



Technical Memorandum

To: Henry Pyle, Chartwell Real Estate Development

From: Eliza Laws, Senior Environmental Analyst
Monica Tobias, Associate Environmental Analyst

Date: July 7, 2022

Re: Air Quality/Greenhouse Gas Analysis for the Chartwell Warehouse at Rider Street and Redlands Avenue Project (DPR No. 21-00003), City of Perris

The following air quality assessment was prepared to evaluate whether the expected criteria air pollutant emissions generated as a result of construction and operation of the proposed Project would cause exceedances of the South Coast Air Quality Management District's (SCAQMD) thresholds for air quality in the Project area. The greenhouse gas (GHG) assessment was prepared to evaluate whether the expected GHG emissions generated as a result of construction and operation of the proposed Project would exceed the SCAQMD draft screening significance thresholds. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 *et seq.*). The methodology follows the *CEQA Air Quality Handbook* prepared by the SCAQMD for quantification of emissions and evaluation of potential impacts to air resources. As recommended by SCAQMD staff, the **California Emissions Estimator Model**[®] version 2020.4.0 (CalEEMod) was used to quantify Project-related emissions.

The Project Applicant proposes development of an approximate 132,818 square foot (SF), non-refrigerated warehouse building that includes 3,000 SF office and 3,000 mezzanine space, on approximately 6.26 net-acre site on the southwest corner of Rider Street and Redlands Avenue, in the City of Perris, California. The Project site is located within the Perris Valley Commerce Center Specific Plan, adopted in 2012. The Project's water and sewer lines will connect to existing pipelines within Redlands Avenue; no improvements are proposed. The proposed storm drain lateral will connect the on-site storm drain facilities to the existing Perris Valley Storm Drain Master Drainage Plan (MDP) Line AB within Rider Street, which is immediately north of the Project site. The Project will construct sidewalk and parkway along the north and east side of the Project site, along Redlands Avenue and Rider Street. As part of the Project, additional storm drain laterals will be constructed along Redlands Avenue to connect the Project's on-site easterly storm drains and the proposed curb and gutter on the easterly sidewalk of Redlands Avenue, with the existing lateral AB-10 located at the intersection of Rider Street and Redlands Avenue. A street median is proposed on Redlands Avenue. The total off-site disturbance is approximately 0.88 acres.

Regional Significance Thresholds

The thresholds contained in the *SCAQMD CEQA Air Quality Handbook*¹ (SCAQMD 1993) and posted in a supplemental table as mass daily thresholds on SCAQMD’s website² are considered regional thresholds and are shown in **Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds**, below. These regional thresholds were developed based on the SCAQMD’s treatment of a major stationary source.

Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds

Emission Threshold	Units	VOC	NO _x	CO	SO _x	PM-10	PM-2.5
Construction	lbs/day	75	100	550	150	150	55
Operation	lbs/day	55	55	550	150	150	55

Air quality impacts can be described in a short- and long-term perspective. Short-term impacts occur during site grading and Project construction and consist of fugitive dust and other particulate matter, as well as exhaust emissions generated by construction-related vehicles. Long-term air quality impacts occur once the Project is in operation.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 or more acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of this Project’s disturbance area (7.14 acres), a Fugitive Dust Control Plan or a Large Operation Notification Form would not be required.

Short-Term Analysis

Short-term emissions from Project construction were evaluated using the CalEEMod version 2020.4.0 program. The estimated construction period for the proposed Project is approximately nine months, beginning no sooner than June 2023. The default parameters within CalEEMod were used and these default values reflect a worst-case scenario, which means that Project emissions are expected to be equal to or less than the estimated emissions. In addition to the default values used, assumptions relevant to model inputs for short-term construction emission estimates used are:

- Construction is anticipated to begin in June 2023 with grading and end with architectural coatings (painting):

Construction Activity	Start Date	End Date	Total Working Days
Grading	June 1, 2023	June 28, 2023	20 Days
Building Construction	June 29, 2023	February 21, 2024	170 Days
Paving	January 25, 2024	February 21, 2024	20 Days
Architectural Coatings	January 11, 2024	February 21, 2024	30 Days

- The equipment to be used for each activity is shown below and is based CalEEMod defaults and the Applicant. Each piece of equipment is assumed to operate 8 hours per day:

¹ South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993. (Available at SCAQMD.)

