# 4.12 Climate Change

## 4.12.1 Thresholds of Significance

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts. A Checklist was prepared for the project (Appendix M). As described in Section 3.12.1.4, the purpose of the Checklist is to provide a streamlined review process for proposed new development projects pursuant to CEQA. However, additional analysis is provided in this report to further justify the impacts identified.

According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As the County of San Diego does not currently have any approved quantitative thresholds related to GHG emissions, this analysis relies upon the SCAQMD adopted threshold for heavy industrial projects of 10,000 MT $CO_2e$/year (SCAQMD 2008).

On December 5, 2008 the SCAQMD Governing Board adopted their *Interim CEQA Greenhouse Gas Significance Threshold*. The policy objective of the SCAQMD's recommended threshold is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that SCAQMD staff estimates that these GHG emissions would account for slightly less than one percent of the future 2050 statewide GHG emissions target.

Direct and cumulative impacts would be potentially significant and require further analysis if the Project results in emissions that exceed 10,000 MT $CO_2e$ beyond current baseline emissions.

## 4.12.2 Proposed Project

### 4.12.2.1 *Analysis of Project Effects and Determination as to Significance*

Emission estimates were calculated for the three GHGs of primary concern ($CO_2$, methane [$CH_4$] and nitrous oxide [$N_2O$]) that would be emitted from Project construction and from the Project's sources of operational GHG emissions, including the use of off-road equipment and on-road vehicles at the facility, as well as the GHG emissions from the quarry blasting and drilling operation and HMA aggregate supplies and processing. All other equipment would utilize electricity for mechanical power and water for cement, concrete, and asphalt production, as well as fugitive dust controls.

Estimating Construction Emissions – Phase 1 Site Development

Construction activities emit GHGs primarily through the combustion of fuels (mostly diesel) in the engines of off-road construction equipment and through the combustion of diesel and gasoline in the on-road construction vehicles and in the commuter vehicles of the construction workers. Smaller amounts of GHGs are also emitted through the energy use embodied in any water use (for fugitive dust control) and lighting for construction activity. Every phase of the construction process, including grading, building, and paving, emits GHG emissions in volumes proportional to the quantity and type of construction equipment used. The heavier equipment typically emits more GHGs per hour of use than the lighter equipment because of their greater fuel consumption and engine design.

Emissions associated with the construction of the Proposed Project were calculated using the CARB's OFFROAD Model, assuming that construction duration period would begin in 2019 and last approximately one year.

Phase 1 Site Development activities are assumed to occur in two separate stages: (a) site grading and utility lines installations, and (b) vertical building construction activities. The specific tasks to be completed daily during each stage will not be exactly comparable. The worst-case construction day for each stage has been chosen for the purpose of this analysis.

Phase 1a would involve the mass grading and utility installation at the aggregate processing area of the Project site. Once the mass grading and utility backbone infrastructure construction efforts are completed, the installations of the Aggregate Processing Equipment, including the CTB Plant, HMA Plant, Concrete Batch Plant, and Fuel Tank; and other vertical construction activities, such as the office buildings, shops, pond, water tank, etc. could begin during Phase 1b. Phase 1 is anticipated to take one year to complete.

Tables 4.12-1, *Phase 1 – Construction Equipment Requirements (Backbone Infrastructure and Grading)*, and 4.12-2, *Phase 1 – Construction Equipment Requirements (Backbone Infrastructure and Grading)*, present a summary of the assumed equipment that would be involved in construction.

Table 4.12-3, *Estimated Annual Construction GHG Emissions – Phase 1 (2020)*, presents a summary of the GHG emissions resulting from construction activities. Mass grading and the installation of backbone infrastructure would occur before, and would not overlap with, building

construction and paving. As these activities would never occur on the same day during Phase 1 (construction), emissions related to these separate stages of construction are subtotaled in the calculations.

It is mandatory for all construction equipment to comply with CARB emission standards for implementing BMPs to minimize impacts:

> Control Measure 1 – All construction equipment operating on the Project site should meet USEPA-certified Tier 4 emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by the CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 diesel emissions control strategy for a similarly sized engine as defined by the CARB regulations.

The Project-related construction activities are estimated to generate a total of approximately 1,878 MT $CO_2e$ emissions over the duration of construction activity. For construction emissions, the County recommends that the emissions be amortized over the life of the Project and added to operational emissions, as appropriate. Amortized over 120 years, construction equipment would contribute 16 MT per year of $CO_2e$ emissions to the Project's total. These emissions are added to the expected annual operational GHG emissions below.

Operational Emissions – Phases 2, 3 and 4

Operational emissions were calculated for the primary GHGs. Emissions are not constant for the life of the quarry because production rates and emission factors change over time. Production rates start small and ramp up over time to maximum production. Emission factors (emissions per mile traveled, gallons of fuel burned or tons produced) typically become smaller with time as the result of required enhanced emission controls and regulatory programs.

Stationary permitted industrial sources include the quarry activities, which includes the excavation, blasting and drilling activities, and aggregate processing facility process which includes the rock crushers, screens, conveyor belts, hoppers, hot mix asphalt plant, cement treated base plant, concrete batch plant, and the recycle plant. Area and mobile sources include utility usage from the office building and mobile trips from off-site delivery trucks, employee trips, and on-site heavy-duty equipment activities.

