4.6 ENERGY

This section discusses energy use resulting from implementation of the Nakase Nursery/Toll Brothers Project (proposed Project) and evaluates whether the proposed Project would result in the wasteful, inefficient, or unnecessary consumption of energy resources or conflict with any applicable plans for renewable energy and energy efficiency. The energy use analysis in this section is based on information from the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2 modeling result in the *Air Quality Impact Analysis* (Urban Crossroads 2019a) and the *Greenhouse Gas Analysis* (Urban Crossroads 2019b) prepared for the proposed Project, and from the California Air Resources Board (CARB) EMFAC2017 model. The *Air Quality Impact Analysis* and *Greenhouse Gas Analysis* are included in Appendices C and G, respectively, of this Environmental Impact Report (EIR).

4.6.1 Scoping Process

The City of Lake Forest (City) received 28 comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. None of the comment letters included comments related to energy.

4.6.2 Existing Environmental Setting

4.6.2.1 Electricity

Electricity is a man-made resource. The production of electricity requires the consumption or conversion of energy resources (including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources) into energy. Electricity is used for a variety of purposes (e.g., lighting, heating, cooling, and refrigeration, and for operating appliances, computers, electronics, machinery, and public transportation systems) (EIA 2019a).

In 2017, California's electricity was generated primarily by natural gas (33.67 percent), coal (4.13 percent), large hydroelectric (14.72 percent), nuclear (9.08 percent), and renewable sources (29 percent). Total electric generation in California in 2017 was 292,039 gigawatt-hours (GWh), up 0.5 percent from the 2016 total generation of 290,567 GWh. In 2017, California produced approximately 70.7 percent and imported 29.3 percent of the electricity it used (CEC 2019c).

The Project site is within the service territory of Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square-mile (sq mi) area of Central, Coastal, and Southern California (SCE 2019). According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2017 was 84,291.6 GWh (28,975 GWh for the residential sector). Total electricity consumption in Orange County in 2017 was 20,030.5 GWh (6,745 GWh for the residential sector) (CEC 2019a)

Based on the CalEEMod model in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b), the estimated electricity usage for the existing nursery operations on the Project site is 71,825 kilowatt-hours per year (kWh/yr).

4.6.2.2 Natural Gas

Natural gas is a non-renewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over millions of years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses (e.g., heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills) (EIA 2019b).

Natural gas consumed in California is used for electricity generation (45 percent), residential uses (21 percent), industrial uses (25 percent), and commercial uses (9 percent). California continues to depend upon out-of-state imports for nearly 90 percent of its natural gas supply (CEC 2019d).

The Southern California Gas Company (SoCalGas) is the natural gas service provider for the Project site. SoCalGas provides natural gas to approximately 21.8 million people in a 24,000 sq mi service area throughout Central and Southern California, from Visalia to the Mexican border (SoCalGas 2019). According to the CEC, total natural gas consumption in the SoCalGas service area in 2018 was 5,156.1 million therms (2,147.4 million therms for the residential sector). Total natural gas consumption in Orange County in 2018 was 575.1 million therms (339.0 million therms for the residential sector) (CEC 2019a).

According to the CalEEMod model in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b) prepared for the proposed Project, the estimated natural gas use for the existing nursery operations on the Project site is 177,650 thousand British thermal units per year (kBTU/yr) or 1,776.5 therms.

4.6.2.3 Petroleum/Transportation Energy

Petroleum is also a non-renewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil and gasoline.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2017, total gasoline consumption in California was 366,820 thousand barrels (15.4 billion gallons) or 1,853.5 trillion BTU. Of the total gasoline consumption, 350,604 thousand barrels (14.7 billion gallons) or 1,771.6 trillion BTU were consumed for transportation (EIA 2019c). Based on fuel consumption obtained from EMFAC2017, 160.5 million gallons of diesel and 1.3 billion gallons of gasoline were consumed from vehicle trips in Orange County in 2018.

