Appendix A: Air Quality, Energy, and Greenhouse Gas Impact Analysis

Environment | Planning | Development Solutions, Inc.

To:	City of Garden Grove, Planning Division
From:	Armando Madero, Alex J. Garber
Date:	9/21/2023
Re:	Air Quality, Energy, and Greenhouse Gas Impact Analysis for the Garden Grove Brookhurst Street and Central Avenue Townhome Project

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This technical memorandum presents an analysis of the air quality, energy, and greenhouse gas (GHG) impacts for the proposed Townhome (Project), located at 13252 Brookhurst Street and 10052 Central Avenue City of Garden Grove. The applicant for the proposed Project is requesting approval from the City of Garden Grove to demolish the existing vacant 6,367 square foot single-story restaurant building (Marie Callender's) on the Project site and to construct 30 townhomes. The Project proposes 3 different floor plans: 14 will be 1,302 square foot 2-bedroom units, 8 will be 1,334 square foot 2-bedroom units, and 8 will be 1,928 square foot 4-bedroom units. All the units would include a balcony and a ground level fenced private patio. Each of the townhomes would have a 2-car garage, and 4 additional street parking spaces would be provided, for 64 total onsite parking spaces. Amenities include: 4,322 square foot central active open space recreation area with shade structures, barbeques, and ADA picnic tables, raised herb garden areas, and approximately 9,578 square feet of open space landscape areas would be provided including a paseo with bench seating and shade trees that would connect the central open space to residences. In addition, the Project would install new perimeter walls that would consist of a 5-foot-wide raised bioretention planter and a 6-foot-high wall along the Brookhurst Avenue, a 42-inch-high wall along Central Avenue, and 6-foot-high walls along the east and south site boundaries. Construction is anticipated to take 12 months.

The project includes a General Plan Amendment to change the land use designation of the site from Light Commercial (LC) and Low Medium Density Residential (LMR) to Medium Density Residential (MDR); and a zoning designation amendment to change the zoning of the site from Neighborhood Commercial (C-1) and Limited Multiple Residential Zone (R-2) to Multiple-Family Residential (R-3).

To support the CEQA document for the Project, this report analyzes the proposed Project's construction and operational impacts to air quality (emission of criteria pollutants) emissions using the California Emissions Estimator Model (CalEEMod v. 2022.1.1.14) land use emission model. Table 1 shows the estimated CalEEMod default construction schedule, which is estimated to last approximately 12 months.

Table 1. Construction Schedule

Activity	Start Date	End Date	Total Days
Demolition	4/1/2024	4/29/2024	20
Site Preparation	4/30/2024	5/2/2024	2
Grading	5/3/2024	5/8/2024	4
Building Construction	5/9/2024	2/13/2025	200
Paving	2/14/2025	2/28/2025	10
Architectural Coating	3/1/2025	3/15/2025	10

The following non-default assumptions were used in the CalEEmod Emission Model for this analysis:

- The lot acreage and square feet for the townhomes was changed to match the architectural plans.
- Demolition of 6,367 square feet was used to account for demolition of the existing buildings.

- Construction equipment was estimated to be operated for eight hours for a conservative analysis, as most construction equipment is not operational for the entire working day (i.e. cranes).
- Trip rates were derived from the Vehicle Miles Traveled (VMT) Screening Analysis (EPD Solutions, 2023) that was prepared for the project.
- Fireplaces and wood stoves were removed as the Project does not propose them. In addition, wood burning stoves and fireplaces are prohibited by Southern California Air Quality Management District (SCAQMD) Rule 445.

Summary of Air Quality, Energy and GHG Impacts

Air Quality:

The Project's maximum daily emissions (regional and local) for construction and operation of the Project would not exceed SCAQMD's thresholds of significance. In addition, all Project activities would comply with applicable SCAQMD rules and regulations, including Rule 403 to minimize fugitive PM dust emissions, Rule 445 preventing woodfire stoves, and Rule 1113 which allows only Low-Volatile Organic Compounds (VOC) paints. Projects that do not exceed the SCAQMD thresholds are assumed to not have a significant impact on a project level and cumulative level. Therefore, the proposed Project would have less than significant air quality impacts, and no mitigation would be required.

Energy

The proposed Project has no unusual characteristics that would make the construction fuel and energy consumption associated with construction of the Project less efficient compared with other similar construction sites throughout the state. The consumption would also be temporary and localized. Operation of the 30 townhome units would comply with all the energy efficiency requirements under Title 24 and all applicable City business and energy codes ordinances. Therefore, the construction and operation of the Project would result in a less than significant impact for inefficient, wasteful, or unnecessary energy use, and no mitigation would be required.

GHG:

The proposed Project's GHG emissions of 283 $MTCO_2e$ per year is below the SCAQMD significance threshold of 3,000 $MTCO_2e$ per year. Therefore, the Project has a less then significant impact on GHG emissions, and no mitigation would be required.

