

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.1 Air Quality			
<p>Impact AQ-1 – Impacts of construction emissions - Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the project site. Fugitive dust emissions would primarily result from site preparation (e.g., excavation) activities. NOX emissions would primarily result from the use of construction equipment. VOC emissions would primarily result from paving operations.</p> <p>Construction of the DNA project would include activities such as site preparation, demolition, utility relocation, and track work.</p> <p>The maximum estimated NOX emissions of 81 ppd for the project area would be less than the SMAQMD threshold of 85 ppd. Regional construction emissions would result in a less-than-significant impact.</p>	<i>Potentially Significant</i>	<p>AQ-1 - The construction contractor shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction.</p>	<i>Less-than-significant</i>
		<p>AQ-2 - The construction contractor shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.</p>	
		<p>AQ-3: Any equipment found to exceed 40</p>	

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		<p>percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or State rules or regulations.</p>	
		<p>AQ-4 - The construction contractor shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour.</p>	
		<p>AQ-5 - The construction contractor shall ensure that active grading and parking areas are watered at least twice daily.</p>	
		<p>AQ-6 - The construction contractor shall ensure that exposed stockpiles are enclosed, covered, watered twice daily.</p>	
		<p>AQ-7 - The construction contractor shall ensure that all trucks hauling dirt, sand, silt, or</p>	

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		other loose materials are covered or maintain at least two feet of freeboard.	
		AQ-8 - The construction contractor shall utilize ultra-low sulfur fuel (< 15 parts per million) at an incremental cost of \$0.20 to \$0.50 per gallon. Locations where ultra-low sulfur fuel is available in California are available at: http://ecdiesel.com/business/locator .	
		AQ-9 - The construction contractor shall establish an idling limit (e.g., 5 minutes per hour).	
		AQ-10 - The construction contractor shall ensure that equipment is tuned to manufacturers' specifications at the manufacturers' recommended frequency.	
		AQ-11 - The construction contractor shall prohibit any tampering with engines and continuing adherence to manufacturer's recommendations will be required.	
		AQ-12 - If necessary, additional emissions limits shall be established within 1,000 feet of any K-12 school, based on CARB proposals.	
		AQ-13 - Notification shall be provided to all schools within 1,000 feet of a construction site.	
		AQ-14 - Truck trips shall be reduced and/or hours of driving shall be restricted through	

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		residential communities.	
		AQ-15 - Receipts of ultra-low sulfur fuel purchase and equipment tuning/repair shall be kept and made available upon request.	
		AQ-16 - The construction contractor's Project Manager shall conduct spot checks for compliance with committed measures.	
<p>Impact AQ-2 – Impacts of PM10 emissions – The Basin is designated as a PM10 nonattainment area. Project-related fugitive dust emissions equal to or greater than five percent of the State 24-hour and annual PM10 standards would result in a significant impact. Therefore, any 24-hour PM10 emissions increase of 2.5 g/m3 or greater would result in a significant impact, and any annual PM10 emissions increase of 1.0 g/m3 or greater would result in a significant impact.</p> <p>Construction activity along the project corridor would increase 24-hour PM10 concentrations by approximately 3.8 g/m3, and would exceed the significance threshold of 2.5 g/m3. Annual PM10 concentrations would increase by approximately 1.3 g/m3, and would exceed the significance threshold of 1.0 g/m3. Localized construction emissions would result in a significant localized construction air quality impact without mitigation.</p>	<p><i>Potentially Significant</i></p>	<p>AQ-17 - The construction contractor shall water exposed soil with adequate frequency to ensure that soil is continually moist per SMAQMD guidelines throughout the construction process.</p>	<p><i>Significant and unavoidable</i></p>

