

4.6 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This chapter provides updates to the discussions of air quality and greenhouse gas (GHG) emissions included in the 2009 DEIR. As discussed below, these updates are the result of new guidance that was adopted by the Bay Area Air Quality Management District (BAAQMD) after the close of the public comment period for the 2009 DEIR.

A. Air Quality Impacts

The Notice of Preparation (NOP) for the 2009 DEIR was issued on January 2, 2009. As described in Section 4.6, Air Quality, of the 2009 DEIR, at that time the BAAQMD did not have quantified significance thresholds for construction period air pollutant emissions. Recognizing that construction would occur over many years, the 2009 DEIR applied BAAQMD's annual emission thresholds for operation to construction activity. The annual emissions threshold was chosen because, unlike operational emissions, construction activity would vary greatly from day-to-day. The 2009 DEIR concluded that construction period emissions would be less-than-significant with mitigation, because emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) or exhaust particulate matter (PM₁₀) would be less than 15 tons per year.

On June 2, 2010, after the County published the 2009 DEIR, the BAAQMD adopted new California Environmental Quality Act (CEQA) Air Quality Thresholds.¹ These new thresholds established construction emission thresholds. Because the NOP for this EIR was issued prior to the adoption of these thresholds, this EIR is not required to evaluate the project against these thresholds. However, to provide a rigorous environmental evaluation, this section of the Supplement to the 2009 DEIR evaluates the project against these new thresholds.

¹ Thresholds are available online at http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Adopted%20Thresholds%20Table_6_2_10.ashx, accessed on July 29, 2010.

Under BAAQMD's new thresholds, average daily construction period emissions in excess of the following levels would be considered significant:

- ◆ 54 pounds per day of ROG or NO_x, or
- ◆ 82 pounds per day of exhaust respirable particulate matter or PM₁₀, or
- ◆ 54 pounds per day of exhaust fine particulate matter or PM_{2.5} per day.

BAAQMD recommends quantification of emissions using the URBEMIS2007 model. This is the same model that the 2009 DEIR used to estimate emissions from the project. 2009 DEIR emissions calculations included a 2-year remediation and grading phase and then phases for trenching (utility placement), paving, building construction and coatings. The DEIR assumed the total construction period would last 10 years. Table 4.6-6 of the 2009 DEIR reported NO_x emissions of 12.8 to 14.1 tons per year for the remediation and grading phase. If computed to an average daily emission, assuming construction occurred for 220 days per year, emissions of NO_x would exceed 54 pounds per day. This would be significant under the new adopted BAAQMD CEQA Air Quality thresholds. Average daily emissions (i.e., ROG, NO_x, and PM₁₀ and PM_{2.5} exhaust) from building construction phases reported in Table 4.6-7 of the 2009 DEIR would have daily emissions below the new BAAQMD thresholds.

Use of the URBEMIS2007 model to estimate remediation and grading emissions indicates a significant impact when predicted emissions of NO_x are compared to the most recently adopted significance thresholds. Therefore, detailed modeling of NO_x emissions from the remediation and grading phase was conducted to identify average daily emissions. The entire remediation phase is expected to take approximately 2 years. However, construction activity during the remediation phase will vary substantially from time to time. The remediation phase would involve large and small volume excavations, movement of material, material compaction and some export of material off site. Approximately 1,997 pounds (or 1.0 tons) of NO_x are predicted to be emitted over the entire remediation phase. These emissions include on-site construction activity and truck travel associated with exporting material for

off-site remediation. The amount emitted on a daily basis would vary considerably depending on what type of work was being conducted.

Overlapping the remediation phase would be the grading phase that would involve preparation of the original ground and then mass import of fill material along with final site grading or preparation. This phase would also last about two years. As described in the 2009 DEIR, the grading phase would include import of an estimated 1.5 million cubic yards of fill material. Several options were considered for the import of this fill material. These are described as follows:

- ◆ **Option A.** Import by scraper from nearby source. The nearby source is assumed to be the Syar Quarry adjacent to the site.
- ◆ **Option B.** Import by large off-road truck from nearby source. The nearby source is assumed to be the Syar Quarry adjacent to the site.
- ◆ **Option C.** Import by barge from distance as far away as eastern edge of air basin in the Delta (full day of tug travel assumed). This is considered the worst-case soil import scenario, since other sources of fill material may exist closer to the site.