Air Quality Impact Tables

Regional Emissions

The SCAQMD has adopted maximum daily emission thresholds[1] (pounds/day) for the criteria pollutants during construction and operation of a project. While incremental regional air quality impacts of an individual project are generally very small and difficult to measure, SCAQMD's regional maximum emission thresholds set standards to reduce the burden of SCAQMD to attain and maintain ambient air quality standards. The regional thresholds apply to the criteria pollutants mentioned in Table 2 and Table 3 along with the CalEEMod Projects emissions. These emission thresholds include the project emissions generated both from onsite sources (such as off-road construction equipment and fugitive dust) and offsite sources (vehicle travel leaving and arriving to the site). As can be seen in Table 2 and Table 3, the project would have less than significant regional air quality impacts. The regional operational emissions shown in Table 3, are conservative, as they do not include the reduction in emissions that would occur from future non-operation of the existing restaurant building.

Table 2. Regional Construction Emission Estimates

Construction Activity	Maximum Daily Regional Emissions (pounds/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
2024						
Demolition	1.7	16.0	16.9	0.0	1.2	0.7
Site Prep	1.8	16.7	15.0	0.0	2.9	1.7
Grading	2.1	19.5	17.7	0.0	3.3	1.9
Building Construction	2.1	19.5	17.7	0.0	3.3	1.9
Maximum Daily Emissions	2.1	19.5	17.7	0.0	3.3	1.9
2025						
Building Construction	1.3	10.5	12.7	0.0	0.7	0.4
Paving	0.6	5.3	7.8	0.0	0.4	0.3
Architectural Coating	27.9	1.2	1.5	0.0	0.0	0.0
Maximum Daily Emissions	27.9	10.5	12.7	0.0	0.7	0.4
Maximum Daily Emission 2024-2025	27.9	19.5	17.7	0.0	3.3	1.9
SCAQMD Significance Thresholds	*75*	100	*550*	150	150	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Table 3. Regional Operational Emission Estimates

Operational Activity	Maximum Daily Regional Emissions (pounds/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	0.8	0.6	6.0	0.0	1.3	0.3
Energy	1.2	0.0	1.7	0.0	0.0	0.0
Mobile	0.0	0.2	0.1	0.0	0.0	0.0
Total Project Operational Emissions	2.0	0.8	7.8	0.0	1.4	0.4
SCAQMD Significance Thresholds	*55*	*55*	*550*	150	150	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Local Emissions

Localized significance thresholds (LSTs) were also adopted by the SCAQMD due to project-related construction or operational air emissions having the potential to exceed the state and national air quality standards in the project vicinity, while not exceeding the regional emission significance thresholds adopted

[1] SCAQMD April 2019. Referenced at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf

by the SCAQMD. These thresholds set the maximum rates of daily construction or operational emissions from a project site that would not exceed a national or State ambient air quality standard[2]. The differences between regional thresholds and LSTs are as follows:

1. Regional thresholds include all sources of project construction and operational emissions generated from onsite and offsite emission sources whereas the LSTs only consider the emissions generated from onsite emission sources.
2. LSTs only apply to CO, NO_x, PM_{10}, and $PM_{2.5}$, while regional thresholds include both ROG and SO_2.
3. Regional thresholds apply to emission sources located anywhere within the SCAQMD whereas the LSTs are location dependent and depend on the size of the project, and emission location relative to the nearest sensitive receptor.

A sensitive receptor is defined as an individual who is most susceptible to negative health effects when exposed to air pollutants including children, the elderly, and adults with chronic health issues. Such receptors include residences, schools, elderly care centers, and hospitals. SCAQMD provides screening look up tables (Appendix C of the SCAQMD 2008 Final Localized Significance Threshold Methodology)[3] for projects that disturb less than or equal to 5 acres in size in a day. These tables were created to easily determine if the daily emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$ from a project could result in a significant impact to the local air quality. The thresholds are determined by:

- Source receptor area (SRA), the geographic area within the SCAQMD that can act as both a source of emissions and a receptor of emission impacts (the project is located within SRA 17, Central Orange County),
- Size of the project,
- Distance to the nearest sensitive receptor.

The phase with the most ground disturbance would be the grading phase. The *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, prepared by SCAQMD, 2015, provides guidance on how to determine the appropriate site acreage size to utilize for LST analyses. The Fact Sheet details that the maximum number of acres disturbed on the peak day of construction is calculated from the construction equipment list utilized in the CalEEMod model, which identifies that crawler tractors, graders, and rubber-tired dozers disturb 0.5-acre in an 8-hour day and scrapers disturb 1.0-acre in an 8-hour day. As shown in Table 4, the maximum amount of grading would occur during the grading phase, that would grade 2-acres per day. SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds states that projects that grade more than the total acres of the site, the site acreage should be used for the LST lookup tables. While the project is 1.22-acre, this analysis conservatively used the minimum thresholds available in Appendix C of the SCAQMD 2008 Final Localized Significance Threshold Methodology of 1-acre.