² <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

Construction Activity	Off-Road Equipment	Unit Amount
Grading	Excavators	1
	Graders	1
	Rubber Tired Dozers	1
	Scrapers	1
	Tractors/Loaders/Backhoes	3
Building Construction	Crane	1
	Forklifts	3
	Generator Set	1
	Tractor/Loader/Backhoe	3
	Welder	1
Paving	Rollers	1
	Pavers	1
	Paving Equipment	1
Architectural Coatings	Air Compressors	1

- To evaluate Project compliance with SCAQMD Rule 403 for fugitive dust control, the Project utilized the mitigation option of watering the Project site three times daily which achieves a control efficiency of 61 percent for PM-10 and PM-2.5 emissions. Two (2) one-way vendor trips per day were added to the grading and paving activities to account for water truck trips.
- Vendor trips from concrete trucks utilized during building construction were based on CalEEMod defaults.
- The Project site will require 6,500 cubic feet (CY) of soil import. Based on the CalEEMod default truck capacity of 16 cubic yards, approximately 406 truckloads of soil would be imported over a period of 20 days. The import site is currently unknown. Therefore, the CalEEMod default was utilized which assumes a hauling trip length of 20 miles per trip.
- Off-site infrastructure improvements will also be required to connect potable water, sewer and storm drain lines to existing facilities in the adjacent streets, construct sidewalk and parkway improvements along the Project frontage, and install a 12-FT wide street median on Redlands Avenue). The off-site improvements will disturb approximately 0.88 acres.
- The VOC content of interior and exterior architectural coatings were changed to 50 grams per liter, pursuant to SCAQMD Rule 1113.

The results of this analysis are summarized below.

Table 2 – Unmitigated Estimated Maximum Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	75	100	550	150	150	55
Grading 2023	2.65	30.63	22.69	0.07	4.85	2.65
Building Construction 2023	2.21	17.51	22.83	0.05	2.57	1.21
Building Construction 2024	2.07	16.47	22.42	0.05	2.48	1.12
Architectural Coating 2024	22.53	1.68	3.30	0.01	0.37	0.16
Paving 2024	0.60	4.85	7.61	0.01	0.34	0.24
Maximum¹	25.20	30.63	33.33	0.07	4.85	2.65
Exceeds Threshold?	No	No	No	No	No	No

Note: ¹ Maximum emissions are the greater of either grading, or building construction in 2023 alone or the sum of building construction, paving, and architectural coating in 2024 since these activities overlap. Maximum emissions are shown in bold.

As shown in the table above, the emissions from construction of the Project are below the SCAQMD daily construction thresholds for all the criteria pollutants.

Long-Term Analysis

Long-term emissions are evaluated at build-out of a project. The Project is assumed to be operational in 2024. Mobile source emissions refer to on-road motor vehicle emissions generated from the Project's traffic and based on the *Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003*, December 2021.³ An average truck trip length of approximately 40 miles was assumed, which is recommended by the City and based on SCAQMD's *Final Staff Report for proposed Rule 2305 and Rule 316*⁴. On-site service equipment (i.e., forklifts) are assumed to be electric and therefore do not have any direct emissions of criteria pollutants. Area source emissions from the Project include stationary combustion emissions of natural gas used for space and water heating (shown in a separate row as energy), yard and landscape maintenance, and an average building square footage to be repainted each year. CalEEMod computes area source emissions based upon default factors and land use assumptions. CalEEMod defaults also include the 2019 Title 24 energy efficiency standards. Separate emissions were computed for both the summer and winter and are shown in **Table 3** and **Table 4**, respectively.

³ Albert A. Webb Associates, *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003*, December 2021.

⁴ South Coast Air Quality Management District, *Board Meeting Agenda No. 27, May 7, 2021, Attachment I, Final Staff Report, Proposed Rule 2305 – Warehouse Indirect Source Rule - Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305*. (Available at <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10>, accessed April 2022.)