The applicant provided a list of anticipated equipment (including size), duration of use, and estimated load factors to accomplish the remediation and grading tasks. Based on this information, total emissions during this two-year phase of construction were computed. These emissions are shown in Table 4.6-1 in terms of tons per this entire 2-year construction phase. These computations also include the off-site emissions associated with material hauling. BAAQMD applies the construction emissions significance threshold to an average daily emission rate. The threshold is meant to be based on each phase of construction. Because remediation and grading/fill import would overlap, emissions from both phases were combined. The remediation and grading/import fill phase is anticipated to last about 2 years. Daily emissions would vary depending on the amount of activity that occurs on a given day. Average daily emissions were predicted assuming 200 to 250 workdays in a

TABLE 4.6-1 **NO_x EMISSIONS FOR REMEDIATION AND GRADING PHASE OF CONSTRUCTION**

Description	Total Emissions (Tons)	Range of Average Daily Emissions Averaged Over 400 to 500 Days (Pounds Per Day)
Remediation Phase	1.0	5 to 4
Grading/Import of Fill Phase		
Option A	9.1	46 to 37
Option B	11.2	56 to 45
Option C	14.8	74 to 59
Remediation Plus Grading/Import Fill (2 years)		
Option A	10.1	51 to 40
Option B	12.2	61 to 49
Option C	15.8	79 to 63
<i>BAAQMD Significance Thresholds</i>	--	<i>54 lbs/day</i>

Source: Illingworth & Rodkin, 2010.

year. Total emissions and the range of average daily emissions are reported in Table 4.6-1.

The combination of remediation and grading activities would result in average daily emissions expected to range from 40 to 79 pounds per day of NO_x. Much of the emissions would be associated with the mass import of fill material. This portion of construction would involve transporting fill and placing the fill material on the site. Option A and B represent emissions associated with importing fill material from a source closest to the site, while Option C

represents import of fill from a location furthest from the site using barges and a tug boat.

Constructing utilities and buildings would also result in emissions and these were reported in terms of tons per year in Table 4.6-7 of the 2009 DEIR. Assuming 200 construction days per year, these emissions would be below the new BAAQMD significance thresholds of 54 pounds per day for ROG, NO_x and PM_{2.5}, and below 82 pounds per day of exhaust PM₁₀.

Because average daily emissions associated with remediation and grading/import of fill could exceed the new BAAQMD significance threshold for NO_x, a *significant* impact would occur.

Mitigation Measure AQ-2 of the 2009 DEIR has been revised to address significant NO_x emissions and include best management practices that are consistent with BAAQMD recommendations included in the CEQA Air Quality Guidelines issued by BAAQMD in June 2010. Additions to the text of the 2009 DEIR are shown in double underline and omissions are shown in ~~strike through~~.

Mitigation Measure AQ-2: The following is a list of feasible control measures that the BAAQMD recommends to limit construction emissions of PM₁₀. These mitigation measures shall be implemented for all areas (both on-site and off-site) where construction activities would occur.

Measures to Reduce Fugitive Particulate Matter (PM₁₀ and PM_{2.5}) Emissions

- ~~◆ Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.~~
- ~~◆ Cover all hauling trucks or maintain at least two feet of freeboard. Dust proof chutes shall be used as appropriate to load debris onto trucks during demolition.~~

- ◆ ~~Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.~~
- ◆ ~~Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.~~
- ◆ ~~Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e. previously graded areas that are inactive for 10 days or more).~~
- ◆ ~~Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.~~
- ◆ All untreated exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probes.
- ◆ Limit traffic speeds on any unpaved roads to 15 mph.
- ◆ ~~Replant vegetation in disturbed areas as quickly as possible.~~
- ◆ Suspend construction activities that cause visible dust plumes to extend beyond ~~the~~ construction sites, especially during windy conditions.
- ◆ Vegetative ground cover (e.g. fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- ◆ Prohibit the visible tracking of mud, dirt, or material onto public streets. If necessary, all trucks and equipment, including their tires, shall be washed off prior to leaving the site. Any visible mud or dirt tracked onto public roadways shall be removed using wet power vacuum sweepers at least once per day.
- ◆ During remediation and grading/fill import phases, site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.

- ◆ Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- ◆ During renovation and demolition activities, removal or disturbance of any materials containing asbestos or other hazardous pollutants will be conducted in accordance with the BAAQMD rules and regulations.
- ◆ Remediation activities will be conducted in accordance with BAAQMD rules and regulations.