[2] SCAQMD 2008: Final Localized Significance Threshold Methodology. Referenced at http://www.aqmd.gov/docs/defaultsource/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf

[3] SCAQMD 2008: Final Localized Significance Threshold Methodology Appendix C. Referenced at http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2

Table 4. Construction Equipment Modeled in CalEEMod and Acres Disturbed per Day

Activity	Equipment Type	Equipment Quantity	Operating Hours per Day	Acres Disturbed per piece of Equipment per Day	Acres Disturbed per Day
Site Preparation	Graders	1	8	0.5	0.5
	Rubber Tired Dozers	1	8	0.5	0.5
	Crawler Tractors	1	8	0.5	0.5
				Total Acres Disturbed Per Day	1.5
Grading	Graders	1	8	0.5	0.5
	Rubber Tired Dozers	1	8	0.5	0.5
	Crawler Tractors	2	8	0.5	1
				Total Acres Disturbed Per Day	2

Distance to the nearest sensitive receptor also determines the emission thresholds. The sensitive receptors closest to the project include residential homes east of the project boundary, approximately 1.98 meters (6.5 feet) from the property line. The thresholds for 25 meters were used as those are the most stringent thresholds provided by SCAQMD, as provided in Appendix C. Table 5 shows the thresholds and estimated maximum daily construction emissions for the proposed project. As seen in Table 5, the proposed project has a less than significant localized construction air quality impact.

Table 5. Localized Construction Emission Estimates

Construction Activity	Maximum Daily Regional Emissions (pounds/day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
2024				
Demolition	15.6	16.0	1.0	0.7
Site Prep	16.6	14.6	2.8	1.7
Grading	19.5	17.1	3.2	1.9
Building Construction	19.5	17.1	0.0	3.2
Maximum Daily Emissions	19.5	17.1	3.2	3.2
2025				
Building Construction	10.3	11.6	0.0	0.4
Paving	5.2	7.2	0.0	0.2
Architectural Coating	1.2	1.5	0.0	0.0
Maximum Daily Emissions	10.3	11.6	0.0	0.4
Maximum Daily Emission 2024-2025	19.5	17.1	3.2	3.2
SCAQMD Significance Thresholds	**203.3**	**1552.3**	**9.3**	**6.3**
Threshold Exceeded?	**No**	**No**	**No**	**No**

According to the SCAQMD LST methodology, LSTs apply to project stationary mobile sources. Projects that involve mobile sources that spend long periods queuing and idling at a site, such as transfer facilities or warehousing and distribution buildings, have the potential to exceed the operational localized significance thresholds. The proposed project would operate 30 townhome units, which do not involve vehicles idling or queueing for long periods. Therefore, due to the lack of significant stationary source emissions, impacts related to operational localized significance thresholds would be less than significant.

Conclusion

The project's maximum daily emissions (regional and local) for construction and operation of the project would not exceed SCAQMD's regional thresholds of significance. In addition, design and construction of the

project would comply with applicable SCAQMD rules and regulations, including Rule 403 to minimize fugitive PM dust emissions, Rule 445 preventing woodfire stoves, and Rule 1113 which allows only Low-Volatile Organic Compounds (VOC) paints. Projects that do not exceed the regional thresholds are assumed to not have a significant impact on a project level and cumulative level. Therefore, the proposed project would have less than significant air quality impacts, and no mitigation measures are required.

Energy

The State CEQA Guidelines do not have specific thresholds for Energy consumption. Rather, the question in Appendix G: VI Energy (a) asks, "[Does the proposed project] Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?". Therefore, for the purpose of this analysis, a significant impact would occur if:

- The Project design and/or location encourages wasteful, inefficient, and unnecessary consumption of energy, especially fossil fuels such as coal, natural gas, and petroleum, as well as the use of fuel by vehicles anticipated to travel to and from the project.

The following assumptions were used to calculate the energy consumption of the proposed project:

- The project's construction and operational energy consumption would be provided by Southern California Edison Company.
- Construction equipment fuel consumption derived from ARB Offroad2021 emission model
- Fuel Consumption from vehicle travel derived from ARB EMFAC2021 emission model
- Electrical and natural gas usage derived from the CalEEMod model

Construction

Electricity and Natural Gas Usage:

Due to the project size and the fact that construction is temporary, the electricity used would be substantially less than that required for project operation and would have a negligible contribution to the project's overall energy consumption. The electric power used would be for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers. Natural gas is not anticipated to be needed for construction activities. Any consumption of natural gas would be minor and negligible in comparison to the operation of the proposed project.

Petroleum Fuel Usage:

The construction equipment associated with construction activities (off-road/heavy duty vehicles) would rely on diesel fuel as would vendor and haul trucks involved in delivering building materials and removing the demolition debris from the project site. Construction workers would travel to and from the project site throughout the duration of construction, and for a conservative analysis it is assumed that construction workers would travel in gasoline-powered passenger vehicles.

Table 6 shows the total fuel consumption and horsepower-hour data contained within the ARB OffRoad2021 emission model for specific types of diesel construction equipment. It should be noted that the total fuel consumption is a conservative analysis and would likely overstate the amount of fuel usage, as specific construction equipment is not expected to operate during the duration of the construction activity (i.e., crane). Additionally, since Cement and Mortar Mixer fuel consumption rates are unavailable, Off-Road Truck fuel rates were used for that equipment. Table 7 summarizes the project's construction vehicle fuel usage based on vehicle miles traveled and fuel usage factors contained in the ARB EMFAC2021. The trips included are worker vehicles, vendor vehicles, and haul vehicles. Table 8 shows the overall fuel consumption for construction of the proposed project. The fuel calculations used for this analysis are included as an attachment.