According to the CalEEMod model in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b) prepared for the proposed Project, the vehicles trips to and from the existing nursery result in 1,349,192 vehicle miles traveled (VMT) annually. Fuel use associated with the vehicle trips generated by the existing nursery was calculated for the existing year 2018 based on vehicle fuel consumption for Orange County provided in EMFAC2017. The vehicle fuel consumption calculations

for the existing nursery are shown in Tables 4.6.A and 4.6.B. As shown in these tables, the estimated annual fuel consumption for the nursery was 54,189 gallons of gasoline and 758 gallons of diesel fuel in 2018.

4.6.3 Regulatory Setting

This section will include applicable federal, State, regional, and City regulations.

4.6.3.1 Federal Regulations

Corporate Average Fuel Economy (CAFE). Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light-duty trucks. CAFE standards are federal regulations that are set to reduce energy consumed by on-road motor vehicles. The National Highway Traffic Safety Administration (NHTSA) regulates the standards and the United States Environmental Protection Agency (EPA) measures vehicle fuel efficiency. The standards specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. The law has become more stringent over time. The current standard is 27.5 miles per gallon (mpg) for passenger cars and 20.7 mpg for light-duty trucks.

On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the United States Department of Transportation's (USDOT) NHTSA announced a joint final rule establishing a national program that would reduce greenhouse gas (GHG) emissions and improve fuel economy for new cars and trucks sold in the United States. The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2012 through 2016. This phase required these vehicles to meet a fuel economy standard of 35.5 mpg. The second phase applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 through 2025. This phase required these vehicles to meet an estimated fuel economy standard of 54.5 mpg (NHTSA 2019a).

On September 15, 2011, the EPA and USDOT issued a final rule for the first national standards to improve fuel efficiency of medium- and heavy-duty trucks and buses, model years 2014 through 2018. For combination tractors, the agencies proposed engine and vehicle standards that would achieve up to a 20 percent reduction in fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which would achieve up to a 10 percent reduction for gasoline vehicles and a 15 percent reduction for diesel vehicles (12 and 17 percent, respectively, if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption (EPA 2019a). On October 25, 2016, the EPA and USDOT issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 through 2027 to achieve vehicle fuel savings as high as 25 percent, depending on the vehicle category (EPA 2019a).

Table 4.6.A: Existing Operational Trips – Fuel Efficiency

Year	Fuel	Vehicle Class	EMFAC2017 Outputs[1]			
			Fleet Mix (%)[2]	Fuel Consumption (1,000 gpd)	VMT (mi/day)	Fuel Efficiency[3] (mpg)
2018	Gas	LDA	55	1,675.4	48,157,950	28.7
		LDT1	4	194.0	4,826,370	24.9
		LDT2	21	773.1	17,237,481	22.3
		MDV	12	641.6	11,751,308	18.3
		LHD1	2	142.6	1,478,337	33.8
		LHD2	1	26.7	240,658	9.0
		MHDT	2	90.2	450,967	5.0
		HHDT	2	0.2	933	4.7
		OBUS	<1	9.5	46,675	4.9
		UBUS	<1	5.3	19,592	3.7
		MCY	<1	10.5	392,562	37.4
		SBUS	<1	2.1	18,946	9.0
		MH	<1	13.6	68,130	5.0
		Fleet Mix	–	–	–	24.4
	Diesel	LDA	11	8.6	388,724	45.2
		LDT1	<1	0.1	1,243	12.4
		LDT2	2	2.8	90,639	32.4
		MDV	6	8.8	219,282	24.9
		LHD1	23	40.2	822,767	20.5
		LHD2	9	16.8	309,685	18.4
		MHDT	31	171.9	1,660,358	9.7
		HHDT	12	176.4	811,091	4.6
		OBUS	0	0.0	0	0.0
		UBUS	0	5.3	0	0.0
		MCY	0	0.0	0	0.0
		SBUS	2	2.1	42,552	20.3
		MH	3	2.8	28,828	10.3
		Fleet Mix	–	–	–	17.8
	Electric	LDA	89	0	611,218	0.0
		LDT1	2	0	9,533	0.0
		LDT2	9	0	57,582	0.0
		MDV	1	0	5,213	0.0
		Fleet Mix	–	–	–	0.0
	Natural Gas	HHDT	48	12.6	27,260	2.2
		UBUS	52	21.3	84,522	4.0
		Fleet Mix	–	–	–	3.1

Sources: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Greenhouse Gas Analysis* (Urban Crossroads 2019b).