Table 3 – Unmitigated Estimated Daily Project Operation Emissions (Summer)

Source	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Thresholds	55	55	550	150	150	55
Area	3.05	0.00	0.01	0.00	0.00	0.00
Energy	0.01	0.07	0.06	0.00	0.01	0.01
Mobile	1.03	8.42	13.52	0.07	4.67	1.34
Total	4.09	8.49	13.59	0.07	4.68	1.35
Exceeds Threshold?	No	No	No	No	No	No

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Table 4 – Unmitigated Estimated Daily Project Operation Emissions (Winter)

Source	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Thresholds	55	55	550	150	150	55
Area	3.05	0.00	0.01	0.00	0.00	0.00
Energy	0.01	0.07	0.06	0.00	0.01	0.01
Mobile	0.95	8.91	11.95	0.07	4.67	1.34
Total	4.01	8.98	12.02	0.07	4.68	1.35
Exceeds Threshold?	No	No	No	No	No	No

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

Evaluation of the data presented on the above tables indicates that criteria pollutant emissions from operation of this Project will not exceed the SCAQMD regional daily thresholds for any pollutant during summer or winter.

▪ Localized Significance Threshold Analysis

Background

As part of the SCAQMD’s environmental justice program, attention has been focused on localized effects of air quality. Staff at SCAQMD has developed localized significance threshold (LST) methodology⁵ that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts (both short- and long-term). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The Project is located in SRA 24.

Short-Term Analysis

According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site. The emissions analyzed under the LST methodology are NO₂, CO, PM-10, and PM-2.5. SCAQMD has provided LST lookup tables⁶ to allow users to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects five acres or smaller. Although the Project site disturbs more than five acres, it is anticipated that a smaller area will be disturbed per day. The SCAQMD’s Fact Sheet for Applying CalEEMod to Localized Significance Thresholds is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.⁷ Based on this SCAQMD

⁵ South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, Revised July 2008. (Available at <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>, accessed January 26, 2022.)

⁶ <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>

⁷ <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2>

guidance and the Project’s equipment list during grading (above), the Project will disturb approximately 3.5 acres per day during grading.⁸ Therefore, the two-acre LST was used to compare the on-site emissions estimated by CalEEMod to provide a conservative analysis.

The LST thresholds are estimated using the maximum daily disturbed area (in acres) and the distance of the Project to the nearest sensitive receptors (in meters). The closest sensitive receptor to the Project construction site is the existing residential property north of the Project site along Rider Street, approximately 95 feet (29 meters) away. The closest receptor distances on the LST look-up tables are 25 and 50 meters. Therefore, a receptor distance of 25 meters (85 feet) was used to ensure a conservative analysis. The results are summarized below.

Table 5 – Unmitigated LST Results for Daily Construction Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO _x	CO	PM-10	PM-2.5
LST for 2-acre site at 25 meters	170	883	7	4
Grading 2023	26.22	20.89	3.88	2.35
Building Construction 2023	15.44	17.31	0.75	0.70
Building Construction 2024	14.42	17.23	0.66	0.62
Paving 2024	1.63	2.41	0.08	0.08
Architectural Coatings 2024	4.76	7.31	0.23	0.22
Maximum¹	26.22	26.95	3.88	2.35
Exceeds Threshold?	No	No	No	No

Note: ¹ Maximum emissions are the greater of either grading, or building construction in 2023 alone or the sum of building construction, paving, and architectural coating in 2024 since these activities overlap. Maximum emissions are shown in bold.

Emissions from construction of the Project will be below the LST established by SCAQMD for the Project.

Long-Term Analysis

According to the LST methodology, LSTs only apply to the operational phase if a project includes stationary sources or attracts mobile sources that may spend long periods of time idling at the site, such as warehouse/transfer facilities. Therefore, because the proposed Project will operate as a warehouse and has the potential to attract mobile sources that can reasonably be assumed to idle at the site, a long-term LST analysis was prepared for this Project. Although the Project exceeds five acres, per SCAQMD, the LST lookup tables can be used as a screening tool to determine if dispersion modeling would be necessary. Therefore, the Project’s on-site emissions from CalEEMod and LST Look-Up Tables for the 5-acre site were utilized as a screening-level analysis.

CalEEMod version 2020.4.0 was utilized to estimate the Project’s emissions from trucks traveling on the Project site. An on-site distance of 0.20 miles was conservatively assumed to be traveled for each one of the Project’s truck trips identified in the *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003*. The output is attached to this memo and summarized below. Idling emissions from trucks at loading docks is not available in CalEEMod; therefore, PM-10 and PM-2.5 idling emissions were calculated separately to account for 15-minutes of on-site idling per truck per day.⁹ The analysis assumed an unmitigated scenario where each truck trip idles for 15-minutes per day, which conservatively overestimates idling emissions. The results were added to the total PM-10

⁸ <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2>

⁹ Idling emission factors obtained from EMFAC2017; idling calculations attached herewith

and PM-2.5 emissions from CalEEMod and presented in the table below. The closest sensitive receptors to the Project operations will be the existing residential property fronting Rider Street, north of the Project site. Therefore, a receptor distance of 25 meters (85 feet) was used to ensure a conservative analysis. The results are summarized below.