Table 6. Construction Equipment Fuel Usage

Activity	Equipment	Number	Hours per day	Horse-power	Load Factor	Days of Construction	Total Horsepower-hours	Fuel Rate (gal/hp-hr)	Fuel Use (gallons)
Demo	Tractors/Loaders/Backhoes	3	8	84	0.37	20	14,918	0.053125387	793
	Rubber Tired Dozers	1	8	367	0.4	20	23,488	0.047106529	1,106
	Concrete/Industrial Saws	1	8	33	0.73	20	3,854	0.041774381	161
Site Preparation	Rubber Tired Dozers	3	8	367	0.4	2	7,046	0.047106529	332
	Graders	1	8	148	0.41	2	971	0.051576386	50
	Crawler Tractors	1	8	87	0.43	2	599	0.050471208	30
Grading	Graders	1	8	148	0.41	4	1,942	0.051576386	100
	Crawler Tractors	2	8	87	0.43	4	2,394	0.050471208	121
	Rubber Tired Dozers	1	8	367	0.4	4	4,698	0.047106529	221
Model Building Construction	Forklifts	1	8	82	0.2	200	26,240	0.05325705	1,397
	Generator Sets	1	8	14	0.74	200	16,576	0.06913631	1,146
	Cranes	1	8	367	0.29	200	170,288	0.05329334	9,075
	Welder	3	8	46	0.45	200	99,360	0.030255098	3,006
	Tractors/Loaders/Backhoes	1	8	84	0.37	200	49,728	0.053125387	2,642
Paving	Pavers	1	8	81	0.42	10	2,722	0.05152058	140
	Paving Equipment	1	8	89	0.36	10	2,563	0.051165117	131
	Rollers	1	8	36	0.38	10	1,094	0.052625962	58
	Tractors/Loaders/Backhoes	1	8	84	0.37	10	2,486	0.053125387	132
	Cement and Mortar Mixers	1	8	10	0.56	10	448	0.048807587	22
Architectural Coating	Air Compressors	1	6	78	0.48	10	2,246	0.029405487	66
								Total	20,729

Table 7. Construction Vehicle Fuel Usage

Construction Source	Number	VMT	Fuel Rate	Gallons of Diesel Fuel	Gallons of Gasoline Fuel
Haul Trucks	58	4,640	5.99	775	0
Vendor Trucks	3	6,120	8.94	684	0
Worker Vehicles	70	90,391	27.41	0	3,298
Total				1,459	3,298

Table 8. Total Construction Fuel Usage

Construction Source	Gallons of Diesel Fuel	Gallons of Gasoline Fuel
Construction Vehicles	1,459	3,298
Off-road Construction Equipment	20,729	0
Total	22,188	3,298

Operation

The operation of the proposed project would consume electricity, natural gas, and petroleum. The net energy consumption can be found in Table 9 below. Electricity and natural gas consumption were found in the Annual CalEEMod Output Sheets attached. The gasoline consumption rates utilize the same assumptions that were used for the worker vehicles.

Table 9. Annual Operational Energy Requirements

Electricity (Kilowatt-Hours)	
137,765	
Natural Gas (Thousands British Thermal Units)	
720,911	
Petroleum (gasoline) Consumption	
Annual VMT	Gallons of Gasoline Fuel
580,877	21,195

Conclusion

The proposed project has no unusual characteristics that would make the construction fuel and energy consumption associated with construction of the project less efficient compared with other similar construction sites throughout the state. The consumption would also be temporary and localized. Operation of the 30 townhome units would comply with all the energy efficiency requirements under Title 24 and all applicable City business and energy codes ordinances, as ensured through the City's development permitting process. Therefore, the construction and operation of the project would result in a less than significant impact for inefficient, wasteful, or unnecessary energy use, and no mitigation would be required.

Greenhouse Gas

SCAQMD convened a Greenhouse Gas Emissions (GHG) CEQA Significance Threshold Working Group to help lead agencies determine significance thresholds for GHG emissions when SCAQMD is not the lead agency. The last working group was held September 2010 (Meeting No. 15)[4] and proposed a tiered approach, equivalent to the existing consistency determination requirements in CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(a). The most recent proposal issued in Meeting No. 15 uses a tiered approach, Tier 1 to Tier 5, to evaluate potential GHG impacts from various uses. The assessment of the proposed project applies the Tier 3: Numerical Screening Thresholds approach. Tier three consists of

[4] SCAQMD 2010. Minutes of the GHG CEQA Significance Threshold Stakeholder Working Group #15. Referenced at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf

screening values in metric tons of carbon dioxide equivalent ($MTCO_2e$) (converting other greenhouse gases to an equivalent impact of CO_2). A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project impact would be less than significant:

- Option 1: All land use types: 3,000 $MTCO_2e$ per year
- Option 2: Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year

Executive Order S-3-05's year 2050 goal is the basis of SCAQMD' draft Tier 3 screening level thresholds. The objective of the Executive Order is to contribute to capping worldwide CO_2 concentrations at 450 ppm, stabilizing global climate change. Option 1 was used for this analysis; therefore, the GHG threshold used is 3,000 $MTCO_2e$ per year.