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<p>Impact AQ-3 – Impacts of operational emissions -The project would reduce automobile VMT and increase light rail VMT in the transportation system. The proposed project would increase emissions by 1.1 ppd for ROG and reduce emissions by 0.03 ppd for NOX. Emissions associated with the project would not exceed the ROG and NOX significance thresholds of 65 ppd.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
<p>Impact AQ-4 – Impacts of CO Hotspots - The CO hotspot evaluation indicates one-hour CO concentrations under “project” conditions would be approximately 9 ppm at worst-case sidewalk receptors. Eight-hour CO concentrations under “project” conditions would range from approximately 5.3 to 5.5 ppm. The State one- and eight-hour standards of 20 and 9.0 ppm, respectively, would not be exceeded at the analyzed intersections.</p> <p>As shown in Table 3-4, CO concentrations would not exceed the State one- and eight-hour standards. No significant increase in CO concentrations at sensitive receptor locations is expected.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
<p>Impact AQ-5 Toxic Air Contaminants Impacts - Construction TAC Impacts - The</p>	<i>Potentially Significant</i>	<p>AQ-18 - To ensure the proper handling and removal of ACMs identified on the project site, the follow mitigation is recommended:</p>	<i>Less-than-significant</i>

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<p>greatest potential for TAC emissions during construction would be diesel particulate emissions from heavy equipment operations. The short-term project construction schedule of approximately 12 months would not result in a long-term source of TAC emissions. No residual emissions and corresponding individual cancer risks are anticipated after construction.</p> <p>Asbestos Containing Materials (ACM)</p> <p>Demolition of structures and earth disturbances may result in airborne entrainment of asbestos, particularly where structures include ACMs (e.g., insulated pipes, ducts, stacks, beams, ceiling tiles, walls, etc.) or in areas where soil contains naturally-occurring deposits of ACMs. Approximately three acres of land would be graded during the construction process with the potential to disturb naturally occurring ACMs.</p> <p>Operational TAC Impacts</p> <p>The proposed project would reduce regional VMT and associated TACs, and increase light rail VMT in the transportation system. The light rail would be electrically powered from existing utilities and would not emit diesel particulate matter.</p>		<p>In the event that the project site is identified as containing ACMs, either naturally-occurring or those found within structures, the construction contractor shall consult with the SMAQMD to ensure the proper handling and removal of ACMs.</p>	
<p>Impact AQ-6 – Odor Impacts</p> <p>Construction Odor Impacts - Potential</p>	<p><i>Less-than-significant</i></p>	<p><i>None required</i></p>	<p><i>Less-than-significant</i></p>

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<p>sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The proposed project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. The proposed project construction activity would not cause an odor nuisance.</p> <p>Operational Odor Impacts</p> <p>Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The proposed project would not include any land use or activity that typically generates adverse odors. The proposed project operational activity would not cause an odor nuisance, and construction odors.</p>			
<p>Impact AQ-7 – Climate Impacts</p> <p>The proposed project would not result in the alteration of air movement, moisture, or temperature, or in any change in climate, either locally or regionally over and above what is currently experienced in that area.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>

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<p>Impact AQ-8 – Greenhouse Gas Impacts</p> <p>Construction activity would generate GHG emissions from the operation of heavy-duty equipment, truck travel, and worker commute. The entire construction process would generate approximately 587 tons of GHG emissions.</p> <p>The proposed project would reduce automobile VMT and increase light rail VMT in the transportation system. The proposed project would reduce regional automobile VMT by 40,525 miles per year. The proposed project would decrease GHG emissions compared to “no project” conditions by approximately 20 tons per year. The proposed project would result in less GHG emissions than “no project” conditions, which would be a beneficial global warming impact.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
Cumulative Air Quality Impacts			
<p>Cumulative Impact AQ-9 - The proposed project would be developed within the right-of-way of an existing transportation corridor (7th and 8th Streets), and would not require a change in land use designation or rezoning prior to construction.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>