Mitigation to Reduce NO_x Emissions

- ◆ The project shall develop a plan for approval by the County or BAAQMD demonstrating that the heavy-duty (>50 horsepower) 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 NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2010.
- ◆ At least 80 percent of the equipment that will be used on-site for 40 hours or more shall meet current Tier 3 engine standards.
- ◆ The project applicant shall require the project developer or contractor to submit to the County or BAAQMD 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 or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the remediation and grading (fill import and grading) phase of the project, except that an inventory shall not be required for any 30-day period in which little or no construction activity occurs.

- ◆ Opacity is an indicator of exhaust particulate emissions from off-road diesel powered equipment. The project shall ensure that emissions from all construction diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately.
- ◆ ~~The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).~~
- ◆ Diesel equipment standing idle for more than three minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were on-site and away from any residences. Clear signage indicating such idling restrictions shall be posted at construction site access points.
- ◆ ~~Properly tune and maintain equipment for low emissions.~~
- ◆ The applicant shall consider alternative sites and methods to import fill material to the site to reduce NOx emissions. Alternative methods could include use of tug boats or trucks with newer engines that meet recent EPA emissions standards that result in lower emissions. The applicant shall provide an analysis of such alternatives, along with a calculation of emissions for each method. The analysis shall demonstrate that NOx emissions from import of fill shall not exceed 15 tons/year. The County shall use this information to determine the acceptable method for importing fill material to the site. This may include a mix of methods and fill sites.
- ◆ Planned construction activities on Spare the Air days shall be reduced in an attempt to lower emissions. Emissions shall not exceed 54 pounds per day on each day that the BAAQMD forecasts a “Spare the Air Day” at least 24 hours prior. The County shall be provided a

record of steps taken to reduce NO_x emissions when Spare the Air Days were forecasted at least 24 hours prior.

- ◆ Designate a Disturbance Coordinator during construction activities. This coordinator will ensure that all air quality mitigation measures are enforced. In addition, the Disturbance Coordinator will respond to complaints from the public regarding air quality issues (e.g. dust and odors) within 48 hours. The contact information for this Coordinator shall be posted in plain view at the project site. A phone number for the Air District shall also be posted to ensure compliance with applicable regulations.
- ◆ Implementation of Mitigation Measure TRA-19 would require a construction management plan to avoid traffic congestion and specify truck routes.
- ◆ ~~Consider alternative sites and methods to import fill material to the site to reduce NO_x emissions. Alternative methods could include use of tug boats or trucks with newer engines that meet recent EPA emissions standards that result in lower emissions. The applicant shall provide an analysis of such alternatives, along with a calculation of emissions for each method. The analysis shall demonstrate that NO_x emissions from import of fill shall not exceed 15 tons/year. The County shall use this information to determine the acceptable method for importing fill material to the site. This may include a mix of methods and fill sites.~~
- ◆ ~~Designate a Disturbance Coordinator when construction activity that includes site grading occurs within 200 feet of residences or sensitive land uses. This coordinator will ensure that all air quality mitigation measures are enforced. In addition, the Disturbance Coordinator will respond to complaints from the public regarding air quality issues (e.g. dust and odors) in a timely manner. The contact information for this Coordinator will be posted in plain view at the project site.~~

Implementation of Mitigation Measure AQ-2 would reduce the impact to a less than significant level, and appears to be technically feasible. However, the measure may have the effect of limiting the amount of equipment that can be used on site at any one time, and may therefore result in extending the duration of the remediation and grading period beyond the time period assumed in this analysis. Because extending the duration of remediation/grading would further inconvenience adjacent businesses and extend the duration of less than significant impacts related to construction traffic and noise, there is some question as to whether this would be an environmentally superior outcome. As a result, the County has concluded that the NO_x reductions achieved by Mitigation Measure AQ-2 may not be desirable or feasible from a public policy perspective, and that the NO_x emissions during remediation and grading would remain *significant and unavoidable*. In their deliberations regarding the proposed project, the Board of Supervisors may reconsider this conclusion.

B. Greenhouse Gas Emissions

As discussed above, the NOP for the Napa Pipe 2009 DEIR was issued on January 2, 2009. As described in Section 4.7, Greenhouse Gas Emissions, of the 2009 DEIR, at the time the 2009 DEIR was prepared neither the State of California nor Napa County had identified or quantified a significance threshold for GHG emissions. Although draft CEQA guidelines available at the time indicated a requirement for a quantitative analysis of GHG emissions, no defined criteria existed against which the project emissions could be measured. In the absence of a quantitative threshold, the 2009 DEIR compares existing GHG emissions in the county to 2020 countywide emissions with and without the Napa Pipe project. The 2009 DEIR finds that the project would account for 2.4 percent of total 2020 countywide GHG emissions, and that this would constitute a significant and unavoidable impact.