The project's construction GHG emissions are shown in Table 10 and the overall construction and operational emissions are shown in Table 11. These emissions were calculated using the CalEEMod model. Pursuant to SCAQMD methodology, construction emissions are amortized over 30 years. As shown in Table 11, the GHG emissions are 283 $MTCO_2e$ per year, which is below the 3,000 $MTCO_2e$ per year threshold. Therefore, the project would have a less than significant GHG impact.

Table 10. Project Construction GHG Emissions

Activity	Annual GHG Emissions ($MTCO_2e$)
2024	231
2025	43
Total Construction Emissions	274
Total Emissions Amortized Over 30 Years	9

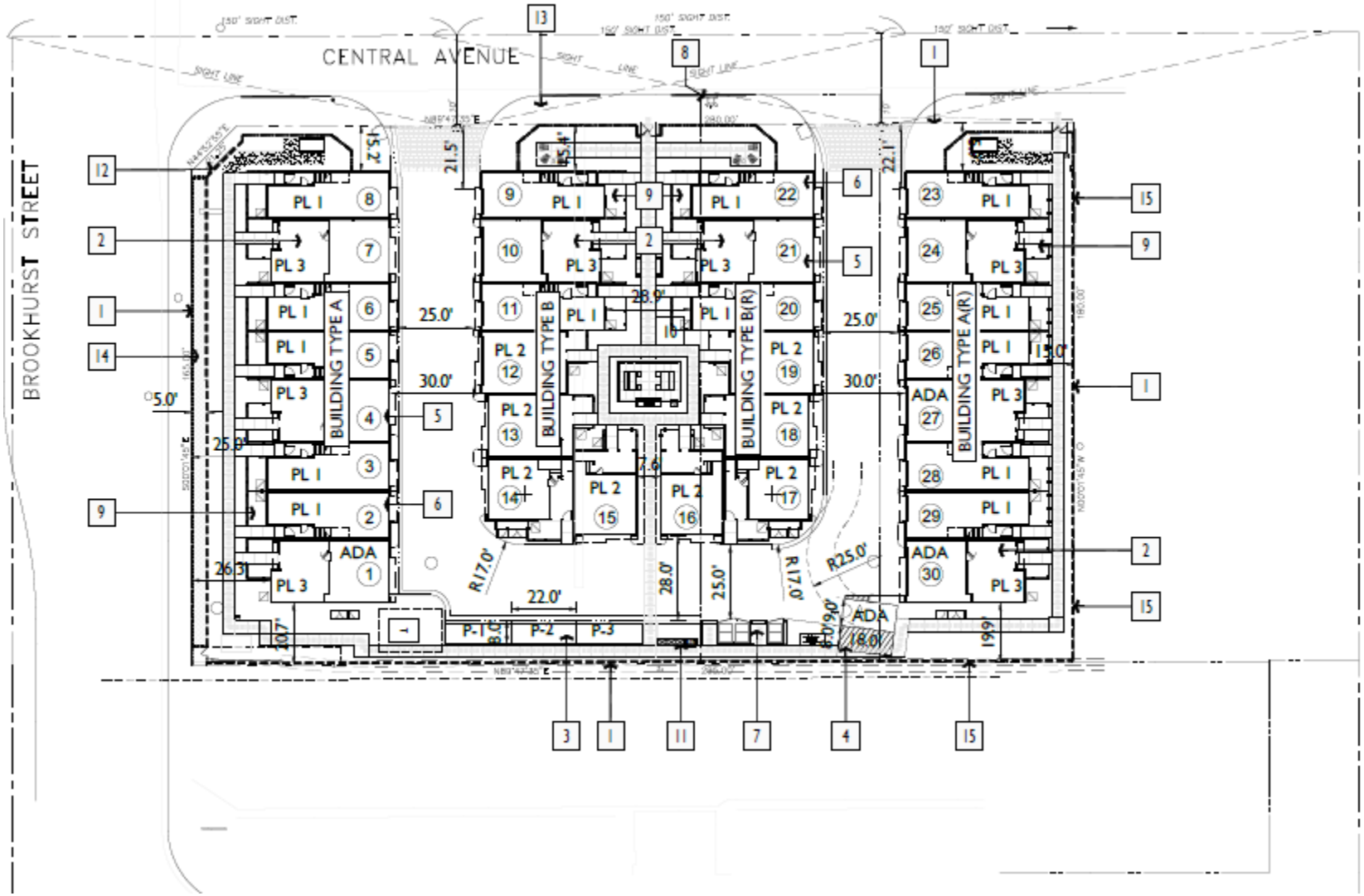
Table 11. Total GHG Emissions

Activity	Annual GHG Emissions ($MTCO_2e$)
Project Operational Emissions	
Mobile	204
Area	1
Energy	60
Water	3
Waste	7
Refrigeration	0
Total Project Operation Emissions	274
Amortized Project Construction Emissions	9
Total Project Emissions	283
Total Emissions	**283**
Tier 3: Significance Threshold	3,000
Threshold Exceeded?	**No**

Conclusion

The proposed project's GHG emissions of 283 $MTCO_2e$ per year is below the SCAQMD significance threshold of 3,000 $MTCO_2e$ per year. Therefore, the project would have a less than significant impact on GHG emissions, and no mitigation measures are required.