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5.2 Transportation			
<p>Impact TC - 1 Intersections</p> <p>Changes in distribution with the project may increase traffic volumes at some study area intersections and decrease volumes at others. At stop-sign controlled intersections, side street delay will increase. However, the changes in intersection operating conditions do not exceed the standards of significance for impacts to intersections.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
<p>Impact TC-2 Pedestrian and Bicycle Impacts - The Light Rail Alternatives include a single-track within the right-of-way of 7th Street where 7th Street passes under the Union Pacific Rail Road, and assumes relocation of existing pedestrian and existing designated bikeways from 7th Street to a new underpass west of 7th Street by others. The Light Rail Alternative is not anticipated to result in unsafe conditions for pedestrians, including unsafe bicycle/ pedestrian or pedestrian/motor vehicle conflicts. During preliminary engineering for MOS-1, details of station layouts, including walkways and bicycle access, would be developed.</p>	<i>Significant</i>	<p>TC-2 - Provisions would need to be made for bicycles and pedestrians within the existing underpass during construction. The existing sidewalk would be widened as much as possible while providing a southbound traffic lane. This temporary facility will be designed and constructed in accordance with applicable state and City standards.</p>	<i>Less-than-significant</i>

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5.2 Transportation (continued)			
<p>Impact TC – 3 Transit Services -The Light Rail Alternative would increase demand for transit services. It would result in the addition of employees, residents, patrons, and visitors to the study area, some of whom would travel by transit. Although particular transit vehicles operate at or near capacity during the peak commuter periods, a review of existing transit operations and plans for future transit services indicate that there is ample capacity on the RT system to support the anticipated increase in transit utilization.</p>	<p><i>Less-than-significant.</i></p>	<p><i>None required</i></p>	<p><i>Less-than-significant</i></p>
<p>Impact TC-4 Parking</p> <p>7th Street - F Street to H Street</p> <p>Funding constraints could prevent construction of new track on 8th Street between G and H and on G between 7th and 8th. If funding is insufficient, NB trains would travel west on H Street then north on 7th instead of traveling north on 8th then west on G. Without the 8th to G Street connection, 7th Street track between G and H Streets would operate in both north and south directions. Two-way operations would require the displacement of additional on-street parking: All on-street spaces on both sides of 7th from F to G, 3 additional spaces on the west side between G and F, and all the spaces on the east side</p>	<p><i>Less-than-significant</i></p>	<p>TC-4 - Prior to beginning of construction, a construction traffic and parking management plan would be prepared by the Contractor to the satisfaction of the City traffic engineer and subject to review by all affected agencies. The plan would ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. The plan would include:</p> <ul style="list-style-type: none"> • The number of truck trips, time, and day of street closures. • Time of day of arrival and departure of trucks. • Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting. 	<p><i>Less-than-significant</i></p>

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<p>between G and F would be displaced. Based on April 2008 parking surveys conducted for the City of Sacramento, the existing supply is 27 spaces and the existing midday (10 a.m. to 2 p.m.) occupancy is 20 vehicles. Some parking is designated for police only, and would likely need to be relocated. Within approximately three blocks, the surveys indicated the midday availability of 109 on-street spaces. Therefore, the 20 potentially displaced vehicles could be accommodated nearby. There are also ample opportunities for off-street parking in the vicinity, including, in the short term, the lot located along the west side of 7th Street - this lot is property owned by Railyards and is planned for development during initial phases of their development.</p>		<ul style="list-style-type: none"> • Provision of a truck circulation pattern. • Provision of driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas). • Maintain safe and efficient access routes for emergency vehicles. • Manual traffic control when necessary. • Proper advance warning and Construction posted signage concerning street closures. • Provisions for pedestrian safety. <p>A copy of the construction traffic management plan would be submitted to local emergency response agencies and these agencies should be notified at least 14 days before the commencement of construction that would partially or fully obstruct roadways.</p>	
<p>8th Street – H Street to I Street</p> <p>The proposed Light Rail Alternative includes a station platform for northbound trains on 8th Street between H and I Streets and would require elimination of additional spaces. The subject block has 11 parking / loading spaces along the west curb, and 7 spaces along the east curb. All of them were occupied during midday (10 a.m. to 2 p.m.) parking surveys conducted in April</p>	<p align="center"><i>Less-than-significant</i></p>	<p align="center"><i>None required</i></p>	<p align="center"><i>Less-than-significant</i></p>

