



Technical Memorandum

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Date: August 16, 2022

Re: Adelanto TTM20514 – 83 SFR Development Project - Air Quality/GHG Assessment

1.0 Purpose

The purpose of this memorandum is to document the results of the air quality (AQ) and greenhouse gas (GHG) emissions assessment as it relates to the potential environmental impacts associated with the construction and operation of the proposed 83 lot residential project on 14.51 acres.

2.0 Project Location & Description

- 2.1 Project Location:** The proposed project site is located in the City of Adelanto, San Bernardino, California on the north side of Holly Road, west of Pearmain Street and east of Jonathan Street, and is referred to as APNs: 3128-241-09 and 14.
- 2.2 Description:** The Applicant is proposing a tentative tract map to subdivide approximately 14.51 acres into 83 single-family residential lots with a minimum lot size of 3,500 square feet.

3.0 Air Quality & Greenhouse Gas (GHG) Assessment

- 3.1 Determination of Significance:** The criteria used to determine the significance related to potential Project related air quality and greenhouse gas emission impacts is based on the California Environmental Quality Act (CEQA) Environmental Checklist, Appendix G Thresholds:

3.1.1 Air Quality / GHG Impacts:

Would the Project: Conflict with or obstruct implementation of the applicable air quality plan?

Would the Project: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Would the Project: Expose sensitive receptors to substantial pollutant concentrations?

Would the Project: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Would the Project: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Would the Project: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

3.1.2 Air Quality / GHG Thresholds:

The Mojave Desert Air Quality Management District (MDAQMD) has developed regional significance thresholds for regulated pollutants as well as GHG emissions. The MDAQMD's CEQA Guidelines provide significance thresholds as indicted in Table 3.1 below.

Table 3.1 – Emissions Significance Thresholds

Criteria Pollutant / Emission	Annual Threshold (Tons)	Daily Threshold (pounds)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NOx)	25	137
Reactive Organic Gases (ROG)	25	137
Sulfur Oxides (Sox)	25	137
Particulate Matter 10 microns (PM10)	15	82
Particulate Matter 2.5 microns (PM2.5)	12	65
Carbon Dioxide Equivalent (CO2e) for GHG.	100,000	548,000

3.2 Construction Emissions: Construction emissions for the Project were estimated by using the California Emissions Estimator Model (CalEEMod) 2020.4.0, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operations emissions. CalEEMod is authorized for use to assess project emissions by the Mojave Desert Air Quality Management District (MDAQMD). Construction emissions are summarized in Table 3.2.

Construction emissions were based on CalEEMod Land Uses for 83 “Single Family Housing” units and 1.37 acres of “Other Asphalt Surfaces” for associated internal roadway development. Construction was estimated for a 380-day construction schedule, with default values used for the schedule, each construction phase including site preparation, grading, building construction, paving, and architectural coating as well as defaults for off-road construction equipment. Peak emissions represent the highest value from the summer or winter modeling as a worse-case scenario. MDAQMD significance thresholds were used for determining the project’s impacts.

Table 3.2 - Summary of Peak Construction Emissions (No Mitigation)

Year	Emissions (lbs/day)					
	ROG	NOX	CO	SOX	PM10	PM2.5
Construction 2022	3.70	38.89	29.66	0.06	21.42	11.63
Construction 2023	1.80	15.14	18.13	0.03	1.29	0.82
Construction 2024	47.37	9.55	15.02	0.02	0.59	0.46
Maximum Daily Emissions	47.37	38.89	29.66	0.06	21.42	11.63
MDAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

Source: CalEEMod 2020.4.0 Datasheets.

3.3 Operational Emissions: Operational emissions for the Project were estimated by using the California Emissions Estimator Model (CalEEMod) which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operations emissions. CalEEMod is authorized for use to assess project emissions by the Mojave Desert Air Quality Management District (MDAQMD). Operations emissions include stationary (residence emissions), mobile (transportation emissions), and area (on-going architectural coatings, consumer product use, landscaping maintenance emissions). Default values were used with the exception of selecting “no wood burning hearths”. MDAQMD significance thresholds were used for determining the project’s impacts Operation emissions are summarized in Table 3.3.