Quarry and Aggregate Processing Facility Process

The quantity of emissions generated would depend on how much aggregate would be mined, equipment used, mine layout and how far vehicles would travel to transport aggregate. This analysis assumes maximum allowable quantities would be removed and is based on the Project Applicant's estimated emissions for the equipment to be used.

To determine the worst-case emissions, 2021 GHG emission factors were estimated to assume worst-case annual emissions for each year between 2021 and 2042 for Phase 2, and 2043 emission factors were estimated to assume worst-case annual emissions for each year between 2043 and 2110 for Phase 3. The annual emission calculations are based on the maximum annual production rate, GHG emission factors for on-site equipment and off-road engines (which applies to the

off-road equipment on site such as dozers and loaders), and EMFAC2017 for on-road vehicle engines. The GHG emissions estimates include emissions from on-road vehicles while on site (i.e., delivery trucks that bring materials to the Project site and delivery trucks that take aggregate and other materials away from the Project site). The analysis was done for $CO_2$, $CH_4$ and $N_2O$ emissions.

USEPA AP-42 emission factors for on-site stationary hot mix asphalt plant, which utilize natural gas and heated oil, were assumed constant over time. All other stationary equipment utilizes electricity for mechanical power. A diesel portable generator set would be used for the screening and conveyor equipment at the recycled material plant and/or quarry pit. EMFAC2017 emission factors for 2021 and 2043 calendar year were assumed to be the worst-case emission rates for on-road vehicle emissions for Phase 2 and Phase 3, respectively. EMFAC2017 accounts for more stringent emission limits required by the CARB over time, newer vehicle engines, and USEPA regulations requiring diesel fuel to have no more than 15 ppm sulfur content (termed ultra-low sulfur diesel) beginning in 2007.

For off-road equipment engines, the CARB in-use off-road emission inventory model was used. For purposes of the emissions analysis, the year 2021 Tier 2 emission factors were estimated to assume worst-case emissions for each year for Phase 2 through 4.

Delivery Trucks and Employee Vehicle Trips

Vehicle emissions during Proposed Project operation would be the result of vehicle emissions from aggregate product delivery, asphalt oil delivery, concrete delivery, fuel delivery, other heavy-duty trucks, and employee vehicle trips. Based on the maximum production scenario, Phase 1 of the Proposed Project is estimated to generate 30 average daily employee trips and 20 daily truck trips, Phases 2 and 3 (independently) are estimated to generate 35 employee vehicle trips and 519 daily truck trips, and Phase 4 is estimated to generate 130 average daily truck trips. Vehicle emissions were calculated using the idling, driving, brake wear and tire wear emission factors from EMFAC2017. For purposes of this analysis the two relevant vehicle classes are: light duty truck (gasoline), and T7 single construction heavy (diesel). For Sand Import, Ready-Mix, and Aggregate related activities, all trucks are assumed to be T7 single construction heavy (diesel). Employee trips are assumed to be light duty truck.

Blasting

The Proposed Project is capable of performing 50 blasts per year (i.e., approximately one blast per week). However, the actual annual process rates for blasting would vary from year to year depending on mining needs. The annual quantity of blasts per year anticipated at the Proposed Project is determined by the mine plan of operations. The maximum daily process rate for blasting during any year in the life of the mine is assumed to be one blast per day, the maximum amount of blasts that are possible in one day at the site. The hourly process rate is equal to one blast per hour, the maximum blasts possible in one hour. The annual process rate for the amount of ANFO used for blasting is calculated by employing the ANFO usage rate, 0.3125 ton of ANFO per drill hole, and multiplying it by the amount of holes drilled/blast. The maximum daily and hourly process rates are calculated similarly based on the maximum daily and hourly drilling rates.

Uncontrolled $CO_2$, $CH_4$ and $N_2O$ emissions are calculated using the emission factors from AP-42, Table 13.3-1 (02/80) for the detonation of ANFO, that is, 73.96 kilograms (kg) per million metric British thermal unit (MMBtu), $3x10^{-3}$ kg/MMBtu and $6x10^{-4}$ kg/MMBtu, respectively, from 40 CFR 98, Tables C-1 and C-2 for distillate fuel oil no. 2. A diesel fuel oil to ammonium nitrate ratio of 9 percent and a diesel heating value of 19,300 British thermal unit (Btu) per pound of diesel fuel were used to express the $CO_2$, $CH_4$ and $N_2O$ emission factors in terms of pounds per ton of ANFO. The GHG emission factors for blasting are presented in Table 4.12-4, *GHG Emission Factors for Blasting*.

Hot Mix Asphalt Plant

The HMA plant is composed of the following pollution sources: the dryer, burner-blower, exhaust fan, dust collection system, asphalt cement heating and storage, mined aggregate materials and reclaimed asphalt paving materials. Asphalt is manufactured by mixing asphalt oil with well dried, heated rock.

The proposed HMA plant would utilize new technology equipment. The plant would be a 500-ton per hour counter flow drum mix equipment.

GHGs are emitted from combustion activities related to the HMA Plant and include emissions associated with natural gas-fired dryer burner and hot oil heater operations. Emission factors for combustion-related GHG emissions ($CO_2$, $N_2O$ and $CH_4$) are provided by the USEPA *AP-42 Compilation of Air Pollutant Emission Factors*. Section 1.4, Table 1.4-2, and Section 11.1, Tables 11.1-5 and 11.1-6, of AP-42 were utilized to calculate GHG emissions associated with natural gas-fired dryer burner and hot oil heater combustion activity.