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<p>2008 for the City of Sacramento.</p> <p>Within three blocks of the subject block, there are about 1,058 other on-street spaces. 946 of these other spaces were occupied during the midday surveys, or about 89 percent. While there are available on-street spaces to accommodate parking space elimination in the subject block, the overall occupancy in the area is very high (about 90 percent).</p>			
<p>Richards Boulevard Area</p> <p>The proposed Light Rail Alternative would go into the existing 2-lane section on 7th Street between Richards Boulevard and North B Street and would not eliminate parking. Future striping changes by others to make this section 4-lanes would likely eliminate on-street parking if the existing right-of way were maintained. The widening to 4-lanes is not part of the proposed Light Rail Alternative.</p> <p>On-street parking could be restricted in the future in the area around the Township 9 light rail station. However, the extent of where parking would be restricted or removed is not known.</p> <p>Most business and industry have available off-street parking lots that are not full - on-street parking appears to be</p>	<p><i>Less-than-significant</i></p>	<p><i>None required</i></p>	<p><i>Less-than-significant</i></p>

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occurring for convenience, and could be accommodated off-street. No parking is required as part of the Light Rail Alternative.			
Cumulative Transportation Impacts			
<ul style="list-style-type: none"> • Cumulative Impact TC-5 – Intersections - The project would increase traffic volumes in the study area. The changes in intersection operating conditions with the addition of the project exceed the standards of significance for impacts to intersections at the following three locations: • 8th Street / G Street – In the a.m. peak hour, the intersection level of service remains at LOS “D” with an increase in delay from 42.3 to 51.1, an increase of 8.8 seconds under the Cumulative Plus Light Rail Alternative - Railyards EIR Option. • 7th Street / H Street – In the p.m. peak hour, the intersection level of service remains at LOS “F” with an increase in delay from 114.3 to 132.0, an increase of 17.7 seconds under the Cumulative Plus Light Rail Alternative - Railyards EIR Option. • 7th Street design option: 7th Street / H Street – In the p.m. peak hour, the intersection level of service remains at LOS “F” with an increase in delay from 114.3 to 162.4, an increase of 	<p><i>Significant</i></p>	<p>TC-5 - Intersection of 8th Street and G Street – Modify the traffic signal cycle length during the a.m. peak hour by increasing the signal cycle length from 50 seconds to 100 seconds. This mitigation measure would improve traffic operations to LOS “D” with 40.5 seconds of delay, less than the Cumulative No project Alternative - Railyards EIR Option.</p> <p>Intersection of 7th Street and H Street – Modify the traffic signal cycle length during the p.m. peak hour by increasing the signal cycle length from 50 seconds to 100 seconds. This mitigation measure would improve traffic operations to LOS “E” with 65.8 seconds of delay, less than the Cumulative No project Alternative - Railyards EIR Option.</p> <p>Intersection of 7th Street and H Street – Modify the traffic signal cycle length during the p.m. peak hour by increasing the signal cycle length from 50 seconds to 100 seconds. This mitigation measure would improve traffic operations to LOS “E” with 75.0 seconds of delay, less than the Cumulative No project Alternative - Railyards EIR Option.</p> <p>Intersection of 7th Street and G Street – Modify the traffic signal cycle length during the p.m. peak hour by increasing the signal cycle length from 50 seconds to 100 seconds.</p>	<p><i>Less-than-significant</i></p>

