsible Entity under applicable U.S. Department of Housing and Urban Development (HUD) regulations. Other participating entities include the Sacramento Housing and Redevelopment Agency (SHRA), the Sacramento Regional Transit District (RT), the Housing Authority of the County of Sacramento, and the Housing Authority of the City of Sacramento.

5.2 Public Outreach Efforts Prior to Release of the Draft IS/EA

Section 2.3 of this IS/EA outlines the various environmental planning efforts that have taken place in the project vicinity over the last several years, each of which have considered and evaluated the Twin Rivers Transit-Oriented Development and Light Rail Station Project (proposed project). These planning efforts included a substantial public outreach component, during which time members of the public were provided the opportunity to learn about and provide input on the various project elements. Details of these efforts are included in Section 2.3, but are summarized as follows:

- **City of Sacramento 2035 General Plan and Master EIR.** The proposed project was incorporated into the City's General Plan and was evaluated in the Master EIR. Development of the General Plan was the result of numerous rounds of stakeholder and public engagement throughout the City over the course of several years. The Master EIR was released for public circulation in August, 2014. The Final Master EIR was certified and the General Plan was adopted by the Sacramento City Council in March, 2015.

- **River District Specific Plan and EIR.** The proposed project was incorporated into the City's River District Specific Plan (RDSP) and Program EIR. The RDSP and the EIR considered the

addition of expanded housing at the Twin Rivers Community Housing Complex and also the construction of the Dos Rio light rail transit station. Development of the RDSP involved numerous rounds of stakeholder and public engagement throughout the River District planning area over the course of several years. The environmental effects of the RDSP were analyzed in a Draft EIR that was released for public circulation in July, 2010. The Final EIR was certified and the Specific Plan was adopted by the Sacramento City Council in February, 2011.

In addition to the broad planning and community outreach efforts outlined above, a number of community engagement efforts have been undertaken that have specifically focused on the proposed project. These efforts are described in detail in Chapter 1 of this IS/EA, but are summarized as follows:

- **Choice Neighborhoods Initiative.** The two-year CNI planning process built on previous planning efforts undertaken during the City's work on the RDSP and nearby Railyards Specific Plans and included a substantial public involvement component. The CNI planning process culminated in the River District-Railyards Choice Neighborhoods Transformation Plan (NTP) submitted to HUD in January 2014, which essentially outlined the parameters of the proposed project, including redevelopment and expansion of the existing Twin Rivers Community Housing Complex with a new light rail station at its center. Development of the NTP included numerous planning sessions and charrettes with area residents and other area stakeholders.

- **Regional Transit Planning.** RT conducted an alternatives analysis in 2005 to determine the location for a new station in the River District that would maximize opportunities for existing area ridership and eventually provide opportunities for increased ridership as the area undergoes transformation. The proposed location for the new Dos Rios site was chosen to meet these goals, and was chosen after a number of community engagement sessions with area residents and other area stakeholders.

- **Regional Transit Station Design.** RT conducted an open house and design charrette on April 16, 2015 to solicit community members' priorities and input into the design of the proposed Dos Rios light rail station. RT plans further such sessions as the station moves into final design.

5.3 Agency Consultation

As the CEQA Lead Agency and the HUD-designated Responsible Entity for environmental review as specified in 24 CFR 58.4, the City of Sacramento undertook appropriate coordination efforts with applicable agencies with oversight over environmental issues associated with components of the project.

5.3.1 Consultations Pursuant to Section 7 of the Endangered Species Act

Acting in its role as the Responsible Entity for the project as specified in 24 CFR 58.5, the City contacted the U.S. Fish and Wildlife Service (USFWS) to determine whether federally listed threatened or endangered species under its jurisdiction would be likely to occur in the project area. The Service's response was received on April 29, 2016, and identified a total of eight listed species

that are known to occur in the general project vicinity. Biological resources surveys conducted at the project site determined that only one Federally listed species has the potential to occur on the project site and could be affected by implementing the project: the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). The beetle is Federally listed as threatened. Accordingly, in conjunction with SHRA, the City prepared a Biological Assessment (BA) for the project area that considered the likelihood of occurrence for the beetle, and the potential effects that could occur from implementation of the proposed project.