Figure 1: Project Site Plan



Fuel Calculations

Model Output: OFFROAD2021 (v1.0.5) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2024
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	VehClass	MdlYr	HP_Bin	Fuel	Fuel Consumption	Horsepower Hours	Fuel Rate
Orange (SC)	2024	Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	89050.01614	1890396.477	0.047107
Orange (SC)	2024	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	2422070.72	45591586.98	0.053125
Orange (SC)	2024	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	361508.9015	7009194.177	0.051576
Orange (SC)	2024	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	2479306.454	48417256.66	0.051207
Orange (SC)	2024	Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	913059.7312	19103020.9	0.047797
Orange (SC)	2024	Industrial - Forklifts	Aggregate	Aggregate	Diesel	1269289.848	23833273.8	0.053257
Orange (SC)	2024	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Diesel	411801.6471	5956372.95	0.069136
Orange (SC)	2024	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	276096.8385	5180700.568	0.053293
Orange (SC)	2024	Light Commercial - Misc - Welders	Aggregate	Aggregate	Diesel	492083.2292	16264473	0.030255
Orange (SC)	2024	Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	159432.6453	3094542.905	0.051521
Orange (SC)	2024	Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	177078.1547	3460915.662	0.051165
Orange (SC)	2024	Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	421233.65	8004293.555	0.052626
Orange (SC)	2024	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Diesel	97552.79985	3317503.25	0.029405
Orange (SC)	2024	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	4714.725568	112861.65	0.041774
Orange (SC)	2024	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	774783.0892	15350991.47	0.050471
Orange (SC)	2024	Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	1026339.008	21028267.73	0.048808

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	Fuel Consumption	Fuel Rate
Orange (SC)	2024	MHDT	Aggregate	Aggregate	Diesel	1155908.692	129.2675278	8.94
Orange (SC)	2024	HHDT	Aggregate	Aggregate	Diesel	1265161.083	211.2875152	5.99

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	Fuel Consumption	
Orange (SC)	2024	LDA	Aggregate	Aggregate	Gasoline	42285386.13	1408.433705	30.02
Orange (SC)	2024	LDT1	Aggregate	Aggregate	Gasoline	3495530.367	138.9785117	25.15
Orange (SC)	2024	LDT2	Aggregate	Aggregate	Gasoline	21321177.46	872.8633551	24.43
							50/25/25 Split	27.41

CalEEMod Output Sheets

Brookhurst and Central Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Brookhurst and Central
Construction Start Date	4/1/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	18.2
Location	33.77015683890269, -117.95467136875973
County	Orange
City	Garden Grove
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5887
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Condo/Townhouse	30.0	Dwelling Unit	1.22	44,324	13,900	—	89.0	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	2.14	19.5	17.7	0.03	3.33	1.95	2,950
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	27.9	11.1	12.8	0.02	0.75	0.48	2,557
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.89	6.35	7.17	0.01	0.46	0.29	1,393
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.16	1.16	1.31	< 0.005	0.08	0.05	231
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2024	2.14	19.5	17.7	0.03	3.33	1.95	2,950
Daily - Winter (Max)	—	—	—	—	—	—	—
2024	1.36	11.1	12.8	0.02	0.75	0.48	2,557
2025	27.9	10.5	12.7	0.02	0.70	0.43	2,550
Average Daily	—	—	—	—	—	—	—
2024	0.76	6.35	7.17	0.01	0.46	0.29	1,393
2025	0.89	1.08	1.36	< 0.005	0.07	0.05	261
Annual	—	—	—	—	—	—	—
2024	0.14	1.16	1.31	< 0.005	0.08	0.05	231
2025	0.16	0.20	0.25	< 0.005	0.01	0.01	43.2

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	2.01	0.74	7.79	0.02	1.35	0.36	1,924
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	1.85	0.77	5.75	0.02	1.35	0.36	1,858
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	1.82	0.70	6.15	0.01	1.15	0.31	1,657
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.33	0.13	1.12	< 0.005	0.21	0.06	274
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—

Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Annual)	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	0.82	0.54	6.01	0.01	1.34	0.35	1,496
Area	1.18	0.02	1.70	< 0.005	< 0.005	< 0.005	4.57
Energy	0.01	0.18	0.08	< 0.005	0.01	0.01	364
Water	—	—	—	—	—	—	17.7
Waste	—	—	—	—	—	—	41.6
Refrig.	—	—	—	—	—	—	0.32
Total	2.01	0.74	7.79	0.02	1.35	0.36	1,924
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.81	0.59	5.68	0.01	1.34	0.35	1,435
Area	1.02	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.18	0.08	< 0.005	0.01	0.01	364
Water	—	—	—	—	—	—	17.7
Waste	—	—	—	—	—	—	41.6
Refrig.	—	—	—	—	—	—	0.32
Total	1.85	0.77	5.75	0.02	1.35	0.36	1,858