Table 3.3 - Summary of Peak Operational Emissions

Maximum Daily Emissions	Emissions (lbs/day)					
	ROG ⁽¹⁾	NOX	CO	SOX	PM10 ⁽¹⁾	PM2.5 ⁽¹⁾
Maximum Daily Emissions	6.48	4.13	30.10	0.05	4.90	1.40
MDAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	NO	NO	NO	NO	NO	NO

Source: CalEEMod 2020.4.0 Datasheets.

⁽¹⁾ No fireplaces

3.3.1 Operational Emissions Mitigation Measure:

MM AQ-1 Prohibition of Fireplaces: *The installation of wood-burning and natural gas fireplaces shall be prohibited. The purpose of this measure is to limit emissions of ROG, NOX, particulate matter and visible emissions from wood-burning and natural gas fireplaces used for supplemental heat, or ambiance and does not apply to HVAC systems. This prohibition shall be noted on the deed and/or lease agreements for future property owners/tenants to obey.*

3.4 Greenhouse Gas Emissions (GHG): GHG emissions for the Project were estimated by using the California Emissions Estimator Model (CalEEMod) which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operations emissions. CalEEMod is authorized for use to assess project emissions by the Mojave Desert Air Quality Management District (MDAQMD). MDAQMD significance thresholds were used for determining the project’s impacts. The CalEEMod program outputs annual CO₂e emissions in Metric Tons per year (MTCO₂e/Year), however the MDAQMD threshold is in tons per year (Tons/Year), therefore the emissions results in the tables are included as both MTCO₂e/Year and CO₂e Tons/Year. Construction and operation emissions are presented in Table 3.4 and summarized in Table 3.5.

Table 3.4 - Project Greenhouse Gas Emissions

Source	GHG Emissions MT/yr			
	N ₂ O	CO ₂	CH ₄	CO ₂ e
Area	0.007	122.70	0.08	126.71
Energy	0.004	242.53	0.012	243.88
Mobile Sources	0.040	748.91	0.043	761.95
Solid Waste	0.000	19.72	1.17	48.87
Water/Wastewater	0.004	20.92	0.004	26.67
30-year Amortized Construction GHG				13.23
TOTAL		<i>Tons/Year / Metric Tons / Year</i>		1,346.26 / 1,221.31
MDAQMD Threshold		<i>100,000 Tons/Year / 90,718.5 MT/Year¹</i>		100,000/90,718.5
Exceed Threshold?				NO

Table 3.5 - Project Greenhouse Gas Emissions Summary

GHG Emissions Source	Daily Emissions	Daily Threshold	Annual Emissions Tons / Metric Tons	Annual Threshold Tons/Metric Tons	Exceeds Threshold?
Construction 2022	6,217.2	548,000	180.0 / 163.3	100,000 / 90,718.5	NO
Construction 2023	3,401.2	548,000	437.5 / 396.9	100,000 / 90,718.5	NO
Construction 2024	2,337.0	548,000	26.8 / 24.35	100,000 / 90,718.5	NO
Operations	9,200.0	548,000	1,331.7 / 1,208.1	100,000 / 90,718.5	NO

3.5 Objectionable Odors: Potential odor sources associated with the Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project’s long-term operational uses.

The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the

¹ CalEEMod GHG Emissions for GHG CO₂e is calculated in Metric Tons (MT) per year.

City's solid waste regulations. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required.

3.6 Sensitive Receptors: A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses (sensitive sites) where sensitive receptors are typically located:

- Schools, playgrounds, and childcare centers
- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Hospitals
- Retirement homes
- Residences

The closest sensitive receptors to the Project site include:

- Victoria Magathan Elementary School located approximately 1,450 feet west from the southeast corner of the site and approximately 2,000 feet from the center of the site.
- Donald E. Bradach Elementary School located approximately 4,500 feet from the southeast corner of the site and approximately 5,000 feet from the center of the site.
- Single family residential development located across Holly Road south from the southern boundary of the site.