The findings of the BA are discussed in Section 3.3 of this IS/EA, and the BA and associated correspondence with USFWS is also included with this IS/EA in **Appendix A**. The BA was forwarded to USFWS on September 6, 2016 for its review, together with a request that USFWS concur with the BA's finding that with implementation of applicable conservation measures, the project would be unlikely to adversely affect the beetle. The USFWS emailed the City on October 12, 2016 requesting additional information on the City's proposed conservation measures for the beetle, and on December 13, 2016 the USFWS received an email from the City clarifying the proposed measures. The USFWS issued a Biological Opinion (BO) on December 28, 2016, in which it found that with implementation of specified conservation measures, the proposed project and its cumulative effects would not be likely to jeopardize the continued existence of the beetle. Accordingly, the City has satisfied its consultation requirements with USFWS, and further consultation is not necessary.

5.3.2 Consultations Pursuant to Section 106 of the National Historic Preservation Act

Acting in its role as the Responsible Entity for the project as specified in 24 CFR 58.5, the City initiated consultation with the California State Historic Preservation Office (SHPO), as required under Section 106 of the National Historic Preservation Act (NHPA), to determine the potential effects of the proposed project on historic resources.

In accordance with Section 106 of the NHPA, an area of potential effect (APE) was delineated around the project area, to encompass potential direct and indirect effects on cultural resources that could occur from implementation of the project. Two APEs, one for archaeological resources and another for historic and architectural resources, were delineated. Due to the defined nature of the project and its minimal potential for indirect effects, the APE for archaeological and architectural resources is the same. Required records searches and surveys were taken for both APEs, and a Cultural Resources Survey and Inventory Report (CRSIR) was prepared and submitted to SHPO with a request for concurrence of a Finding of No Effect. On April 6, 2017, SHPO issued its concurrence with the findings. SHPO's concurrence is provided in Appendix F of this IS/EA.

In January 2016 the Native American Heritage Commission (NAHC) was contacted to conduct a search of the Sacred Lands File (SLF) and a list of Native American representatives who may have interest in the project. The NAHC reply indicated that the SLF has no record of any cultural resources in the APE, and also included a contact list of Native American representatives. In June 2016, SHRA sent letters with project information to Native American contacts provided by the NAHC to solicit comments and concerns regarding potential project impacts to cultural resources

and invite the contacts to consultation for purposes of Section 106 and California Assembly Bill 52 (AB 52). In July 2016, SHRA made follow-up phone calls to the same contacts. From these initial outreach efforts, SHRA received replies from the Shingle Springs Band of Miwok Indians (Shingle Springs) and Wilton Rancheria (Wilton), both of whom asked for additional information on the project and copies of the records search and draft CRSIR conducted for the project. In preparation of the Extended Phase 1 (XPI) subsurface investigation, SHRA contacted Shingle Springs and Wilton to inform them of the proposed fieldwork and request if they had any concerns. Both tribes showed concern regarding cultural resources in the APE. On February 6, 2017, representatives from SHRA, ESA, Shingle Springs, and Wilton met on-site to discuss the XPI and the tribes' concerns. Both tribes provided a monitor during the XPI fieldwork. Documentation of the project correspondence with the NAHC and other Native American representatives is included in **Appendix E** of this IS/EA.

5.4 Public Review of this Draft IS/EA

5.4.1 Draft IS/EA

The City of Sacramento has prepared this IS/EA to identify potential effects of the proposed project. The analysis describes potential temporary (construction) and long-term (operational) effects, as well as potential cumulative effects. As appropriate, mitigation measures have been proposed that would be implemented to reduce the identified potential adverse effects. A 30-day public review period is being provided for the public and agencies to comment on the IS/EA regarding its accuracy, its characterization of potential effects, and the anticipated effectiveness of the proposed mitigation measures.

5.4.2 Mitigated Negative Declaration/Finding of No Significant Impact

Following the public review period, the City will review the comments received on the Draft IS/EA. The City, as the lead agency under CEQA and as the Responsible Entity under NEPA, will consider the comments, respond to them as appropriate, and then will determine whether significant or adverse environmental effects would be likely to result from the proposed project. If the City determines that no adverse effects would occur, then the City would adopt a Mitigated Negative Declaration for purposes of CEQA and would issue a Finding of No Significant Impact (FONSI) for purposes of NEPA. Following these actions, the City would then submit a request for release of funds from HUD.

