

The proposed project does not contain lead emissions sources. Therefore, emissions and concentrations related to this pollutant are not analyzed in this report.¹

Impact AQ-1 – Based on the construction emission estimates, the proposed project would result in a less-than-significant regional construction air quality impact.

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. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

The SMAQMD Road Construction Emissions Model was used to calculate daily construction emissions. Construction of the DNA project would include activities such as site preparation, demolition, utility relocation, and trackwork. Emissions were calculated using the model inputs presented in the Downtown Natomas Draft Program Environmental Impact Report as guidance. These model inputs were scaled back to more appropriately simulate the smaller scale of the proposed project. The model inputs are presented below:

- 12 months of construction
- Construction start year of 2009
- Project length of 1 mile
- Total project area of 3.3 acres
- Maximum area disturbed per day of 0.8 acres
- 1,000 cubic feet per day of soil imported
- Operation of water trucks for dust control

The maximum estimated NOX emissions of 81 ppd for the project area would be less than the SMAQMD threshold of 85 ppd. Based on the SMAQMD's Guide to Air Quality Assessment, if a project's NOX emissions are determined to be less than significant, then exhaust emissions from construction equipment and worker vehicles may be assumed to be less than significant. Regional construction emissions would result in a less-than-significant impact.

Mitigation Measures

Regional construction emissions would not exceed the SMAQMD significance thresholds. However, to ensure that construction activity is consistent with the assumptions generated by the Road Construction Emissions Model, and therefore not exceed the SMAQMD significance thresholds, the following mitigation measures are recommended:

- **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.

¹Prior to 1978, mobile emissions were the primary source of lead resulting in air concentrations. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. Currently, industrial sources are the primary source of lead resulting in air concentrations. Since the proposed project does not contain an industrial component, lead emissions are not analyzed.

- **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.
- **AQ-3** - Any equipment found to exceed 40 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.
- **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.
- **AQ-5** - The construction contractor shall ensure that active grading and parking areas are watered at least twice daily.
- **AQ-6** - The construction contractor shall ensure that exposed stockpiles are enclosed, covered, watered twice daily.
- **AQ-7** - The construction contractor shall ensure that all trucks hauling dirt, sand, silt, or 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 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.

Significance after Mitigation

Mitigation Measures AQ1 through AQ3 would ensure that regional construction emissions would result in a less-than-significant impact.

Impact AQ-2 – Based on localized emission calculations, the proposed project would result in a significant localized construction impact from PM10 emissions.

Construction activities such as demolition, clearing, grading, excavation, use of heavy equipment or trucks on unpaved surfaces, and loading/unloading trucks create large quantities of fugitive dust. SMAQMD requires that a localized analysis for fugitive dust be completed to determine if concentrations from construction activity would exceed significance thresholds. This determination was made using the ISCST3 air dispersion model.

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.

Based on modeled concentrations, 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.

Mitigation Measures

The Road Construction Emissions Model includes 50 percent PM10 dust control associated with the use of water trucks. This control measure was included as part of the ISCST3 modeling process. However, the SMAQMD's Guide to Air Quality Assessment suggests a fugitive dust reduction of 75 percent (an additional 25 percent) can be achieved by watering exposed soil with adequate frequency for continued moist soil. The following mitigation is recommended to help reduce fugitive dust emissions:

- **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.

Significance after Mitigation

Mitigation Measure AQ4 would ensure a 75 percent control over PM10 fugitive dust emissions (an additional 25 percent over unmitigated conditions). This would reduce the 24-hour PM10 emissions from 3.8 to 2.8 g/m³, and annual PM10 emissions from 1.3 to 1 g/m³. The 24-hour and annual PM10 emissions would still exceed the significance thresholds, and would result in a significant and unavoidable localized construction impact.

Impact AQ-3 – Based on the operational emission estimates, the proposed project would result in a less-than-significant regional operational air quality impact.

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. The project would result in a less-than-significant regional operational air quality impact.

Mitigation Measures

None required.

Impact AQ-4 – Based on the CO hotspot analysis, the proposed project would result in a less-than-significant localized CO hotspot impact.

CO concentrations in 2010 are expected to be lower than existing conditions due to stringent State and federal mandates for lowering vehicle emissions. Although traffic volumes would be higher in the future both without and with the implementation of the proposed project, CO emissions from mobile sources are expected to be much lower due to technological advances in vehicle emissions systems, as well as from normal turnover in the vehicle fleet. Accordingly, increases in traffic volumes are expected to be offset by increases in cleaner-running cars as a percentage of the entire vehicle fleet on the road.²

The State one- and eight-hour CO standards may potentially be exceeded at congested intersections with high traffic volumes. An exceedance of the State CO standards at an intersection is referred to as a CO hotspot. SCAQMD recommends a CO hotspot evaluation of potential localized CO impacts when V/C ratios are increased by two percent at intersections with a LOS of D or worse. SCAQMD also recommends a CO hotspot evaluation when an intersection decreases in LOS by one level beginning when LOS changes from C to D.

Based on the traffic study, the selected intersections are as follows:

- 7th and B Streets – PM Peak Hour
- 7th and F Streets – PM Peak Hour
- 7th Street and Richards Boulevard – AM Peak Hour
- 8th and G Streets – AM Peak Hour

The USEPA CAL3QHC micro-scale dispersion model was used to calculate CO concentrations for 2010 “no project” and “project” conditions. CO concentrations at the analyzed intersections are shown for the AM and PM peak hours in Tables 3-4. As indicated, 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. Thus, a less-than-significant impact is anticipated.