[1] EMFAC2017 was run for Orange County for the existing year 2018. Data was aggregated over all vehicle model years and speed bins.

[2] Fleet mix is based on assumptions made in CalEEMod for the proposed Project.

[3] The fuel efficiency was calculated by dividing the VMT (mi/day) by the fuel consumption (gpd).

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gpd = gallons per day
HHDT = heavy heavy-duty truck
LDA = light-duty automobile
LDT1 = light-duty truck 1
LDT2 = light-duty truck 2
LHD1 = light heavy-duty truck 1
LHD2 = light heavy-duty truck 2
MCY = motorcycle
MDV = medium-duty truck
MH = motor home
MHDT = medium heavy-duty truck
mi/day = miles per day
mpg = miles per gallon
OBUS = other bus
SBUS = school bus
UBUS = urban bus
VMT = vehicle miles traveled

Table 4.6.B: Existing Operational Trips – Fuel Usage

Year[1]	Land Use	Total Annual VMT[2] (mi/yr)	Fuel Type	Portion of Fleet[3] (%)	VMT by Fuel Type (mi/yr)	Fleet Mix Efficiency[4] (mpg)	Fuel Usage (gal/yr)
2018	Nursery	1,349,192	Gas	98	1,322,208	24.4	54,189
			Diesel	1	13,492	17.8	758
			Electric	1	13,492	N/A	0
			Natural Gas	<1	0	3.1	0

Sources: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Greenhouse Gas Analysis* (Urban Crossroads 2019b).

[1] Calculated for operational year 2018.
[2] Total VMT is based on project's trip generation and trip lengths.
[3] Fleet distribution is based on EMFAC2017 output and CalEEMod assumptions.
[4] Fuel efficiency is based on fuel consumption and VMT data from EMFAC2017 for Orange County and total VMT.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gal/yr = gallons per year
mi/yr = miles per year
mpg = miles per gallon
VMT = vehicle miles traveled

Safer Affordable Fuel-Efficient Vehicles Rule. On August 2, 2018, the current Administration released a notice of proposed rulemaking, *The Safer Affordable Fuel-Efficient* (SAFE) *Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule) to amend the CAFE and GHG emission standards established in 2012 for model years 2021 through 2026. The SAFE Vehicles Rule would decrease fuel economy and would withdraw the California Waiver for the California Advanced Clean Car program, Zero Emissions Vehicle mandate, and GHG emission standards for model years 2021 through 2026. Final rulemaking on the SAFE Vehicles Rule is pending (NHTSA 2019b).

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The Act sets increased CAFE standards; the Renewable Fuel Standard; appliance energy efficiency standards; building energy efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration (EPA 2019c).

Energy Policy Act of 2015. The Energy Policy Act of 2015 (42 USC Section 13201 et seq.) was passed by the United States Congress on July 29, 2005, signed into law by President George W. Bush on August 8, 2005, and was the first major energy law enacted by the federal government in over a decade. The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under this Act, consumers and businesses can obtain federal tax credits for purchasing fuel-efficient appliances and products (including hybrid vehicles), building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment (FERC 2006 and FERC 2019).

4.6.3.2 State Regulations

Assembly Bill 1575, Warren-Alquist Act. In 1975, largely in response to the oil crisis of the 1970s, the State Legislature adopted Assembly Bill (AB) 1575 (also known as the Warren-Alquist Act), which created the CEC. The statutory mission of the CEC is to forecast future energy needs; license power plants of 50 megawatts (MW) or larger; develop energy technologies and renewable energy resources; plan for and direct State responses to energy emergencies; and, perhaps most importantly, promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code (PRC) Section 21100(b)(3) and *State CEQA Guidelines* Section 15126.4 to require EIRs to include, where relevant, mitigation measures proposed to minimize the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F to the *State CEQA Guidelines*. Appendix F assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *State CEQA Guidelines* also states that the goal of conserving energy implies the wise and efficient use of energy and the means of achieving this goal, including (1) decreasing overall per capita energy consumption; (2) decreasing reliance on fossil fuels such as coal, natural gas, and oil; and (3) increasing reliance on renewable energy sources.