Subsequent review and approvals of this IS/EA may also be undertaken by the Federal Transit Administration (FTA) for those aspects of the project for which it may provide funding. At its discretion, FTA may utilize the findings contained within this IS/EA to make its own NEPA determination for those portions of the project for which it would provide funds. In such an instance, RT would serve as a joint NEPA lead agency with the FTA as provided for under 23 CFR 771.109(c)(2). In that capacity, RT would prepare summary environmental review documents for its portion of the project (i.e., the Dos Rios Light Rail Station). The information contained within this IS/EA would form the basis for those documents. The public review process

associated with this IS/EA would also dually serve for purposes of the FTA's public review process. FTA would provide guidance during RT's efforts, and would independently evaluate the documents prepared by RT prior to making its own findings with respect to the project's environmental effects.

5.5 Distribution List

The following agencies, organizations, and individuals will receive a copy of the Notice of Availability (NOA) for this IS/EA. Copies of the IS/EA will be forwarded to all agencies, organizations, and individuals who request it. Notices will be posted in area newspapers, and with the County Clerk and the State Clearinghouse. The NOA will be posted at appropriate locations in and around the project site, and notices will be delivered to all residences within the Twin Rivers Community Housing Complex, and also to affected property owners within the project area. In addition, the IS/EA will be available for download and review on the City's website, SHRA's website, and RT's website.

5.6 Federal Agencies

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Federal Transit Administration
201 Mission Street, Suite 1650
San Francisco, CA 94105

Environmental Clearance Officer
Department of Housing & Urban Development
450 Golden Gate Avenue
San Francisco, CA 94102

U.S. Fish and Wildlife Service
2800 Cottage Way W-2605
Sacramento, CA 95825-1846

5.7 State Agencies

California Air Resources Board
PO Box 2815
Sacramento, CA 95812

Caltrans District 3 Planning
2800 Gateway Oaks Drive
Sacramento, CA 95833

California Department of Fish and Wildlife
1701 Nimbus Road, Ste. A
Rancho Cordova, CA 95670

Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

California Department of Parks and Recreation
PO Box 942896
Sacramento, CA 94296

Caltrans District 3 Office of Local Assistance
703 B Street, P.O. Box 911
Marysville, CA 95901

California Department of Water Resources
PO Box 942836
Sacramento, CA 94236

Central Valley Flood Protection Board
3310 El Camino Ave, Room 151
Sacramento, CA 95821

California Public Utilities Commission
770 L Street
Sacramento, CA 95814

California Governor's Office of Planning and Research State Clearinghouse
1400 10th Street, Rm 121
Sacramento, CA 95814

Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Sacramento Air Quality Management District
777 12th Street, 3rd Floor
Sacramento, CA 95814

State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street
Sacramento, CA 95816

5.8 Regional and/or Local Agencies

Sacramento City Fire Department
5770 Freeport Blvd., Suite 200
Sacramento, CA 95822

Sacramento City Police Department
5770 Freeport Blvd., Suite 100
Sacramento, CA 95822

Sacramento City Unified School District
5735 47th Avenue
Sacramento, CA 95824

Sacramento County Environmental Management Dept.
10590 Armstrong Avenue, Suite A
Mather CA 95655

Sacramento County Department of Transportation
906 G Street, Ste. 510
Sacramento, CA 95814

Sacramento County Environmental Coordinator
827 7th Street, Room 100
Sacramento, CA 95814

Sacramento County Planning Department
827 7th Street, Room 230
Sacramento, CA 95814

Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento CA 95827

Sacramento Public Library
828 I Street
Sacramento, CA 95814

Twin Rivers Unified School District
3222 Winona Way
North Highlands, CA 95660

5.9 Elected Officials

Phil Serna
Supervisor
Sacramento County
700 H Street, Suite 2450
Sacramento, CA 95814

Angelique Ashby
Council Member
City of Sacramento
915 'I' Street
Sacramento, CA 95814

Darrell Steinberg
Mayor
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Larry Carr
Council Member
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Eric Guerra
Council Member
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Jeff Harris
Council Member
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Allen Warren
Council Member
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Steve Hansen
Chief of Staff to Mayor Johnson
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

Jay Schenirer
Council Member
City of Sacramento
915 'I' Street, Room 205, 5th Floor
Sacramento, CA 95814

5.10 Organizations and Individuals

Environmental Council of Sacramento (ECOS)
P.O. Box 1526
Sacramento, CA 95812

River District Board of Directors
P.O. Box 630
Sacramento, CA 95812

Sacramento Area Bicycle Advocates (SABA)
909 12th Street, Ste. 116
Sacramento, CA 95814