The properties immediately adjacent to the east, west, and north surrounding the Project site are vacant undeveloped parcels additionally, the nearest sensitive receptors are residential uses located adjacent to Holly Road to the south of the Project and as such the Project would be compatible with surrounding land uses and would not adversely impact sensitive receptors.

The Project is a residential subdivision and does not produce toxic air emissions such as those generated by industrial manufacturing uses or uses that generate heavy-duty diesel truck emissions.

According to the MDAQMD CEQA and Federal Conformity Guidelines, the following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated:

- Any industrial project within 1,000 feet;
- A distribution center (40 or more trucks per day) within 1,000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1,000 feet;
- A dry cleaner using perchloroethylene within 500 feet; and,
- A gasoline dispensing facility within 300 feet.

The Project is a proposal to subdivide the property into 83 single-family lots. The Project does not meet the criteria listed above. As such, no impact will occur.

3.7 Cumulative Impacts: The project area is designated as a non-attainment area for ozone and a non-attainment area for PM2.5 and PM10. The Project would comply with the mandatory requirements of MDAQMD's Rule 403 (fugitive dust control) during construction, as well as all other adopted AQMP emissions control measures. The project also is required to comply with California Code of Regulations Title 13, Division 3, and specifically its Chapter 1, Article 4.5, Section 2025, "Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In- Use Heavy-Duty Diesel-Fueled Vehicles" and its Chapter 10, Article 1, Section 2485, "Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling." Per MDAQMD rules and mandates, and California Code of Regulation requirements, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements are imposed on all projects in the South Coast Air Basin.

In determining whether or not the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors), the non-attainment pollutants of concern for this impact are ozone, PM2.5 and PM10. In developing the thresholds of significance for air pollutants disclosed above the MDAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

As shown in Tables 3.2 through 3.5 above, the project does not exceed the identified significance thresholds, as such, emissions would not be cumulatively considerable

3.8 Conformity and Consistency: The following analysis is consistent with the preferred analysis approach recommended by the MDAQMD *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*

3.8.1 Conformity with Air Quality Management Plans: The Project is located within the Mojave Desert Air Basin and under the jurisdiction of the Mojave Desert Air Quality Management District. Under the Federal Clean Air Act the Mojave Desert Air Quality Management District has adopted a variety of attainment plans (i.e. "Air Quality Management Plans") for a variety of non-attainment pollutants. A complete list of the various air quality management plans is available from the Mojave Desert Air Quality Management District located at 14306 Park Avenue, Victorville, CA 92392 or on their website at: <https://www.mdaqmd.gov/rules/overview>
The Mojave Desert Air Quality Management District is responsible for maintaining and ensuring compliance with the various Air Quality Management Plans. Conformity is determined based on the following criteria:

- A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project may also be non-conforming if it increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).
- A project is conforming if it complies with all applicable Mojave Desert Air Quality Management District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

3.8.2 Consistency with Emission Thresholds: As shown in Tables 3.2 through and 3.5, the Project would not exceed Mojave Desert Air Quality Management District significance thresholds for any criteria pollutant during construction or during long-term operation. Accordingly, the Project's air quality emissions are less than significant.

3.8.3 Consistency with Control Measures: The construction contractors are required to comply with rules, regulations, and control measures to control fugitive dust from grading (Rule 403) and the application of architectural coatings during building construction (Rule 1113).

3.8.4 Consistency with Growth Forecasts: The Project site is currently designated as Medium Density Residential (R-M12) by the General Plan Land Use & Zoning Map. The R-M12 zone district is intended for the development of smaller lot single-family detached as well as attached housing at a density of up to twelve (12.0) units per gross acre (du/ac). Development at this density requires full urban levels of service and public improvements. The R-M12 land use designation was the land use designation that was used by the MDAQMD to generate the growth forecasts for the air quality plans referenced above and would be consistent with the growth assumptions used in the MDAQMD plans.

4.0 Conclusion

Based on the assessment in Section 3.0 all estimated Project emissions for construction and operations are below the MDAQMD significance threshold levels and as such impacts to the environment for Air Quality and Greenhouse Gases are less than significant. Additionally, the proposed Project will not conflict with any air quality or GHG plans.



APPENDIX A