The process of loading and drying rock prior to mixing with the oil creates GHG emissions. To heat the rock and oil, natural gas is burned. Upon mixing asphaltic oil with the dry, hot rock, some of the oil vaporizes producing "blue smoke." The combustion of the gaseous fuels generates $CO_2$, $CH_4$ and $N_2O$ emissions. Emissions from the asphalt plant were calculated using USEPA AP-42 emission factors (Tables 11.1-5 and 11.1-6 from Section 11.1 – Hot Mix Asphalt). The annual process rates for the HMA plant are based on the asphalt batch plant processing rates of 600,000 tons per year.

Embodied Energy Consumption

GHG emissions related to embodied energy due to consumptions of electricity, natural gas (for office space heating and asphalt plant) and water supply are discussed below.

Electrical Consumption

Electric power generation accounted for the second largest sector contributing to both inventoried and projected statewide GHG emissions, comprising 24 percent of the projected total 2020 statewide emissions. The Proposed Project would use electricity to power the machines, lighting and limited office space heating and cooling. Electricity generation entails the combustion of fossil fuels, including natural gas and coal, which are then stored and transported to end users. Therefore, the facility's electricity use would be associated with the off-site or indirect emission of GHGs at the source of electricity generation (power plant). Due to the nature of the electrical grid, it is not

possible to say with certainty where energy consumed would be generated. Therefore, GHG emissions resulting from electricity generation were estimated using the SDG&E energy intensity emission factors developed by the Climate Registry. Therefore, GHG emissions resulting from electricity generation associated with the electricity supply to the Proposed Project were estimated using the average annual electricity consumption rates from another Superior Ready Mix facility (Mission Gorge, which is a similar size facility and aggregate material processed to the Proposed Project), and GHG emission factors from EPIC's *Estimating Annual Average Greenhouse Gas Emission Factors for the Electric Sector* (EPIC 2016).

Annual electricity use for the Proposed Project was based upon estimated generation rates for land uses in the SDG&E service area. The Proposed Project would consume approximately 3,996,092 kilowatt-hours per year. The generation of electricity through combustion of fossil fuels typically results in emissions of $CO_2$ and to a smaller extent $CH_4$ and $N_2O$. Annual electricity emissions were estimated using the reported $CO_2$ emissions per kilowatt-hour for SDG&E, which would provide electricity for the Project. This would result in 1,131 MT $CO_2e$ per year.

Natural Gas Consumption

GHG emissions resulting from natural gas combustion were estimated using the annual average natural gas consumption rates from another Superior Ready Mix facility, and emission factors from the Local Government Operations Protocol. The Protocol assumes that natural gas combustion would have emissions of 53.05 kilograms (kg)/MMBtu of $CO_2$, 0.0059 kg/MMBtu of $CH_4$ and 0.0001 kg/MMBtu of $N_2O$. The Proposed Project would consume 14,076 cubic feet per year. This would result in 0.76 MT $CO_2e$ per year.

Water Supply

Water supplied to the Proposed Project requires the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through the use of electricity. Estimated amount of water usage were obtained from the Superior Ready Mix for the Proposed Project. The estimated electrical usage associated with supply, conveyance, treatment, and distribution of water was obtained from a California Energy Commission (CEC) report on electricity associated with water supply in California (CEC 2006).

Water use and energy are often closely linked. The provision of potable water to industrial land uses consumes large amounts of energy associated with five stages: source and conveyance, treatment, distribution, end use and wastewater treatment. Based on the water usage rates from Superior Ready Mix, the potable water demand for the Proposed Project would be approximately 25 million gallons per year (or 76.7 acre-feet[1] per year).

Wash water containing suspended fines from the aggregate plant would be piped to a series of settling ponds or water clarifier system adjacent to the plant. After aggregate washing of aggregate, the water would discharge into a sediment pond. This pond would be designed to allow sediment to fall to the bottom and clean water to overflow and be recycled back through the dewatering

[1] One acre-foot of water is 325,851 gallons (enough water to cover a one-acre area one foot deep in water).

process. Periodically, fines would be dredged from the bottom of the pond and utilized as a binder in base rock production or blended with topsoil and/or overburden material.

If a water clarifier system is used, water would be separated from the aggregate fines in a settling tank and belt press system. The fines would be deposited in the overburden fill area or sold as product. The clean water from the clarifier system would be continuously recycled through the wash plant and back to the clarifier. Using either method, it is estimated that 70 to 75 percent of wash water would be recycled.

The CEC (2006) estimates that in southern California, water usage would have an embodied energy use of 12,700 kWh per million gallons. $CO_2$ emissions were calculated on the maximum basis of an additional 25 million gallons annually times 12,700 kWh per million gallons. Thus, the Proposed Project would indirectly produce a net increase of approximately 318 megawatt-hours (MWh) per year of electricity requirements for water supply and distribution. Emissions of greenhouse gases were calculated based on EPIC's *Estimating Annual Average Greenhouse Gas Emission Factors for the Electric Sector*, which assumes that energy use (electricity) would have emissions of 624 lbs per MWh of $CO_2e$. The resultant GHG emissions would be approximately 90 MT $CO_2e$ emissions per year from water-energy usage associated with the Proposed Project.