CO is a gas that disperses quickly. Thus, CO concentrations at sensitive receptor locations are expected to be much lower than CO concentrations adjacent to the roadway intersections. Additionally, the intersections were selected based on poor LOS and high traffic volumes. Sensitive receptors that are located away from congested intersections or are located near roadway intersections with better LOS are expected to be exposed to lower CO concentrations. 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, resulting in a less-than-significant impact.

²California Air Resources Board, EMFAC2007, Version 2.3, November 1, 2006.

TABLE 3-4: 2008 AND 2010 CARBON MONOXIDE CONCENTRATIONS¹

Intersection	1-hour (parts per million)			8-hour (parts per million)		
	Existing (2008)	No Project (2010)	Project (2010)	Existing (2008)	No Project (2010)	Project (2010)
7th and B Street	10	9	9	5.9	5.3	5.3
7th and F Street	10	9	9	5.8	5.3	5.3
7th Street and Richards Boulevard	10	9	9	6.1	5.5	5.5
8th and G Street	10	9	9	5.9	5.4	5.4
State Standard	20			9.0		

¹ Existing concentrations include year 2008 one- and eight-hour ambient concentrations of 9 and 5.6 ppm, respectively. No Project and Project concentrations include year 2010 one- and eight-hour ambient concentrations of 9 and 5.0 ppm, respectively.
SOURCE: TAHA, 2008 (Appendix C is available at <http://sacrt.com/dna/news/default.html>).

Mitigation Measures

None required.

Impact AQ-5 – The proposed project would not emit a substantial amount of Toxic Air Contaminants (TACs), and would result in a less-than-significant TAC impact.

Construction (TAC) Impacts

The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy equipment operations. Typically, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. “Individual Cancer Risk” is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. Given the short-term construction schedule of approximately 12 months, the proposed project would not result in a long-term (i.e., 70 years) source of TAC emissions. No residual emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period (12 out of 840 months), project-related construction TAC emissions would result in a less-than-significant impact.

Asbestos Containing Materials

Demolition of structures and earth disturbances may result in airborne entrainment of asbestos, particularly where structures include asbestos containing materials (ACMs) (e.g., insulated pipes, ducts, stacks, beams, ceiling tiles, walls, etc.) or in areas where soil contains naturally-occurring deposits of ACMs. This is of particular concern because of asbestos’ known association with long-term toxic and chronic hazard risks. Approximately three acres of land would be graded during the construction process with the potential to disturb naturally occurring ACMs. This would result in a significant impact without mitigation.

Operational Toxic Air Contaminant Impacts

The proposed project provides for new light rail transit service in the corridor. The new services would be operated by electrically-powered vehicles operating along a combination of new exclusive and semi-exclusive rights-of-way. 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. Project-related operational emissions would result in a less-than-significant TAC impact.

Mitigation Measures

To ensure the proper handling and removal of ACMs identified on the project site, the following mitigation is recommended:

- **AQ-18** - 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.

Significance after Mitigation

Mitigation Measure AQ5 would ensure the proper handling and removal of any ACMs identified on the project site, and would result in a less-than-significant asbestos impact.

Impact AQ-6 – The proposed project would not cause a significant odor impact.

Construction Odor Impacts

Potential 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, and construction odors would result in a less-than-significant impact.

Operational Odor Impacts

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 would result in a less-than-significant impact.

Mitigation Measures

None required.

Impact AQ-7 – The proposed project would not alter air movement, moisture, or temperature, or cause any change in climate.

The area surrounding the project site consists of typical urban development. 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. The proposed project would result in a less-than-significant impact.

Mitigation Measures

None required.

Impact AQ-8 – The proposed project would reduce greenhouse gas emissions in the region, and would result in a less-than-significant global warming impact.

Construction activity would generate GHG emissions from the operation of heavy-duty equipment, truck travel, and worker commute. The SMAQMD Road Construction Emissions Model was used to calculate construction GHG emissions. The entire construction process would generate approximately 587 tons of GHG emissions.

The proposed project would extend the existing light rail system by an additional mile of track into the region. This would reduce automobile VMT and increase light rail VMT in the transportation system.³ Based on information obtained from the traffic consultant, the proposed project would reduce regional automobile VMT by 40,525 miles per year. GHG-related pollutants would include methane and nitrous oxide. However, carbon dioxide would account for more than 99 percent of project-related operational GHG emissions. The automobile carbon dioxide emission rate of 461.361 grams per mile was obtained from the CARB EMFAC2007 emissions mode.⁴ This emission rate was multiplied by the VMT to obtain the grams per year of GHG emissions. 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. This would result in a less-than-significant and long-term beneficial global warming impact.

Mitigation Measures

None required.

Cumulative Impacts**Impact AQ-9 – The proposed project would not require a change in existing land use designations, and would result in a less-than-significant cumulative impact.**

Based on the SMAQMD methodology, a project would have a significant cumulative air quality impact if the project requires a change in the existing land use designation (i.e., general plan amendment, rezone), and projected emissions (ROG, NOX, or PM10) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation. 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. This would result in a less-than-significant cumulative impact.

Mitigation Measures

None required.

³Consistent with the energy section, it was assumed that the proposed project would not create a need for additional electricity generation.

⁴California Air Resources Board, EMFAC2007, Version 2.3, November 1, 2006.