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<p>48.1 seconds under the Cumulative Plus Light Rail Alternative - Railyards EIR Option (with the 7th Street design option.) There is a relatively large increase under the 7th Street option at this location because if funding is insufficient for NB trains to travel north on 8th Street to G Street to 7th Street, all NB trains would travel west on H Street to 7th Street, through the 7th Street and H Street intersection. Under the 7th Street option, all NB and SB MOS-1 trains, as well as all existing EB and WB Gold Line trains would preempt this signal.</p> <ul style="list-style-type: none"> • 7th Street / G Street – In the p.m. peak hour, the intersection level of service remains at LOS “F” with an increase in delay from 204.4 to 211.2, an increase of 6.8 seconds under the Cumulative Plus Light Rail Alternative - Network 1 Option. 		<p>This mitigation measure would improve traffic operations to LOS “F” with 185.0 seconds of delay, less than the Cumulative No project Alternative - Network 1 Option.</p>	
5.3 Noise/Vibration			
<p>Impact NV-1 Construction Noise Impacts - Construction of the project may expose the public to high noise levels. The Sacramento Municipal Code, Title 8 - Health and Safety, Chapter 8.68 – Noise Control, limits construction activity to the period between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday. Construction is also limited to the hours between 9:00 a.m. and 6:00 p.m. on Sunday. However, the</p>	<p align="center"><i>Potentially significant</i></p>	<p>NV-1 - Noise control devices, such as equipment mufflers, enclosures, and barriers can be used to reduce construction noise. Natural and artificial barriers such as ground elevation and existing buildings can shield construction noise. Staging areas should be kept as far from sensitive noise receptors as possible. Noise barriers, such as temporary walls or piles of excavated material, should be constructed between noisy activities and</p>	<p align="center"><i>Less-than-significant</i></p>

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<p>Codes do not mandate maximum allowable construction noise levels. Provided that the proposed construction activities occur during the allowed hours specified above, no significant construction noise impacts are anticipated. Table 5.3-3 summarizes construction noise levels at various distances.</p>		<p>noise-sensitive receivers.</p> <p>Avoid residential areas when planning haul truck routes.</p> <p>Replace noisy equipment with quieter equipment, such as vibratory pile driver instead of a conventional pile driver, enclosed air compressors, and mufflers on all engines.</p>	
<p>Impact NV-2 Construction Vibration Impacts - Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings founded on the soil in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the lowest levels, low rumbling sounds, and perceptible vibrations at moderate levels and slight damage at the highest levels. Heaviest pieces of equipment such as a vibratory roller would be the most dominant source of overall construction vibration. The vibration levels created by the normal movement of vehicles including graders, front loaders, and backhoes are the same order-of-magnitude as the ground-borne vibration created by heavy trucks traveling on streets and highways. A vibratory roller, the highest vibration-generating</p>	<p align="center"><i>Less-than-significant</i></p>	<p align="center"><i>None required</i></p>	<p align="center"><i>Less-than-significant</i></p>

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<p>equipment for this project, would create ground-borne vibration levels up to 0.21 in/sec as PPV at 25 feet from the center of activity (FTA, 2006). The closest distance between any susceptible building structures and the new alignment is at least 40 ft away. Therefore, construction vibration levels at the adjacent structures would be less than 0.25 in/sec for fragile buildings. No significant vibration impacts are anticipated during the construction activities.</p>			
<p>Impact NV-3 Operational Noise Impacts - Operation of the proposed project may permanently expose sensitive receptors to increased noise levels. Noise-sensitive land uses that might be affected by the operation of the proposed project include two single-family residences shown on Figure 5.3-1. The interior noise level criterion of 45 dBA is applied to assess future noise impact according to the City’s 1998 and 2030 General Plans. The interior noise level criterion of 45 dBA is applicable to residential uses and transient lodgings where people normally sleep. Noise sensitive sites are determined to be impacted by the future project if either incremental exterior noise criteria or the interior noise level criterion of 45 dBA is exceeded.</p> <p>According to the calculations, two</p>	<p align="center"><i>Potentially significant</i></p>	<p>NV-3 - Sound insulation could be used to reduce impacts by adding glazing to windows, or replacing outdated single-paned windows to acoustically-rated modern dual-pane windows. These forms of sound insulation can result in a 10 to 30-dB reduction; thus, the noise levels would be mitigated. The types and details of window material and design shall be discussed during the final stage of design.</p> <p>At locations along the alignment where there are tight-turn radii in the tracks, wheel squeal may become a source of noise complaints. To avoid wheel squeals, it is recommended that the track turn radius be kept above 1,000 feet at all locations. However, RT is aware that one turning radius would be 82 feet. Rail lubrication on sharp turns would be used to reduce or minimize squeals.</p> <p>As rails wear, both noise levels may increase.</p>	<p align="center"><i>Less than Significant</i></p>