Senate Bill 1389, Energy: Planning and Forecasting. In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles (ZEVs) and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

In compliance with the requirements of SB 1389, the CEC adopts an *Integrated Energy Policy Report* every 2 years and an update every other year. The most recently adopted reports include the *2017 Integrated Energy Policy Report* (CEC 2018a) and the *2018 Integrated Energy Policy Report Update* (CEC 2018b). The *2017 Integrated Energy Policy Report* provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The *2017 Integrated Energy Policy Report* covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas, updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency. The *2018 Integrated Energy Policy Report Update* included a review of the implementation of California's energy policies and updated the 2017 California energy demand forecasts that were adopted as part of the *2017 Integrated Energy Policy Report* proceedings.

The CEC circulated the 2019 Integrated Energy Policy Report for public review in February 2019 and is anticipated to approve the report in February 2020 (CEC 2019c).

Renewable Portfolio Standards. SB 1078 established the California Renewable Portfolio Standards program in 2002. SB 1078 initially required that 20 percent of electricity retail sales be served by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that 33 percent of electricity retail sales be served by renewable resources by 2020. In 2015, SB 350 established tiered increases to the Renewable Portfolio Standards of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and required that all State's electricity to come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019 (CPUC 2019).

Title 24, California Building Code. Energy consumption by new buildings in California is regulated by the Building Energy Efficiency Standards, embodied in Title 24 of the California Code of Regulations (CCR), known as the California Building Code (CBC). The CEC first adopted the Building Energy Efficiency Standards for Residential and Nonresidential Buildings in 1978 in response to a legislative mandate to reduce energy consumption in the State. The CBC is updated every 3 years, and the current 2016 CBC went into effect on January 1, 2017. The next update is anticipated to become effective on January 1, 2020. The efficiency standards apply to both new construction and rehabilitation of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings, provided these standards meet or exceed those provided in CCR Title 24.

California Green Building Standards Code (CALGreen). In 2010, the California Building Standards Commission (CBSC) adopted Part 11 of the Title 24 Building Energy Efficiency Standards, referred to as the California Green Building Standards Code (CALGreen). CALGreen took effect on January 1, 2011. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 CALGreen standards that became effective January 1, 2017. The next update is anticipated to become effective on January 1, 2020. CALGreen established mandatory measures for residential and non-residential building construction and encouraged sustainable construction practices in the following five categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) indoor environmental quality. Although CALGreen was adopted as part of the State's efforts to reduce GHG emissions, the CALGreen standards have co-benefits of reducing energy consumption from residential and non-residential buildings subject to the standard.

California Energy Efficiency Strategic Plan. On September 18, 2008, the California Public Utilities Commission (CPUC) adopted California's first Long-Term Energy Efficiency Strategic Plan, presenting a roadmap for energy efficiency in California (CPUC 2008). The Plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term, and long-term strategies to assist in achieving those goals. The Plan also reiterates the following four specific

programmatic goals known as the "Big Bold Energy Efficiency Strategies" that were established by the CPUC in Decisions D.07-10-032 and D.07-12-051:

- All new residential construction will be zero net energy (ZNE) by 2020.
- All new commercial construction will be ZNE by 2030.
- 50 percent of commercial buildings will be retrofit to ZNE by 2030.
- 50 percent of new major renovations of State buildings will be ZNE by 2025.

Assembly Bill 1493, Pavley, Vehicular Emissions: Greenhouse Gases. In response to the transportation sector accounting for more than half of California's carbon dioxide emissions, AB 1493 was enacted on July 22, 2002, requiring CARB to develop and adopt regulations that set fuel economy and GHG emission standards for passenger vehicles and light-duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld in 2011 by the United States District Court for the District of Columbia.