Solid Waste

The Proposed Project would generate minimal decomposable solid waste associated with office and maintenance activities and, therefore, would result in negligible $CO_2$ emission associated with landfill off-gassing.

Conclusion

The methodology used to calculate vehicle, electricity, and natural gas GHG emissions are shown below. Tables 4.12-5, *Estimated Annual Operational Emissions – Phase 2 (2021 – 2042),* and 4.12-6, *Estimated Annual Operational Emission – Phase 3 (2043 – 2046),* present the summary of operational GHG emissions for Phases 2 (2021-2042) and 3 (2043-2046) of the Project, respectively. The GHG emissions for both of these phases would involve the same types and amount of activities, so the emissions would be comparable. Including amortized construction emissions, the analysis estimated that the Project would result in 9,354 MT $CO_2e$ per year during Phase 2.

For Phase 3, the analysis estimated that the Project would result in 8,211 MT $CO_2e$ per year.

Phases 3 and 4 would overlap from years 2046 to 2110. It was assumed the off-road equipment utilized during Phase 3 mining activities would also be used to place fill imported under Phase 4, therefore, only on-road emissions would increase during the overlap of Phases 3 and 4. As shown in Table 4.12-7, *Estimated Annual Operational Emissions – Phase 3 and 4 overlap (2046-2110),* Phase 3 and Phase 4 overlap yields a combined 9,837 MT $CO_2e$ annually, which is less than the 10,000 MT $CO_2e$ threshold.

Phase 4 of the Proposed Project, which involves backfilling the pit (created via below ground surface mining) with inert fill material (fill dirt), would include different activities, and subsequently involve different emissions sources than the previous phases. Table 4.12-8,

*Estimated Annual Operational Emissions – Phase 4 (Post 2110),* presents the summary of GHG emissions for Phase 4 (following 2110). For Phase 4, the analysis estimated that the Project would generate approximately 2,337 MT $CO_2e$ per year.

The Proposed Project would generate less than 10,000 MT $CO_2e$ per year for all Phases. As such, GHG impacts associated with the Proposed Project would be less than significant.

Project Consistency with Adopted Plans, Policies, and Regulations

Local Plans

The Project would achieve some GHG reductions through implementation of BACT in the Hot Mix Asphalt Plant and Concrete Batch Plant, use of clean burning off-road equipment, and green building design that includes improved energy efficiency.

As a condition of building permit approval, however, the Proposed Project is required to comply with 2016 Title 24 standards (which surpass the 2013 Title 24 Energy Efficiency Standards by 28 percent). Verification of increased energy efficiencies will be demonstrated based on a performance approach, using a CEC-approved water and energy compliance software program, in the Title 24 Compliance Reports provided by the Project applicant to the County prior to issuance of the building permit.

The Project would generate no more than 9,837 MT $CO_2e$ per year, which is less than the threshold being applied to this analysis and would therefore be consistent with statewide GHG reduction targets established by AB 32 and EO S-3-05. The Project's consistency with specific General Plan policies is analyzed in Table 4.12-9, *County General Plan Policies*.

*Climate Action Plan Consistency*

The Proposed Project was analyzed for consistency with the CAP Consistency Review Checklist (see Appendix M for the Checklist). Information needed to respond to the questions was provided by the Project applicant.

The Checklist contains two steps to determine consistency with the CAP: (1) Land Use Consistency; and (2) CAP Measures Consistency. If the Project is consistent with the land use and zoning designation, and incorporates applicable CAP measures in the Project design, then the Project would be deemed consistent with the General Plan and CAP.

*Step 1: Land Use Consistency*

1. The first step of the Checklist in determining consistency is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the County to determine a project's consistency with the land use assumptions used in the CAP.

The Checklist considers the following question to determine if a project is consistent with the growth projections and land use assumptions used in development of the CAP:

> *Is the proposed project consistent with the existing General Plan regional category, land use designations, and zoning designations?*

**Consistent.** The Project impact footprint is currently zoned (under the East Otay Mesa Specific Plan [EOMSP]) as S88, Specific Plan Use Regulations (maximum residential density of 0.05 du per acre and lot size of 30,000 sf for Mixed Industrial). The S88 zoning designation allows extractive uses with approval of a major use permit (MUP) according to Subchapter 3.2 of the EOMSP. Because the Project is consistent with the General Plan, it is assumed to be consistent with the CAP and to have been included in the underlying growth projections and land use assumptions upon which the CAP projections are based.

*Step 2: CAP Measures Consistency*

After determining consistency with the General Plan and zoning in Step 1 of the Checklist, Step 2 requires the project to demonstrate consistency with applicable CAP Measures.

2. The second step of the Checklist is to review and evaluate a project's consistency with the applicable measures of the CAP. Each Checklist item is associated with a specific GHG reduction measure(s) in the County CAP.

The Proposed Project's conformance with each CAP measure is described in Table 4.12-10, *CAP Measure Consistency*.

*Summary*

Per Step 1 of the CAP consistency analysis, the Proposed Project would be consistent with the General Plan land use and zoning designation and would thus be consistent with the growth projection and land use assumptions used in the CAP. Regarding Step 2 consistency, the Project would comply with applicable CAP Measure 2 by implementing applicable available parking strategies and encouraging the use of alternate modes of transportation to reduce emissions from commute VMT and CAP Measure 6 by demonstrating a 40 percent reduction in current MAWA for outdoor water use; all other measures are not applicable based on the Project's proposed land use or number of tenant-occupants. Therefore, the Project is consistent with Step 2. By demonstrating consistency with the CAP Checklist, the Proposed Project would be consistent and not conflict with the goals of the County's CAP. As such, impacts would be less than significant.