Table 6 – Unmitigated LST Results for Daily Operational Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO _x	CO	PM-10 ¹	PM-2.5 ¹
5-Acre LST at 25 meters	270	1,577	4	2
On-Site Emissions	1.28	1.09	0.02	0.01
Exceeds Threshold?	No	No	No	No

Note: The greater of summer or winter emissions from CalEEMod is shown. Output attached herewith.

¹ Idling emissions added to CalEEMod output emissions

Therefore, as indicated in the table above, Project-related long-term operational emissions will not exceed any SCAQMD operational LST.

CO Hot Spots Analysis

A carbon monoxide (CO) “hot spot” is a localized concentration of CO that is above the state or federal 1-hour or 8-hour ambient air quality standards (AAQS). Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles.

Based on the information presented below, a CO “hot spot” analysis is not needed to determine whether the addition of Project related traffic will contribute to an exceedance of either the state or federal AAQS for CO emissions in the Project area.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD’s 2003 Air Quality Management Plan (2003 AQMP)¹⁰ and the Revised 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan).¹¹ As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections (2003 AQMP Appendix V, p. V-4-32). Considering the region’s unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of the 1992 CO Plan and subsequent plan updates and air quality management plans.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Blvd. and Imperial Highway (Lynwood); Wilshire Blvd. and Veteran Ave. (Westwood); Sunset Blvd. and Highland Ave. (Hollywood); and La Cienega Blvd. and Century Blvd. (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated in the 1992 CO Plan and subsequent 2003 AQMP was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day (2003 AQMP Appendix V, Table 4-7). The Los Angeles County Metropolitan Transportation Authority (MTA)¹² evaluated the LOS in the vicinity of the Wilshire Blvd./Veteran Ave. intersection and found it to be level E at peak morning traffic and Level F at peak afternoon traffic (MTA, Exhibit 2-5 and 2-6). This hot spot analysis was conducted at intersections

¹⁰ SCAQMD, *2003 Air Quality Management Plan, August 1, 2003*. (Available at <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2003-aqmp>, accessed January 26, 2022.)

¹¹ SCAQMD, *Revision to the 1992 Carbon Monoxide Attainment Plan*, September 1994. (Available at SCAQMD.)

¹² Metropolitan Transportation Authority, *2004 Congestion Management Plan for Los Angeles County*, Adopted July 22, 2004. (Available at <https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/B12.pdf>, accessed January 26, 2022.)

subject to extremes in vehicle volumes and vehicle congestion, and did not predict any violation of CO standards. Considering that Project-related traffic would result in an increase of 227 daily trips on local roadways,¹³ it can reasonably be concluded that Project-related traffic would not have daily traffic volumes exceeding those at the intersections modeled in the 2003 AQMP, nor would there be any reason unique to the meteorology to conclude that intersections affected by the Project would yield higher CO concentrations if modeled in detail. Thus, the Project would not result in CO hot spots.

▪ Greenhouse Gas Analysis

Greenhouse gases (GHG) are not presented in lbs/day like criteria pollutants; they are typically evaluated on an annual basis using the metric system. Additionally, unlike the criteria pollutants, GHG do not have adopted significance thresholds associated with them at this time. Several agencies, at various levels, have proposed draft GHG significance thresholds for use in CEQA documents. SCAQMD has been working on GHG thresholds for development projects. The most recent draft proposal was in September 2010¹⁴ and included significance thresholds for residential, commercial, and mixed-use projects at 3,500, 1,400, and 3,000 metric tonnes per year of carbon dioxide equivalents (MTCO₂E/yr), respectively. Alternatively, a lead agency has the option to use 3,000 MTCO₂E/yr as a threshold for all non-industrial projects. Although both options are recommended by SCAQMD, a lead agency is advised to use only one option and to use it consistently. In December 2008, the SCAQMD adopted a threshold of 10,000 MTCO₂E/yr for stationary source projects where SCAQMD is the lead agency. This approach is also widely used by the City of Perris and various other cities in the South Coast Air Basin. Further, this threshold has been applied by the City of Perris for other industrial developments subject to CEQA (First Industrial Warehouse at Harley Knox Boulevard and Redlands Avenue, IDI Rider 2 & 4 Warehouses, and Duke Warehouse at Perry Street and Barrett Avenue). As such, this threshold is utilized herein to determine if emissions of GHG from this Project will be significant. The SCAQMD significance thresholds also evaluate construction emissions by amortizing them over an expected project life of 30 years.