Assembly Bill 1007, State Alternative Fuels Plan. Approved by Governor Arnold Schwarzenegger on September 29, 2005, AB 1007 required the CEC to prepare a plan to increase the use of alternative fuels in California. The State Alternative Fuels Plan was prepared by the CEC with CARB and in consultation with other federal, State, and local agencies to reduce petroleum consumption; increase use of alternative fuels (e.g., ethanol, natural gas, liquefied petroleum gas, electricity, and hydrogen); reduce GHG emissions; and increase in-State production of biofuels. The State Alternative Fuels Plan recommends a strategy that combines private capital investment, financial incentives, and advanced technology that will increase the use of alternative fuels; result in significant improvements in the energy efficiency of vehicles; and reduce trips and vehicle miles traveled through changes in travel habits and land management policies. The Alternative Fuels and Vehicle Technologies Funding Program legislation (AB 118, Statutes of 2007) proactively implements this plan (CEC and CARB 2007).

Executive Order S-01-07, Low Carbon Fuel Standard. Governor Arnold Schwarzenegger signed Executive Order (EO) S-01-07 on January 18, 2007. The order mandated that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, EO S-01-07 established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan (SIP) for alternative fuels (State Alternative Fuels Plan adopted by the CEC on December 24, 2007) and was submitted to CARB for consideration as an "early action" item under AB 32. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. After revisions in response to litigation, the Final Rulemaking Package adopting the regulation was filed with the California Office of Administrative Law (OAL) on October 2, 2015.

Title 20 Appliance Efficiency Standards. The 2006 Appliance Efficiency Regulations (20 CCR §1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California OAL on December 14, 2006. The Appliance Efficiency Regulations regulate the sale of appliances in

California and include energy performance, energy design, water performance, and water design standards for both federally regulated appliances and non-federally regulated appliances. There are 23 categories of appliances included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

Title 13 California Code of Regulations. Title 13, CCR Division 3, Chapter 9, Article 4.8, Section 2449 (General Requirements for In-Use Off-Road Diesel-Fueled Fleets) limits idling of off-road diesel-fueled vehicles (including construction vehicles) to less than 5 consecutive minutes. Title 13, CCR Article 1, Chapter 10, Section 2480 (Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools) regulates school bus idling at schools. A school bus must be turned off upon stopping at a school or within 100 feet (ft) of a school, and must not be turned on more than 30 seconds before beginning to depart from a school or from within 100 ft of a school. In addition, a school bus within 100 ft of a school must not idle for more than 5 consecutive minutes and must not idle for more than a cumulative 5 minutes in any 1 hour. Although these regulations are specifically for reduction of air emissions, they also reduce fuel consumption.

4.6.3.3 Regional Regulations

There are no regional energy regulations that apply to the proposed Project.

4.6.3.4 Local Regulations

City of Lake Forest Municipal Code. The City of Lake Forest has adopted the CBC (which includes CALGreen) and incorporated the CBC by reference into the City Municipal Code (Title 8, Building and Construction, Chapter 8.02 California Building Code, Article 1 General, Section 8.02.001 Adoption of the California Building Code by reference).

4.6.4 Methodology

Annual natural gas and electricity usage for operation of the existing nursery and the proposed Project were obtained from CalEEMod in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b).[1]

Estimates of fuel consumption (diesel fuel and gasoline) from construction trucks and construction worker vehicles were based on trip estimates from CalEEMod in the *Air Quality Impact Analysis* and fuel efficiencies from the CARB EMFAC2017. Fuel consumption (diesel fuel and gasoline) from vehicle trips during operation was estimated for the existing nursery and for the opening year (2025) of the proposed Project based on trip estimates from CalEEMod in the *Greenhouse Gas Analysis* and fuel efficiencies from the CARB EMFAC2017.

[1] The *Air Quality Impact Analysis* (Urban Crossroads 2019a) only includes the CalEEMod results for the summer and winter scenarios. Therefore, the CalEEMod results for the annual scenario for operation was obtained from the *Greenhouse Gas Analysis* (Urban Crossroads 2019b).

4.6.5 Thresholds of Significance

The thresholds of significance for energy impacts used in this analysis are consistent with Appendix G of the State *CEQA Guidelines* and the City's *CEQA Significance Thresholds Guide* (March 2009). The proposed Project may be deemed to have a significant impact with respect to energy if it would:

Threshold 4.6.1: Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

Threshold 4.6.2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

None of the thresholds of significance for energy impacts were scoped out in the Initial Study, which is included in Appendix A. Therefore, both of the thresholds listed above are addressed in the following analysis.