State Plans

EO S-3-05 and EO B-30-15, codified by SB 32, established GHG emission reduction targets for the state, and AB 32 launched the Climate Change Scoping Plan that outlined the reduction measures needed to reach these targets. The Project GHG emissions does not exceed the threshold being applied to this analysis, and thus the Proposed Project would not impede the AB 32 or SB 32 goals of reducing statewide GHG emissions.

#### 4.12.2.2 *Significance of Impacts Prior to Mitigation*

All impacts associated with climate change would be less than significant.

#### 4.12.2.3 *Mitigation Measures*

Because no significant impact would occur, no mitigation measures would be required.

#### 4.12.2.4 *Conclusion*

The Proposed Project would be compliant with federal, state, and local orders, ordinances, and regulations related to reductions in GHG and minimization of contribution to climate change. The Project would comply with any state-mandated requirements resulting from AB 32 and the statewide emissions inventory, as well as County requirements resulting from the General Plan update process. Project-specific reductions beyond the AB 32 guidelines and compliance with future statewide and County programs would avoid both Project-direct and cumulatively considerable impacts.

### 4.12.3 Extraction to Natural Grade Alternative

#### 4.12.3.1 *Analysis of Project Effects and Determination as to Significance*

The Extraction to Natural Grade Alternative would involve the same operations and the same footprint as the Proposed Project but would only be extracted to natural grade elevation and the timeframe of operation would be shorter (20 years versus 120 years for the Proposed Project). Due to the shorter timeframe of operation, impacts related to GHG emissions would be less than the Proposed Project. Because the Proposed Project would result in less than significant impacts, impacts associated with climate change would be reduced but similarly less than significant for the Extraction to Natural Grade Alternative.

#### 4.12.3.2 *Significance of Impacts Prior to Mitigation*

All impacts associated with climate change would be less than significant.

#### 4.12.3.3 *Mitigation Measures*

Because no significant impact would occur, no mitigation measures would be required.

#### 4.12.3.4 *Conclusion*

No significant impacts relating to climate change would occur as a result of implementation of the Extraction to Natural Grade Alternative and, therefore, no mitigation would be required for this alternative.

## 4.12.4 Extraction to Varying Depth Alternative

### 4.12.4.1 *Analysis of Project Effects and Determination as to Significance*

The Extraction to Varying Depth Alternative would involve the same operations and the same footprint as the Proposed Project and would consist of four phases which would be consistent with the four phases of the Proposed Project. Because the Proposed Project would result in less than significant impacts, it can be assumed that similar less than significant impacts associated with climate change would occur for the Extraction to Varying Depth Alternative.

### 4.12.4.2 *Significance of Impacts Prior to Mitigation*

All impacts associated with climate change would be less than significant.

### 4.12.4.3 *Mitigation Measures*

Because no significant impact would occur, no mitigation measures would be required.

### 4.12.4.4 *Conclusion*

No significant impacts relating to climate change would occur as a result of implementation of the Extraction to Varying Depth Alternative and, therefore, no mitigation would be required for this alternative.

## 4.12.5 No Project/Existing Plan Alternative

### 4.12.5.1 *Analysis of Project Effects and Determination as to Significance*

In accordance with the EOMSP, the No Project/Existing Plan Alternative would include the development of industrial uses on approximately 62 acres and the development of 12 dwelling units on 254 acres, which equates to an approximate density of one unit per 20 acres.

It is assumed that the No Project/Existing Plan Alternative would be compliant with federal, state, and local orders, ordinances, and regulations related to reductions in GHG and minimization of contribution to climate change. The No Project/Existing Plan Alternative would comply with any state-mandated requirements resulting from AB 32 and the statewide emissions inventory, as well as County requirements resulting from the General Plan update process. Project-specific reductions beyond the AB 32 guidelines and compliance with future statewide and County programs would avoid both direct and cumulatively considerable impacts.

Therefore, it can be assumed that less than significant impacts associated with climate change are anticipated for the No Project/Existing Plan Alternative.

### 4.12.5.2 *Significance of Impacts Prior to Mitigation*

All impacts associated with climate change would be less than significant.

#### 4.12.5.3 *Mitigation Measures*

Because no significant impact would occur, no mitigation measures would be required.

#### 4.12.5.4 *Conclusion*

No significant impacts relating to climate change would occur as a result of implementation of the No Project/Existing Plan Alternative and, therefore, no mitigation would be required for this alternative.

### 4.12.6 No Project Alternative

#### 4.12.6.1 *Analysis of Project Effects and Determination as to Significance*

Under the No Project Alternative, the project area would remain vacant, and no changes in the existing environment would occur. Therefore, there would be no additional GHG emissions from construction or operations in the project area.

#### 4.12.6.2 *Significance of Impacts Prior to Mitigation*

No climate change impacts would occur.

#### 4.12.6.3 *Mitigation Measures*

Because no significant impact would occur, no mitigation measures would be required.

#### 4.12.6.4 *Conclusion*

The No Project Alternative would not generate additional GHG emissions, and no mitigation measures would be necessary.