Average Daily	—	—	—	—	—	—	—
Mobile	0.68	0.50	4.91	0.01	1.13	0.29	1,230
Area	1.13	0.01	1.16	< 0.005	< 0.005	< 0.005	3.13
Energy	0.01	0.18	0.08	< 0.005	0.01	0.01	364
Water	—	—	—	—	—	—	17.7
Waste	—	—	—	—	—	—	41.6
Refrig.	—	—	—	—	—	—	0.32
Total	1.82	0.70	6.15	0.01	1.15	0.31	1,657
Annual	—	—	—	—	—	—	—
Mobile	0.12	0.09	0.90	< 0.005	0.21	0.05	204
Area	0.21	< 0.005	0.21	< 0.005	< 0.005	< 0.005	0.52
Energy	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	60.3
Water	—	—	—	—	—	—	2.94
Waste	—	—	—	—	—	—	6.89
Refrig.	—	—	—	—	—	—	0.05
Total	0.33	0.13	1.12	< 0.005	0.21	0.06	274

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.61	15.6	16.0	0.02	0.67	0.62	2,502
Demolition	—	—	—	—	0.31	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.85	0.88	< 0.005	0.04	0.03	137
Demolition	—	—	—	—	0.02	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.16	< 0.005	0.01	0.01	22.7
Demolition	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.05	0.05	0.75	0.00	0.16	0.04	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.33	0.14	< 0.005	0.07	0.02	276
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	9.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	15.1
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.50
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.50

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.77	16.6	14.6	0.02	0.87	0.80	2,302
Dust From Material Movement	—	—	—	—	1.98	0.91	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	< 0.005	12.6
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	2.09
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.03	0.03	0.45	0.00	0.10	0.02	103
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.10	19.5	17.1	0.02	1.08	1.00	2,652
Dust From Material Movement	—	—	—	—	2.12	0.92	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.19	< 0.005	0.01	0.01	29.1
Dust From Material Movement	—	—	—	—	0.02	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.03	< 0.005	< 0.005	< 0.005	4.81
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.04	0.60	0.00	0.13	0.03	138
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.45
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.24
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.28	10.9	11.6	0.02	0.44	0.40	2,167
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.28	10.9	11.6	0.02	0.44	0.40	2,167
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.59	5.07	5.40	0.01	0.20	0.19	1,005
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.93	0.98	< 0.005	0.04	0.03	166
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.08	0.08	1.30	0.00	0.28	0.07	297
Vendor	< 0.005	0.11	0.06	< 0.005	0.03	0.01	109
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.08	0.10	1.12	0.00	0.28	0.07	282
Vendor	< 0.005	0.11	0.06	< 0.005	0.03	0.01	108
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.04	0.04	0.55	0.00	0.13	0.03	133
Vendor	< 0.005	0.05	0.03	< 0.005	0.01	< 0.005	50.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.02	0.01	22.0
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	8.32
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.21	10.3	11.6	0.02	0.39	0.35	2,167
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.89	0.99	< 0.005	0.03	0.03	187

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.18	< 0.005	0.01	0.01	30.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.08	0.09	1.05	0.00	0.28	0.07	276
Vendor	< 0.005	0.11	0.05	< 0.005	0.03	0.01	107
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.02	0.01	24.1
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	9.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	3.99
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.52
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.56	5.24	7.22	0.01	0.23	0.21	1,106
Paving	0.00	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.14	0.20	< 0.005	0.01	0.01	30.3
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	< 0.005	5.02
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.04	0.05	0.61	0.00	0.16	0.04	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	4.44
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.17	1.18	1.52	< 0.005	0.04	0.03	179
Architectural Coatings	27.7	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	< 0.005	4.89
Architectural Coatings	0.76	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.81
Architectural Coatings	0.14	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.02	0.02	0.21	0.00	0.06	0.01	55.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.25
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	0.82	0.54	6.01	0.01	1.34	0.35	1,496
Total	0.82	0.54	6.01	0.01	1.34	0.35	1,496
Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	0.81	0.59	5.68	0.01	1.34	0.35	1,435
Total	0.81	0.59	5.68	0.01	1.34	0.35	1,435
Annual	—	—	—	—	—	—	—
Condo/Townhouse	0.12	0.09	0.90	< 0.005	0.21	0.05	204
Total	0.12	0.09	0.90	< 0.005	0.21	0.05	204

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	132
Total	—	—	—	—	—	—	132

Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	132
Total	—	—	—	—	—	—	132
Annual	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	21.9
Total	—	—	—	—	—	—	21.9

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	0.01	0.18	0.08	< 0.005	0.01	0.01	232
Total	0.01	0.18	0.08	< 0.005	0.01	0.01	232
Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	0.01	0.18	0.08	< 0.005	0.01	0.01	232
Total	0.01	0.18	0.08	< 0.005	0.01	0.01	232
Annual	—	—	—	—	—	—	—
Condo/Townhouse	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	38.4
Total	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	38.4