4.6.6 Project Impacts

Threshold 4.6.1: Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact.

Construction. Construction of the proposed Project would require energy for activities such as the manufacture and transportation of building materials, demolition and grading activities, and building construction. Construction of the proposed Project would require electricity to power construction-related equipment. The electricity used during construction would vary during different phases of construction. The majority of construction equipment during demolition grading would be gas-powered or diesel-powered, and the later construction phases would require electricity-powered equipment such as that used for interior construction and application of architectural coatings.

Construction of the Project would not involve the consumption of natural gas. The construction-related equipment would not be powered by natural gas, and no natural gas demand is anticipated during construction.

Transportation energy represents the largest energy use during construction and would occur from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Therefore, the analysis of energy use during construction focuses on fuel consumption. Construction trucks and vendor trucks hauling materials to and from the Project site would be anticipated to use diesel fuel, whereas construction workers traveling to and from the Project site would be anticipated to use gasoline-powered vehicles. Fuel consumption from transportation uses depends on the type and number of trips, VMT, the fuel efficiency of the vehicles, and travel mode.

Diesel fuel usage from construction off-road equipment was calculated using the same CalEEMod assumptions that were used in the *Air Quality Impact Analysis* (Urban Crossroads 2019a). CalEEMod utilized the construction equipment shown in Table 4.6.C. Average brake-specific fuel consumption and diesel fuel properties (heating value and density) from EPA AP-42 were used to obtain a fuel per horsepower-hour factor (EPA 1995).

Table 4.6.C: Construction Off-Road Equipment

Phase	Off-Road Equipment Type	Amount	Usage (hrs/day)	Total Usage (days)	Total Usage (hrs/equipment)
Demolition	Concrete/Industrial Saws	1	8	66	528
	Excavators	3	8	66	1,584
	Rubber-Tired Bulldozers	2	8	66	1,056
Grading	Excavators	2	8	269	4,304
	Graders	1	8	269	2,152
	Rubber-Tired Bulldozers	1	8	269	2,152
	Scrapers	2	8	269	4,304
	Tractors/Loaders/Backhoes	2	8	269	4,304
Infrastructure	Rubber-Tired Bulldozer	3	8	260	6,240
	Tractors/Loaders/Backhoes	4	8	260	8,320
Paving	Pavers	2	8	87	1,392
	Paving Equipment	2	8	87	1,392
	Rollers	2	8	87	1,392
Building Construction	Cranes	1	8	1001	8,008
	Forklifts	3	8	1001	24,024
	Generator Sets	1	8	1001	8,008
	Tractors/Loaders/Backhoes	3	8	1001	24,024
	Welders	1	8	1001	8,008
Architectural Coating	Air Compressors	1	8	1001	8,008

Source: *Air Quality Impact Analysis* (Urban Crossroads 2019a).
hrs/day = hours per day
hrs/equipment = hours per equipment type

These factors and other calculations are shown in Table 4.6.D. As shown in Table 4.6.D, total fuel usage from construction off-road equipment is estimated to be 290,233 gallons, the consumption of which would occur over the 5 years and 7 months of construction. As also shown in Table 4.6.D, the greatest amount of fuel (142,832 gallons) would be consumed by off-road equipment during the building construction and architecture coating phases. However, these phases would occur concurrently over 1,001 days (August 1, 2021 to June 2, 2025), which equates to an annual fuel consumption of 52,082 gallons per year. Therefore, the peak annual fuel consumption from off-road construction equipment would occur during the grading phase from February 2, 2020 to February 11, 2021, when an estimated 79,293 gallons would be consumed.