**Table 4.12-1**
**PHASE 1 – CONSTRUCTION EQUIPMENT REQUIREMENTS**
**(BACKBONE INFRASTRUCTURE AND GRADING)**

| Off-road Equipment Type | Horse-power (hp) | Load Factors | Output (hp) | Grading | | | Backbone Infrastructure | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | No. of Pieces | Hours per Day | Hours per Year | No. of Pieces | Hours per Day | Hours per Year |
| Bore/drill rigs | 221 | 0.50 | 110.50 | - | - | - | 1 | 8 | 120 |
| Crawler tractors | 212 | 0.43 | 91.16 | 2 | 8 | 160 | - | - | - |
| Dumpers/tenders | 16 | 0.38 | 6.08 | 4 | 4 | 80 | - | - | - |
| Excavators | 158 | 0.38 | 60.04 | - | - | - | 1 | 8 | 120 |
| Forklifts | 89 | 0.20 | 17.80 | - | - | - | 1 | 8 | 120 |
| Graders | 187 | 0.41 | 76.67 | 2 | 8 | 160 | - | - | - |
| Off-highway tractors | 124 | 0.44 | 54.56 | 1 | 8 | 160 | 1 | 8 | 120 |
| Off-highway trucks | 402 | 0.38 | 152.76 | 4 | 8 | 160 | 2 | 8 | 120 |
| Other construction equipment | 172 | 0.42 | 72.24 | 2 | 4 | 80 | 2 | 4 | 60 |
| Other general industrial equipment | 88 | 0.34 | 29.92 | 1 | 4 | 80 | 1 | 4 | 60 |
| Rollers | 80 | 0.38 | 30.40 | 2 | 8 | 160 | - | - | - |
| Rubber tired dozers | 247 | 0.40 | 98.80 | 4 | 4 | 80 | - | - | - |
| Rubber tired loaders | 203 | 0.36 | 73.08 | 2 | 8 | 160 | - | - | - |
| Scrapers | 367 | 0.48 | 176.16 | 4 | 8 | 160 | - | - | - |
| Skid steer loaders | 65 | 0.37 | 24.05 | 2 | 8 | 160 | - | - | - |
| Tractors/loaders/backhoes | 97 | 0.37 | 35.89 | 2 | 8 | 160 | 2 | 8 | 120 |
| Trenchers | 78 | 0.50 | 39.00 | - | - | - | 1 | 8 | 120 |

Source: HELIX 2020a

**Table 4.12-2**
**PHASE 1 – CONSTRUCTION EQUIPMENT REQUIREMENTS**
**(BUILDING CONSTRUCTION AND PAVING)**

| Off-road Equipment Type | Horse-power (hp) | Load Factors | Output (hp) | Building Construction | | | Paving | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | No. of Pieces | Hours per Day | Hours per Year | No. of Pieces | Hours per Day | Hours per Year |
| Aerial lift | 63 | 0.31 | 19.53 | 2 | 8 | 208 | - | - | - |
| Air compressors | 78 | 0.48 | 37.44 | 2 | 8 | 208 | - | - | - |
| Cement and mortar mixers | 9 | 0.56 | 5.04 | 2 | 8 | 208 | 1 | 8 | 80 |
| Cranes | 231 | 0.29 | 66.99 | 2 | 4 | 104 | - | - | - |
| Crawler tractors | 212 | 0.43 | 91.16 | - | - | - | 4 | 8 | 80 |
| Dumpers/tenders | 16 | 0.38 | 6.08 | - | - | - | 2 | 4 | 40 |
| Excavators | 158 | 0.38 | 60.04 | 1 | 4 | 104 | - | - | - |
| Forklifts | 89 | 0.20 | 17.80 | 4 | 8 | 208 | - | - | - |
| Generator sets | 84 | 0.74 | 62.16 | 3 | 8 | 208 | - | - | - |
| Graders | 187 | 0.41 | 76.67 | - | - | - | 1 | 8 | 80 |
| Off-highway tractors | 124 | 0.44 | 54.56 | 1 | 8 | 208 | 1 | 4 | 40 |
| Off-highway trucks | 402 | 0.38 | 152.76 | - | - | - | 1 | 4 | 40 |
| Other construction equipment | 172 | 0.42 | 72.24 | 2 | 4 | 104 | 2 | 4 | 40 |
| Other general industrial equipment | 88 | 0.34 | 29.92 | 4 | 4 | 104 | - | - | - |
| Pavers | 130 | 0.42 | 54.60 | - | - | - | 1 | 8 | 80 |
| Paving equipment | 132 | 0.36 | 47.52 | - | - | - | 2 | 8 | 80 |
| Plate compactors | 8 | 0.43 | 3.44 | 2 | 8 | 208 | 1 | 8 | 80 |
| Pressure washers | 13 | 0.30 | 3.90 | 2 | 8 | 208 | - | - | - |
| Pumps | 84 | 0.74 | 62.16 | 1 | 8 | 208 | - | - | - |
| Rollers | 80 | 0.38 | 30.40 | - | - | - | 1 | 8 | 80 |
| Rough terrain forklifts | 100 | 0.40 | 40.00 | 2 | 8 | 208 | - | - | - |
| Rubber tired dozers | 247 | 0.40 | 98.80 | - | - | - | 1 | 4 | 40 |
| Rubber tired loaders | 203 | 0.36 | 73.08 | - | - | - | 1 | 8 | 80 |
| Skid steer loaders | 65 | 0.37 | 24.05 | 1 | 8 | 208 | - | - | - |
| Sweepers/scrubbers | 64 | 0.46 | 29.44 | 1 | 4 | 104 | - | - | - |
| Tractors/loaders/backhoes | 97 | 0.37 | 35.89 | 2 | 8 | 208 | - | - | - |
| Welders | 46 | 0.45 | 20.7 | 8 | 8 | 208 | - | - | - |