Short-Term Analysis

Construction-Related Emissions

The CalEEMod model calculates GHG emissions from fuel usage by construction equipment and construction-related activities, like construction worker trips, for the Project. The CalEEMod estimate does not analyze emissions from construction-related electricity or natural gas. Construction-related electricity and natural gas emissions vary based on the amount of electric power used during construction and other unknown factors which make them too speculative to quantify. The CalEEMod output results for construction-related GHG emissions present the GHG emissions estimates for the Project for CO₂, methane (CH₄), nitrous oxide (N₂O), and CO₂E.¹⁵

Table 7 – Project Construction Equipment GHG Emissions

Year	Metric Tons per year (MT/yr)			
	Total CO ₂	Total CH ₄	Total N ₂ O	Total CO ₂ E
2023	356.26	0.06	0.01	361.76
2024	102.81	0.02	0.00	104.11
Total	459.07	0.08	0.01	465.87
			Amortized	15.53

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

¹³ Albert A. Webb Associates, *City of Perris Scoping Form for Land Use Projects, SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003*, December 2021

¹⁴ [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2)

¹⁵ CO₂E is the sum of CO₂ emissions estimated plus the sum of CH₄ and N₂O emissions estimated multiplied by their respective global warming potential (GWP).

Evaluation of the table above indicates that an estimated 465.87 MTCO₂E will occur from Project construction equipment over the course of the estimated construction period. The draft SCAQMD GHG threshold Guidance document released in October 2008¹⁶ recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies. Therefore, the total GHG emissions from Project construction were amortized and are included in **Table 9**, below.

Long-Term Analysis

Area Source Emissions

CalEEMod estimates the GHG emissions associated with area sources which include landscape equipment emissions, architectural coating, consumer products, and hearths. Landscape equipment servicing the Project site create CO₂ resulting from fuel combustion based on the Project’s land uses. Consumer products consist of consumer use of solvents and personal care products and architectural coatings consist of an average building square footage to be repainted each year. **Table 9** summarizes the Project’s area source emissions, which were reported as zero.

Energy-Related Emissions

CalEEMod estimates the GHG emissions associated with building electricity and natural gas usage (non-hearth) for each land use type. Electricity and natural gas used in buildings is typically generated at an off-site power plant which indirectly generates GHG emissions. The default energy usage values used in CalEEMod are based on the CEC sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies and reflect 2019 Title 24 improvements (CalEEMod User’s Guide, Appendix A). The energy used for parking lot lighting, the parking lot lighting energy intensity rate was conservatively applied to the approximate 6.31 acres that comprise the Project site’s concrete parking lot and landscaped areas and 0.23 acres of asphalt and non-asphalt offsite improvements.

The GHG emissions from electricity usage from the future electric vehicle (EV) charging stations serving the Project site’s designated five EV charging spaces were estimated outside CalEEMod. Emissions were estimated using data from SCAQMD for EV charging station usage and the CalEEMod default Southern California Edison (SCE) carbon intensity data. It was assumed that each designated EV charging space would contain one charger and, based on SCAQMD¹⁷ data, that each charger would be a 50-kilowatt (kW) charger used approximately 10 hours per day or five separate two-hour charging events. Based on these assumptions, each EV charger would use approximately 450 kilowatt-hours (kWh) of electricity per day. The following table summarizes the GHG emissions estimates reported by CalEEMod for the Project based on the assumptions described above.

Table 8 – Energy-Related GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Electricity ¹	65.89	0.01	0.00	212.63
Natural Gas	14.25	0.00	0.00	14.33
Total	80.14	0.01	0.00	226.96

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

¹ Total MTCO₂E emission include building energy usage estimated in CalEEMod and the estimated EV charging station electricity usage calculated outside of CalEEMod and are attached herewith.

¹⁶ [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2)

¹⁷ SCAQMD, *Board Meeting Agenda No. 27, May 7, 2021, Attachment I, Final Staff Report, Proposed Rule 2305 – Warehouse Indirect Source Rule - Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305*. (Available at <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10>, accessed April 2022.