Table 4.6.D: Off-Road Construction Equipment Diesel Fuel Usage

Phase	Off-Road Equipment Type	Horsepower[1]	Load Factor[1]	Total Usage (hrs/equipment)	HP-Hour[2]	Fuel Usage (gal)[3]
Demolition	Concrete/Industrial Saws	81	0.73	528	31,221	1,598
	Excavators	158	0.38	1,584	95,103	4,869
	Rubber-Tired Bulldozers	247	0.40	1,056	104,333	5,342
Total Fuel Use – Demolition (11/1/19–1/31/20)						**11,809**
Grading	Excavators	158	0.38	4,304	258,412	13,231
	Graders	187	0.41	2,152	164,994	8,448
	Rubber-Tired Bulldozers	247	0.40	2,152	212,618	10,886
	Scrapers	367	0.48	4,304	758,193	38,819
	Tractors/Loaders/Backhoes	97	0.37	4,304	154,471	7,909
Total Fuel Use – Grading (2/2/20–2/11/21)						**79,293**
Infrastructure	Rubber-Tired Bulldozers	247	0.40	6,240	616,512	31,565
	Tractors/Loaders/Backhoes	97	0.37	8,320	298,605	15,289
Total Fuel Use – Infrastructure (2/12/21–2/10/22)						**46,854**
Paving	Pavers	130	0.42	1,392	76,003	3,891
	Paving Equipment	132	0.36	1,392	66,148	3,387
	Rollers	80	0.38	1,392	42,317	2,167
Total Fuel Use – Paving (4/1/21–7/30/21)						**9,455**
Building Construction	Cranes	231	0.29	8,008	536,456	27,467
	Forklifts	89	0.20	24,024	427,627	21,895
	Generator Sets	84	0.74	8,008	497,777	25,486
	Tractors/Loaders/Backhoes	97	0.37	24,024	862,221	44,146
	Welders	46	0.45	8,008	165,766	8,487
Architectural Coating	Air Compressors	78	0.48	8,008	299,820	15,351
Total Fuel Use – Building Construction and Architectural Coating (8/1/21–6/2/25)						**142,832**
Total Fuel Usage (gal)						**290,233**

Source: *Air Quality Impact Analysis* (Urban Crossroads 2019a).

[1] Load factor and horsepower are CalEEMod defaults for the equipment type and were obtained from the *Air Quality Impact Analysis.*

[2] HP-hour is the basis for the fuel calculation. HP-hour is calculated using the following formula: HP-hour = Total Hours x Load Factor x Horsepower.

[3] Off-road mobile source fuel usage is calculated using a fuel usage rate of 0.0512 gallons of diesel per HP-hour. This is calculated based on diesel.

CalEEMod = California Emissions Estimator Model
gal = gallons
HP-Hour = horsepower-hour
hrs/equipment = hours per equipment type

Information on total fuel consumption in Orange County was not available from the United States Energy Information Administration (EIA) California State Profile and Energy Estimates (EIA 2019c). However, vehicle consumption accounts for the majority of the total fuel consumption in California. In 2018, 160.5 million gallons of diesel fuel and 1.3 billion gallons of gasoline were consumed from vehicle trips in Orange County based on EMFAC2017. Compared to the annual fuel consumption from vehicle trips in Orange County, the peak annual fuel consumption of 79,293 gallons from off-road construction equipment during grading would be a small fraction of the annual fuel consumption in Orange County.

Fuel use from construction trucks and construction worker vehicles traveling to the Project site was based on the estimated number of trips that Project construction would generate and the average trip distance using the CalEEMod assumptions in the *Air Quality Impact Analysis (Urban Crossroads 2019a)*. Fuel efficiencies were estimated for the first full year of construction (2020)

using the CARB EMFAC2017, as shown in Table 4.6.E. It should be noted that calculating the fuel efficiency of vehicles for the year 2020 is a conservative approach because fuel efficiency is expected to continue to increase and improve during each year of construction as new fuel economy standards are established. Construction-related on-road vehicle fuel consumption calculations are shown in Tables 4.6.F and 4.6.G for construction trucks and construction worker vehicles, respectively.

Table 4.6.E: Year 2020 Construction Truck and Construction Worker Vehicle Fuel Efficiency

Vehicle Type	Vehicle Class	EMFAC2017 Outputs[2]		Diesel Fuel Efficiency[3] (mpg)
		Diesel Fuel Consumption (1,000 gpd)	VMT	
Construction Truck	HHDT	179.8	1,163,222	6.5
	MHDT	172.2	1,773,731	10.3
	HHDT/MHDT[1]	–	–	8.4
Construction Worker Vehicle	LDA	1624.8	48,945,590	30.1
	LDT1	194.2	5,047,196	26.0
	LDT2	721.9	1,7039,204	23.6
	Worker Mix[1]	–	–	27.5

Source: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Air Quality Impact Analysis* (Urban Crossroads 2019a).