Source: HELIX 2020a

**Table 4.12-3**
**ESTIMATED TOTAL CONSTRUCTION GHG EMISSIONS – PHASE 1 (2020)**

| Source | $CO_2e$ (MT/year) |
|---|---|
| Grading | 178 |
| Backbone Infrastructure | 43 |
| Building Construction | 119 |
| Paving | 36 |
| Employees and Trucks Trips | 1,503 |
| **TOTAL MT $CO_2e$** | **1,878** |
| Amortized Construction | 16 |

Source: HELIX 2020a
$CO_2e$ = carbon dioxide equivalent; MT = metric tons

**Table 4.12-4**
**GHG EMISSION FACTORS FOR BLASTING**

| Regulated Pollutant | Emission Factor (pounds per ton of ANFO) |
|---|---|
| $CO_2$ | 566 |
| $CH_4$ | 0.02 |
| $N_2O$ | 0.005 |

Source: AP-42, Table 13.3-1, USEPA 1980

**Table 4.12-5**
**ESTIMATED ANNUAL OPERATIONAL EMISSIONS – PHASE 2 (2021 - 2042)**

| Source | $CO_2e$ (MT/year) |
|---|---|
| Blasting and Drilling | 64 |
| Hot Mix Asphalt | 2,384 |
| Water Usage | 90 |
| Electricity Usage | 1,131 |
| Natural Gas Usage | 1 |
| Off-Site Trucks and Employee Trips | 4,809 |
| On-Site Trucks and Employee Trips | 164 |
| On-Site Heavy Duty Equipment | 696 |
| Amortized Construction | 16 |
| **TOTAL MT $CO_2e$** | **9,354** |
| SCAQMD Significance Threshold (MT $CO_2e$) | 10,000 |
| Exceedance? | No |

Source: HELIX 2020a
Note: Negative emissions values are the result of reallocated trips from more distant quarries.
$CO_2e$ = carbon dioxide equivalent; MT = metric tons

| **Table 4.12-6**<br>**ESTIMATED ANNUAL OPERATIONAL EMISSIONS –**<br>**PHASE 3 (2043-2046)** | |
|---|---|
| **Source** | **$CO_2e$ (MT/year)** |
| Blasting and Drilling | 64 |
| Hot Mix Asphalt | 2,384 |
| Water Usage | 90 |
| Electricity Usage | 1,131 |
| Natural Gas Usage | 1 |
| Off-Site Trucks and Employee Trips | 3,666 |
| On-Site Trucks and Employee Trips | 164 |
| On-Site Heavy Duty Equipment | 696 |
| Amortized Construction | 16 |
| **TOTAL MT $CO_2e$** | **8,211** |
| SCAQMD Significance Threshold (MT $CO_2e$) | 10,000 |
| Exceedance? | No |

Source: HELIX 2020a
Note: Negative emissions values are the result of reallocated trips from more distant quarries.
$CO_2e$ = carbon dioxide equivalent; MT = metric tons

| **Table 4.12-7**<br>**ESTIMATED ANNUAL OPERATIONAL EMISSIONS –**<br>**PHASES 3 AND 4 OVERLAP (2046-2110)** | |
|---|---|
| **Source** | **$CO_2e$ (MT/year)** |
| Blasting and Drilling | 64 |
| Hot Mix Asphalt | 2,384 |
| Water Usage | 90 |
| Electricity Usage | 1,131 |
| Natural Gas Usage | 1 |
| Off-Site Trucks and Employee Trips | 5,182 |
| On-Site Trucks and Employee Trips | 273 |
| On-Site Heavy Duty Equipment | 696 |
| Amortized Construction | 16 |
| **TOTAL MT $CO_2e$** | **9,837** |
| SCAQMD Significance Threshold (MT $CO_2e$) | 10,000 |
| Exceedance? | No |

Source: HELIX 2020a
Note: Negative emissions values are the result of reallocated trips from more distant quarries.
$CO_2e$ = carbon dioxide equivalent; MT = metric tons

**Table 4.12-8**
**ESTIMATED ANNUAL OPERATIONAL EMISSIONS – PHASE 4 (POST 2110)**

| Reclamation Source | $CO_2e$ (MT/year) |
|---|---|
| On-Site Heavy Duty Equipment | 696 |
| Truck and Employee Trips | 1,626 |
| Amortized Construction | 16 |
| **TOTAL MT $CO_2e$** | **2,337** |
| Significant Threshold (MT $CO_2e$) | 10,000 |
| Exceedance? | No |