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<p>single-family residences on 7th Street north of G Street would receive operational noise impacts because of the new LRT operation. The transit operational noise resulting from the proposed project is similar to that of the ambient noise at this location Table 5.3-4. As stated in “Exterior Incremental Noise Impact Standards for Noise Sensitive Uses” of the City’s 2030 General Plan, the cumulative noise including both ambient and project noise levels cannot constitute more than 1-dB incremental noise when the ambient noise levels exceed 65 dBA.</p> <p>The LRT vehicles have warning devices that are sounded as the vehicles enter the stations and at-grade crossings. The City does not impose a quantitative noise limit specifically on warning devices. A noise criterion for warning devices recommended by American Association of Railroads’ Signal Manual specifies that the noise levels of a warning bell should not be more than 105 dBA and not less than 75 dBA at a point 10 feet from the source. The warning device must be clearly audible to alert pedestrians or drivers on the roadways of imminent train pass-bys.</p>		<p>Grinding down or replacing worn rail will assist with maintaining operating levels of noise and vibration. Also, wheel truing, the grinding down of flat spots on the rails’ wheels that occur due to braking, will reduce noise and vibration effects. Overall vehicle maintenance will help reduce the likelihood of increased noise and vibration.</p> <p>In regards to the warning device, transit gongs are designed to be clearly audible for safety reasons. Various gong sounding treatment options or mounting modifications can be applicable for noise reduction.</p>	

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<p>Impact NV-4 – Operational Vibration Impacts - Operation of the proposed project may permanently expose sensitive receptors to increased vibration levels. The proposed LRT vehicles for this project would be similar to the vehicles in existing service for the Blue and Gold lines. The current revenue vehicles are manufactured by Siemens Transportation Systems and Construcciones y Auxiliar de Ferrocarriles. As a result, future pass-by vibration levels would closely resemble the levels currently experienced by the adjacent sensitive receptors. For sensitive receptors north of H Street, the new proposed LRT service would be a new source of ground-borne vibration.</p> <p>According to the results summarized in Table 5.3-2, LRT pass-by Peak Particle Velocity (PPV) vibration levels are lower by almost an order of magnitude than the City’s required 0.5 in/sec for residential structures and 0.25 in/sec for historical buildings.</p> <p>For the new construction segment of the proposed alignment north of H Street, the closest residential structure is at least 50 feet away from the proposed tracks. Measured vibration levels were recorded at approximately 50 feet away from existing tracks. These measured vibration levels can be used to estimate future operational vibration impacts at</p>	<p align="center"><i>Less-than-significant</i></p>	<p align="center"><i>None required</i></p>	<p align="center"><i>Less-than-significant</i></p>

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<p>the residences north of H Street due to their comparable distances to the source. According to the measured levels, these residences would experience LRT pass-by vibration levels in the range of 0.008 and 0.048 in/sec that are well below the City’s mandated vibration levels of 0.5 in/sec for residential structures and 0.25 in/sec for historical buildings. No operational vibration impacts are anticipated for these residences north of H Street.</p>			
Cumulative Noise Impacts			
<p>Overall noise increase due to the proposed LRT operation would be perceived at nearby sensitive locations in various levels. Along the new alignment north of H Street, the project would result in an approximate increase of 3-dB of cumulative noise levels at nearby sensitive locations including two single-family residences.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
<p>No significant cumulative vibration impacts are anticipated.</p>	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>