Sacramento Housing Alliance
1800 21st Street, Ste. 100
Sacramento, CA 95818

Sacramento Transportation Management Association
PO Box 19520
Sacramento, CA 95819

Walk Sacramento
909 12th Street, Ste. 122
Sacramento, CA 95822

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CHAPTER 6.0
List of Preparers

6.1 Lead Agency

City of Sacramento – Local Lead Agency (CEQA) and Responsible Entity (NEPA)

- Tom Buford, Senior Planner
- Dana Mahaffey, Associate Planner

6.2 Other Participating Agencies

Sacramento Housing and Redevelopment Agency – Participating Agency

- Geoffrey Ross, Assistant Director, Development and Federal Programs
- Celia Yniguez, Senior Management Analyst
- Stephanie Green, Environmental Coordinator
- Brad Satterwhite, Community Development Analyst

Sacramento Regional Transit District – Participating Agency

- Jeff Damon, Director, Long Range Planning
- Traci Canfield, Senior Strategic Planner
- Jenny Niello, Principal Civil Engineer
- David Solomon, Senior Architect

6.3 Environmental Planning Consultants

Environmental Science Associates, Sacramento, California

Responsible for overall technical coordination and technical analyses of all issue areas.

- Brian Boxer, AICP, B.A., History; M.P.A.-U.R.P., Public Affairs and Urban Planning – 30+ years of experience. Project Director responsible for overall technical review and coordination.

- Luke Evans, B.A., History and Religious Studies; M.S., Environmental and Natural Resources Policy – 19 years of experience. Project Manager responsible for compilation of environmental document and technical studies.
- Chris Fitzer, B.A., Geography; M.S., Environmental Planning – 19 years of experience. Oversaw biological resources analysis and Section 7 consultation.
- Sarah Cannon, B.S. Natural Resources Planning and Interpretation – 7 years of experience. Prepared biological resources evaluation and Biological Assessment for Section 7 consultation.
- Dana McGowan, RPA, B.A., Anthropology; M.A., Anthropology – 30+ years of experience. Oversaw cultural resources analysis and Section 106 consultation.
- Amber Grady, B.A., Interior Design; M.A. Historic Preservation – 16 years of experience. Prepared built environment/historic architectural evaluation.
- Robin Hoffman, RPA, B.A. Anthropology; M.A. Latin American and Iberian Studies – 13 years of experience. Prepared archaeological resources evaluation, oversaw subsurface survey work, and coordinated tribal consultation.
- Chris Sanchez, B.S., Environmental Science – 23 years of experience. Oversaw preparation of air quality/greenhouse gas and noise and vibration analysis.
- Rachael Larson, B.S., Physics; M.S., Mechanical Engineering – 3 years of experience. Prepared air quality/greenhouse gas evaluation.
- Stan Armstrong, B.A. Civil Engineering – 6 years of experience. Conducted noise measurements and prepared noise and vibration analysis.
- Michael Burns, CHG, CEG, PG, B.S., Geology – 30+ years of experience. Prepared geological resources and hazardous materials evaluation, prepared Explosive Hazards Evaluation.
- Cori Resha, B.A., Environmental Economics; J.D., Law – 11 years of experience. Prepared public services analysis.
- Dave Davis, B.S., Geography; M.S. Geography – 28 years of experience. Prepared environmental justice, land use/population and housing/socioeconomics, public services and recreation evaluations.
- Jennifer Brown, B.A., Environmental Studies and Political Science – 5 years of experience. Prepared aesthetics, hydrology and water quality, and utilities evaluation.
- Frank (Eryn) Pimentel, GISP, B.A., Geography; B.A., Art – 8 years of experience. Prepared GIS-related analysis.
- Ron Teitel, B.A., Geography – 28 years of experience. Prepared document graphics and figures.
- Kristine Olsen, A.S., Natural Science – 15 years of experience. Oversaw word processing and production.

Fehr & Peers, Sacramento, California

Responsible for transportation analysis.

- David Carter, AICP; Senior Associate; Master of City and Regional Planning – 9 years of experience. Project manager/oversaw preparation of transportation analysis.
- Jimmy Fong, P.E.; Transportation Engineer; B.S., Civil Engineering – 3 years of experience. Project engineer/lead analyst preparing transportation analysis.
- Rebecca Shafer, EIT; Transportation Engineer; B.S., Civil Engineering; M.S., Transportation Engineering; Master of City and Regional Planning – 2 years of experience. Project engineer/assisted with preparation of transportation analysis.

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