Source: HELIX 2020a

**Table 4.12-9**
**COUNTY GENERAL PLAN POLICIES**

| Policy | Project Consistency |
|---|---|
| *LU5.2 Sustainable Planning and Design.* Incorporate into new development sustainable planning and design. | *Consistent.* The Project has been designed to incorporate measures to reduce emissions of local GHG emissions, including water conservation design features to reduce water usage and associated GHG emissions. |
| *COS14.10 Low Emission Construction Vehicles and Equipment.* Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions. | *Consistent*. All Project-related construction equipment would be required to meet USEPA-Certified Tier 2 emissions standards in Phase 2 and Tier 4 emissions standards in Phases 3 and 4. |
| *COS15.1 Design and Construction of New Buildings.* Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants. | *Consistent*. The Project proposes sustainability and efficiency features consistent with the 2016 CALGreen Building Code. |
| *COS15.4 Title 24 Energy Standards.* Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards. | *Consistent*. The Project proposes implementing energy efficiency features that would meet 2016 Title 24 standards, which is 46 percent more efficient than the 2008 Title 24 requirements that were current when the General Plan was adopted. |
| *COS17.2 Construction and Demolition Waste.* Require recycling, reduction and reuse of construction and demolition debris. | *Consistent*. The Project would prepare a Construction Debris Management Plan that complies with Section 68.508-68.518 of the County Municipal Code and would divert at least 90 percent of inerts and 70 percent of construction waste from landfills through reuse and recycling. |

**Table 4.12-10**
**CAP MEASURE CONSISTENCY**

| CAP Measure | Consistency | Project Detail |
|---|---|---|
| **1. REDUCING VEHICLE MILES TRAVELED** | | |
| *For non-residential projects with anticipated tenant-occupants of 25 or more, will the project achieve a 15 percent reduction in emissions from commute vehicle miles traveled (VMT), and commit to monitoring and reporting results to demonstrate on-going compliance? VMT reduction may be achieved through a combination of Transportation Demand Management and parking strategies, as long as the 15 percent reduction can be substantiated.* | **Not Applicable** | As detailed in the TIS prepared for the Project, the processing plant would accommodate 15 employees. Therefore, this measure is not applicable. |
| **2. SHARED & REDUCED PARKING** | | |
| *For non-residential projects with anticipated tenant-occupants of 24 or less, will the project implement shared and reduced parking strategies that achieves a 10 percent reduction in emissions from commute VMT?*<br><br>*Shared and reduced parking strategies may include, but are not limited to:*<br>• *Shared parking facilities*<br>• *Carpool/vanpool-only parking spaces*<br>• *Shuttle facilities*<br>• *Electric Vehicle-only parking spaces* | **Consistent** | These measures are intended to reduce commute VMT and are not aimed at reducing truck travel, which is required for the operation of the Project. The Project would provide carpool- and vanpool-only parking spaces which would encourage commuters to carpool and vanpool to the Project site. Electric vehicle-only parking would be incorporated per CALGreen Standards. Other strategies such as flexible employee schedules or telecommuting would not be applicable to this type of Project, where employees have to be present at the site and during specific periods of time to perform work. Therefore, the design of the Project would implement applicable available parking strategies and encourage the use of alternate modes of transportation which would reduce emissions from commute VMT, to the extent feasible. |
| **3. WATER HEATING SYSTEMS** | | |
| *For projects that include residential construction, will the project, as a condition of approval, install the electric or alternatively-fueled water heating system(s)?* | **Not Applicable** | The Project is a non-residential Project and therefore, CAP Measure 3 is not applicable. |
| **4. WATER-EFFICIENT APPLIANCES & PLUMBING FIXTURES** | | |
| *For new residential projects, will the project comply with water efficiency and conservation Best Management Practices?* | **Not Applicable** | The Project is a non-residential Project and therefore, CAP Measure 4 is not applicable. |
| **5. RAIN BARREL INSTALLATIONS** | | |
| *For new residential projects, will the project make use of incentives to install one rain barrel per every 500 square feet of available roof area?* | **Not Applicable** | The Project is a non-residential Project and therefore, CAP Measure 5 is not applicable. |

**Table 4.12-10 (cont.)**
**CAP MEASURE CONSISTENCY**

| CAP Measure | Consistency | Project Detail |
|---|---|---|
| **6. REDUCE OUTDOOR WATER USE** | | |
| *Non-Residential: Will the project submit a Landscape Document Package that is complaint with the County's Water Conservation in Landscaping Ordinance and demonstrates a 40 percent reduction in current MAWA for outdoor use?* | **Consistent** | The Project would comply with the County's Water Conservation in Landscaping Ordinance requirements and would demonstrate a 40 percent reduction in current MAWA for outdoor water use. In addition, the Project would be designed in accordance with CALGreen and would reduce indoor and outdoor water consumption by at least 20 percent. |
| **7. AGRICULTURAL & FARMING OPERATIONS** | | |
| *Will the project use the San Diego County Air Pollution Control District's (SDAPCD's) farm equipment incentive program to convert gas- and diesel powered farm equipment to electric equipment?* | **Not Applicable** | The Project does not contain any agricultural or farming operations and therefore, CAP Measure 7 is not applicable. |
| **8. ELECTRIC IRRIGATION PUMPS** | | |
| *Will the project use the SDAPCD's farm equipment incentive program to convert gas- and diesel powered irrigation pumps to electric irrigation pumps?* | **Not Applicable** | The Project does not contain any agricultural or farming operations and therefore, CAP Measure 8 is not applicable. |
| **9. TREE PLANTING** | | |
| *For residential projects, will the project plant, at a minimum, two trees per every new residential dwelling unit proposed?* | **Not Applicable** | The Project is a non-residential Project and therefore, CAP Measure 9 is not applicable. |

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