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Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
5.4 Aesthetics			
<p>Impact VIS -1 Visual Intrusion into Historic Ares - The addition of the OCS near the homes in the historic Alkali Flat Neighborhood district, would cause a visual intrusion along the edge of the neighborhood.</p>	<p><i>Potentially significant</i></p>	<p>VIS-1 - Work with the community during preliminary through final design to develop Aesthetic and Design Guidelines for the project improvements through a formalized structure that allows for community input (Context Sensitive Solutions).</p> <p>Design the overhead contact system (OCS) to preserve the existing mature street trees along 7th Street in the Alkali Flat Neighborhood area.</p>	<p><i>Less-than-significant</i></p>
<p>Impact VIS-2 Removal of Mature Trees Along 7th Street - Along 7th Street the project is likely to lower the existing visual quality, especially if the construction requires the removal of the existing street trees, which would be a substantial impact to the streetscape.</p>	<p><i>Potentially significant</i></p>	<p>VIS-2 - Design the OCS to preserve the existing mature street trees along 7th Street in the Alkali Flat Neighborhood area. If trees are impacted, replacement trees would be planted to restore the Alkali Flat view shed.</p>	<p><i>Less-than-significant</i></p>
<p>Impact VIS-3 Visual Intrusion of OCS Previous Visual and Aesthetic Resource analysis (DNA Corridor Draft PEIR, July 2007) have identified the inclusion of the OCS as a significant visual impact (Impact VIS-3). The poles and associated overhead lines would add a significant element of visual clutter to the views, particularly along 7th Street, south of the underpass, where there are currently no overhead lines, such as power and telephone lines. From North B to Richards Boulevard and along Richards Boulevard, such overhead lines already exist, so the addition of the catenary lines would not be a significant addition here.</p>	<p><i>Potentially significant</i></p>	<p>VIS-3 - Work with the community during preliminary through final design to develop Aesthetic and Design Guidelines for the project improvements through a formalized structure that allows for community input (Context Sensitive Solutions).</p>	<p><i>Significant and unavoidable</i></p>

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Cumulative Aesthetic Impacts			
No significant cumulative visual impacts associated with the MOS-1 Project.	<i>Less-than-significant</i>	<i>None required</i>	<i>Less-than-significant</i>
Appendix A			
Cultural Resources			
<p>Downtown Sacramento has many subsurface cultural resources that are under pavement and buildings and at depth under previously disturbed areas. The location of many of these cultural resource sites are unknown and cannot be identified through pre-construction activities. Therefore, it is possible that deeper earthmoving and excavation during construction could disturb unknown archaeological or paleontological resources beneath the surface.</p>	<i>Potentially significant</i>	<p>CR-1 - Implement preconstruction training for construction employees to familiarize them with cultural resources and to explain the protocols on how to proceed if subsurface cultural resources are encountered during construction. The legal ramifications of impacting cultural resources will also be explained.</p> <p>CR-2 - A qualified archaeologist, who is certified by the Society of Professional Archeologists (SOPA) and/or meet the federal standards as stated in the Code of Federal Regulations (36 CFR 61) should monitor the project site during earthmoving or excavation construction activities (deeper than 12 to 18 inches). A site-specific cultural resource monitoring plan will be developed by Regional Transit, prior to construction, once the construction activities are better defined.</p>	<i>Less-than-significant</i>

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Appendix A: Cultural Resources			
		<p>CR-3 - In the event that any prehistoric subsurface archeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian and/or mortars are discovered during construction-related earth-moving activities, all work within 50 yards of the resources shall be halted, and the qualified archeologist would assess the significance of the find and monitor the site. Archeological test excavations shall be conducted by a qualified archeologist to aid in determining the nature and integrity of the find. If the find is determined to be significant by the qualified archeologist, RT representatives and the qualified archeologist shall coordinate to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis and professional museum curation. In addition, a report shall be prepared by the qualified archeologist according to current professional standards. The report will be submitted to RT.</p>	