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Consumer Products	0.95	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—
Landscape Equipment	0.15	0.02	1.70	< 0.005	< 0.005	< 0.005	4.57
Total	1.18	0.02	1.70	< 0.005	< 0.005	< 0.005	4.57
Daily, Winter (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.95	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—
Total	1.02	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.17	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.21	< 0.005	< 0.005	< 0.005	0.52
Total	0.21	< 0.005	0.21	< 0.005	< 0.005	< 0.005	0.52

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	17.7
Total	—	—	—	—	—	—	17.7
Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	17.7
Total	—	—	—	—	—	—	17.7

Annual	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	2.94
Total	—	—	—	—	—	—	2.94

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	41.6
Total	—	—	—	—	—	—	41.6
Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	41.6
Total	—	—	—	—	—	—	41.6
Annual	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	6.89
Total	—	—	—	—	—	—	6.89

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	0.32
Total	—	—	—	—	—	—	0.32

Daily, Winter (Max)	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	0.32
Total	—	—	—	—	—	—	0.32
Annual	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	0.05

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	4/1/2024	4/29/2024	5.00	20.0	—
Site Preparation	Site Preparation	4/30/2024	5/2/2024	5.00	2.00	—
Grading	Grading	5/3/2024	5/8/2024	5.00	4.00	—
Building Construction	Building Construction	5/9/2024	2/13/2025	5.00	200	—
Paving	Paving	2/14/2025	2/28/2025	5.00	10.0	—
Architectural Coating	Architectural Coating	3/1/2025	3/15/2025	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	0.00	8.00	84.0	0.37
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Average	0.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	3.70	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	3.21	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.32	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	89,756	29,919	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	6,367	—
Site Preparation	0.00	0.00	3.00	0.00	—
Grading	0.00	0.00	8.00	0.00	—
Paving	0.00	0.00	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Condo/Townhouse	—	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	349	0.03	< 0.005
2025	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Condo/Townhouse	216	263	215	81,233	1,545	1,879	1,538	580,877

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	30
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
89756.09999999999	29,919	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Condo/Townhouse	137,765	349	0.0330	0.0040	720,911

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Condo/Townhouse	1,125,770	220,182

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Condo/Townhouse	22.1	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.94	annual days of extreme heat
Extreme Precipitation	3.65	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	42.6
AQ-PM	72.2
AQ-DPM	79.0
Drinking Water	58.3
Lead Risk Housing	78.1
Pesticides	0.00
Toxic Releases	89.0
Traffic	90.5
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	2.11
Haz Waste Facilities/Generators	30.2
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	38.0
Cardio-vascular	50.0
Low Birth Weights	81.7
Socioeconomic Factor Indicators	—
Education	78.9
Housing	57.4
Linguistic	93.6
Poverty	47.3

Unemployment	13.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	21.62196843
Employed	38.39343
Median HI	40.89567561
Education	—
Bachelor's or higher	27.48620557
High school enrollment	25.49724111
Preschool enrollment	17.40023098
Transportation	—
Auto Access	49.51879892
Active commuting	32.09290389
Social	—
2-parent households	65.03272167
Voting	10.39394328
Neighborhood	—
Alcohol availability	30.80970101
Park access	14.84665726
Retail density	64.8659053
Supermarket access	72.55229052
Tree canopy	17.92634416
Housing	—
Homeownership	47.09354549

Housing habitability	20.39009367
Low-inc homeowner severe housing cost burden	26.53663544
Low-inc renter severe housing cost burden	5.119979469
Uncrowded housing	14.8209932
Health Outcomes	—
Insured adults	32.65751315
Arthritis	51.7
Asthma ER Admissions	62.8
High Blood Pressure	26.8
Cancer (excluding skin)	71.8
Asthma	58.2
Coronary Heart Disease	47.4
Chronic Obstructive Pulmonary Disease	31.1
Diagnosed Diabetes	19.9
Life Expectancy at Birth	93.8
Cognitively Disabled	80.8
Physically Disabled	83.0
Heart Attack ER Admissions	36.2
Mental Health Not Good	37.4
Chronic Kidney Disease	45.1
Obesity	83.6
Pedestrian Injuries	68.0
Physical Health Not Good	30.9
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	95.9
Current Smoker	30.4

No Leisure Time for Physical Activity	12.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	67.0
Elderly	61.3
English Speaking	19.1
Foreign-born	95.8
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	26.1
Traffic Density	90.9
Traffic Access	23.0
Other Indices	—
Hardship	70.6
Other Decision Support	—
2016 Voting	29.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	63.0
Healthy Places Index Score for Project Location (b)	26.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Used acreage and square feet from architectural plan set.
Construction: Off-Road Equipment	Replaced tractors, loaders, backhoes with crawler tractors. Conservatively assumed all equipment operates 8 hours a day.
Operations: Vehicle Data	Updated Trip rates for with the ITE 11th Edition rates.
Operations: Hearths	No Woodstoves or Fireplaces proposed.