Mobile Source Emissions

CalEEMod estimates the annual GHG emissions from Project-related vehicle usage based on trip generation data contained in defaults or in a project-specific traffic analyses. As stated above, the trip generation rate and fleet mix were adjusted based on the rates and ratios found in the *City of Perris Scoping Form for Land Use Projects; SWC Rider-Redlands Warehouse (Chartwell) DPR 21-00003*. Trip length data was based on CalEEMod defaults for passenger cars. The trip length of 40 miles for Project trucks is recommended by the City and based on SCAQMD's *Final Staff Report for proposed Rule 2305 and Rule 316*. **Table 9** shows the mobile source emissions from the Project.

Solid Waste Emissions

CalEEMod also calculates the GHG emissions associated with the disposal of solid waste into landfills based on default data contained within the model for waste disposal rates, composition, and the characteristics of landfills throughout the state. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. This analysis assumes a solid waste diversion from the landfills consistent with the most recent data provided by the state, 37 percent.¹⁸ The waste diversion rate was evaluated in the model by selecting the mitigation option for solid waste and **Table 9** shows the solid waste emissions from the Project utilizing this waste reduction rate.

Water-Related Energy Usage

Electricity is also indirectly used in water supply, treatment, and distribution, as well as wastewater treatment in Southern California and plays a large role in GHG production.

There are three processes necessary to supply potable water to urban users (i.e., residential, commercial, and industrial): (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. After use, the wastewater is treated and either reused as reclaimed/recycled water or returned to the environment. CalEEMod calculates the GHG emissions from these processes based on default emissions factors and water/wastewater generation rates for a project's location. Default values were used for electricity intensity factor associated with the supply and conveyance of water from its source which assumes that the water is being imported from Northern California. Total water demand was estimated using rates obtained from the *2015 Water Facilities Master Plan Update* from Eastern Municipal Water District.¹⁹ The percentage of indoor versus outdoor water demand was estimated using the CalEEMod defaults for Office Park, a proxy for warehouse uses. **Table 9** shows the GHG emissions from water-related energy usage for the Project.

Total Project GHG Emissions

As shown on **Table 9 – Total Project-Related GHG Emissions**, using all the emissions quantified above, the total GHG emissions generated from the Project is approximately 1,423.38 MTCO₂E/yr which includes construction-related emissions amortized over a typical project life of 30 years.

¹⁸ CalRecycle, *California's 2019 Per Capita Disposal Rate Estimate*, webpage. Available at: <https://www.calrecycle.ca.gov/Igcentral/goalmeasure/disposalrate/mostrecent> Error! Hyperlink reference not valid., accessed January 31, 2022.

¹⁹ Eastern Municipal Water District, *2015 Water Facilities Master Plan Update*. Available at https://www.emwd.org/sites/main/files/file-attachments/water_master_plan_supplement_2015_wfmp_planning_and_sizing_criteria_chapter_5.pdf?1556037909, accessed on February 15, 2022.

Table 9 – Total Project-Related GHG Emissions

Source	Metric Tons per year (MT/yr)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Amortized Construction	--	--	--	15.53
Area	0.00	0.00	0.00	0.00
Energy	80.14	0.01	0.00	226.96
Mobile	1,157.02	0.03	0.13	1,196.08
Solid Waste	15.97	0.94	0.00	39.56
Water	2.99	0.03	0.00	3.81
Total	1,256.12	1.01	0.13	1,481.94

Note: Emissions reported as zero are rounded and not necessarily equal to zero.

The total GHG emissions from the Project do not exceed the SCAQMD interim threshold of level of 10,000 MTCO₂E/yr for industrial projects.

▪ **Conclusion**

The conclusion of this analysis indicates that construction or operation of the proposed Project will not exceed criteria pollutant thresholds established by SCAQMD on a regional level. The analysis also concludes that operation of the proposed Project will not exceed criteria pollutant thresholds established by SCAQMD on a regional level. The Project’s construction and operation will not exceed criteria pollutant thresholds established by SCAQMD on a localized level. In addition, the Project will not create a CO hot spot. The Project’s GHG emissions will not exceed the SCAQMD interim threshold of 10,000 MTCO₂E/yr.

Should you have any questions, please contact me at (951) 686-1070.