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Appendix A: Cultural Resources			
		<p>CR-4 - If a Native American site is discovered, the evaluation process shall include consultation with the appropriate Native American representatives. If Native American archeological, ethnographic, or spiritual resources are involved, all identification and treatment shall be conducted by qualified archeologists, and Native American representatives, who are approved by the local Native American community as scholars of the cultural traditions.</p> <p>In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. If historic archeological sites are involved, all identified treatment is to be carried out by qualified historical archeologists.</p>	
		<p>CR-5 - If a human bone or bone of unknown origin is found during construction, all work shall stop in the vicinity of the find, and the County Coroner shall be contacted immediately. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission, who shall notify the person most likely believed to be a descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts.</p>	

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		No additional work is to take place within the immediate vicinity of the find until the appropriate actions have taken.	
Appendix A: Water			
The relocation of utilities and project-related excavations may be up to 60 inches deep and some of the OCS foundations may be 15 to 20 feet deep. Groundwater depths range from 14 to 33 feet, with an average of approximately 20 feet. The contractor would follow Central Valley Regional Water Quality Control Board requirements to ensure that such activities would not result in substantial changes in groundwater flow or quality	<i>Potentially significant</i>	WAT - In the event that groundwater is encountered during construction, dewatering would be conducted locally. Dewatering effluent would be tested for contamination. Contaminated effluent would be disposed of in accordance with applicable federal, state, and local regulations.	<i>Less-than-significant</i>
Appendix A: Hazards			
Construction of the proposed project may involve the relocation of utilities and project-related excavations up to 60 inches deep and some of the OCS foundations may be 15 to 20 feet deep. If any of the excavations occur within 10 potential hazardous substance sites, including the Railroads area, in the project area (shown in Table 9-1 and Figure 5).	<i>Potentially significant</i>	HM-1 - Confirming the Status of Remediation Activities. If any of the excavations occur within the Railroads area, a review will be conducted of the remediation status of the site. If remediation activities will be complete before construction of the project, then no further mitigation will be necessary. If remediation would not be completed prior to project construction, then an alternate mitigation plan will be prepared and implemented.	<i>Less-than-significant</i>

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Appendix A: Hazards			
		<p>HM-2 - Site Evaluation. If any of the excavations occur within the other nine potential hazardous substance sites in the project area (see Table 9-1), a Phase II Site Specific Evaluation will be made of any known and suspected contaminated sites that would be disturbed by construction operations before any soil is removed from affected areas for construction, using the following procedure: 1) implementation of a Worker Health and Safety Plan; 2) preparation of a site-specific work plan specifying the proposed location for surface samples or soil borings or trenches; 3) soil boring or trenching and sample collection; 4) laboratory analysis of samples; and 5) preparation of a findings and recommendations report. If the site-specific evaluations determine that contaminants are present, RT will determine the type and extent of contamination and will prepare and implement a remediation plan to avoid risks to public health and safety.</p>	

Table 2-1 Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Appendix A: Hazards			
		<p>HM-3 - Worker Health and Safety Plan & Training. To avoid health effects on construction personnel, all personnel who may come in contact with contaminated soil or groundwater would be trained in accordance with the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29CFR 1910. 120). A site-specific worker health and safety plan defining potential contaminants and, where appropriate, proper personnel protective equipment would be employed. Proper decontamination procedures for workers and equipment would be followed.</p> <p>HM-4 - Notify Appropriate Regulatory Agencies and Enact Specific Mitigation Plans. RT will notify the State Department or Toxic Substances Control, Sacramento County Environmental Health Department and the local fire department of any contaminants encountered during construction.</p>	