On June 2, 2010, after publication of the 2009 DEIR, BAAQMD adopted new guidance regarding the analysis of air quality impacts under CEQA. The

guidance included new thresholds of significance.² Because the NOP for this EIR was issued prior to the adoption of these thresholds, this EIR is not required to evaluate the project against these thresholds. However, to provide a rigorous environmental evaluation, this section of the Supplement to the 2009 DEIR evaluates the project against these new thresholds.

CEQA thresholds for GHG emissions apply only to operational emissions and not to construction-related emissions. Operational emission thresholds adopted by CEQA are distinguished for stationary and non-stationary sources. BAAQMD guidelines define a stationary source as, “A fixed, non-mobile source of air pollution, usually found at industrial or commercial facilities.” None of the project’s GHG emissions would be considered stationary. Thus the following thresholds for sources other than stationary sources would apply:

- ◆ Compliance with qualified GHG reduction strategy, or
- ◆ 1,100 metric tons of CO_{2e} per year (1,100 metric tons per year [MT/yr]),
or
- ◆ 4.6 metric tons per capita per year (4.6 MT/SP/yr, where SP = service population of residents + employees).

The County does not currently have a qualified GHG reduction strategy although it has recently proposed a Climate Action Plan that would, if adopted, fulfill this role and reduce communitywide emissions to 1990 levels by 2020. The proposed Climate Action Plan would implement Action Item CON CPSP-2 adopted as part of the 2008 General Plan Update, and is based on development assumptions (i.e. population, employment, land use changes) used to prepare the General Plan Update program-level EIR (SCH#2005102088, certified June 2008). For this reason, the proposed Climate Action Plan would have to be reviewed and amended following any future General Plan

² Thresholds are available online at http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Adopted%20Thresholds%20Table_6_2_10.ashx, accessed on July 29, 2010.

amendments, including the amendments needed to facilitate development of a mixed-use neighborhood on the Napa Pipe site.

The Napa Pipe project would result in 5,901 new residents and 721 employees, for a total service population of 6,622. Table 4.7-3 of the 2009 DEIR shows that the project and service population would generate 35,131 metric tons of CO_{2e} per year. This number was based on a generalized calculation available at the time. In 2010 BAAQMD began using the BGM Model to calculate GHG emissions through project-specific inputs, which results in more accurate calculations. Table 4.6-2 shows the CO_{2e} emissions for the Napa Pipe project based on the BGM model. Based on BGM model, the Napa Pipe project would result in 32,833 metric tons of CO_{2e} per year. Factoring in mitigations including energy efficient buildings, traffic mitigation measures and effect site design and solid waste diversion, the overall emissions would be reduced to 26,520 metric tons per year. These emissions correspond to 4.0 metric tons per year per service population. As a result, the project would meet the per capita threshold for GHG emissions. Thus, under the BAAQMD guidance, the project would have a less-than-significant impact on GHG emissions.

Although the project would meet one of the BAAQMD's thresholds for GHG emissions, its emissions would still be considerable and they would make it much more difficult for the County to reduce its communitywide emissions to 1990 levels by 2020 as suggested by the County General Plan and California Assembly Bill 32 from 2006. For this reason, the significant unavoidable impact, as identified and discussed in the 2009 DEIR, has not been amended.

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N A P A P I P E S U P P L E M E N T T O T H E D R A F T E I R
 A I R Q U A L I T Y A N D G R E E N H O U S E G A S E M I S S I O N S

TABLE 4.6-2 **GREENHOUSE GAS EMISSIONS**

Emission Source	Proposed Project (CO₂e Metric Tons/Year)	Mitigated Emissions (CO₂e Metric Tons/Year)*
Transportation	22,361	19,049
Area Source	107	107
Electricity	3,278	2,623
Natural Gas	3,655	2,924
Water & Wastewater	222	212
Solid Waste	3,210	1,605
Total	32,833	26,520
GHG Emission per Capita	4.96	4.00

* Mitigated Emissions are based on the following assumptions:

- ◆ Energy efficiency at least 20% beyond Title 24.
- ◆ Traffic Mitigation measures and effectiveness of project site design.
- ◆ Assume solid waste diversion of 50 percent.

Source: BAAQMD and Illingworth & Rodkin, 2010 (see Appendix G).

NAPA COUNTY
NAPA PIPE SUPPLEMENT TO THE DRAFT EIR
AIR QUALITY AND GREENHOUSE GAS EMISSIONS