[1] For construction trucks, assumes 50% HHDT and 50% MHDT vehicles, consistent with assumptions in CalEEMod for hauling trucks. For construction worker vehicles, assumes 50% LDA, 25% LDT1, and 25% LDT2 vehicles, consistent with assumptions in CalEEMod for worker vehicles.

[2] EMFAC2017 was run for Orange County for the construction year 2020. Data was aggregated over all vehicle model years and speed bins.

[3] The fuel efficiency was calculated by dividing the VMT (mi/day) by the fuel consumption (gpd).

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gpd = gallons per day
HHDT = Heavy Heavy-Duty Trucks
LDA = light-duty automobile
LDT1 = light-duty truck 1
LDT2 = light-duty truck 2
MHDT = Medium Heavy-Duty Trucks
mi/day = miles per day
mpg = miles per gallon
VMT = vehicle miles traveled

Table 4.6.F: Construction Truck Fuel Use

Phase	Trip Type	Total One-Way Trips	Trip Length (mi)	Total VMT[1,2]	Gasoline Fuel Efficiency (mpg)[3]	Fuel Usage (gal/yr)
Diesel Vehicles						
Demolition	Hauling	404	20	16,160	6.5	2,486
Grading	Hauling	18,750	20	750,000	6.5	115,385
Building Construction	Vendor	285	6.9	3,933	8.4	468
					Total Diesel Fuel Usage	**118,339**

Source: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Air Quality Impact Analysis* (Urban Crossroads 2019a).

[1] Assumes 50% HHDT and 50% MHDT vehicles, consistent with assumptions in CalEEMod for hauling trucks.

[2] EMFAC2017 was run for Contra Costa County for the construction years 2019–2023. Data was aggregated over all vehicle model years and speed bins.

[3] The fuel efficiency was calculated by dividing the VMT (mi/day) by the fuel consumption (gpd).

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gpd = gallons per day
gal/yr = gallons per year
HHDT = Heavy Heavy-Duty Trucks
MHDT = Medium Heavy-Duty Trucks
mi = miles
mi/day = miles per day
mpg = miles per gallon
VMT = vehicle miles traveled

Table 4.6.G: Construction Worker Vehicle Gasoline Fuel Use

Phase	Total One-Way Trips/Day	Total Days	Trip Length (mi)	Total VMT	Gasoline Fuel Efficiency (mpg)	Fuel Usage (gal/yr)
Demolition	15	66	14.7	29,106	27.5	1,058
Grading	20	269	14.7	158,172	27.5	5,752
Infrastructure	18	260	14.7	137,592	27.5	5,003
Paving	15	87	14.7	38,367	27.5	1,395
Building Construction	834	1,001	14.7	24,544,120	27.5	892,513
Architectural Coating	167	1,001	14.7	4,914,710	27.5	178,717
					Total Gasoline Fuel Usage	**1,084,438**

Sources: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Air Quality Impact Analysis* (Urban Crossroads 2019a).
CARB = California Air Resources Board
gal/yr = gallons per year
mi = miles
mpg = miles per gallon
VMT = vehicle miles traveled

As shown in Table 4.6.F, total diesel fuel consumption would be 118,339 gallons from construction truck trips. As shown in Table 4.6.G, total gasoline consumption would be 1,084,438 gallons from construction worker vehicle trips. The peak annual fuel consumption from on-road vehicles would occur during the building construction and architectural coating phases, which would occur concurrently over 1,001 days, from August 1, 2021 to June 2, 2025. During the building construction and architectural coating phases, an estimated 1,071,698 gallons of fuel (468 gallons of diesel fuel and 1,071,230 gallons of gasoline) would be consumed, which equates to 390,779 gallons annually. In 2018, 160.5 million gallons of diesel fuel and 1.3 billion gallons of gasoline were consumed from vehicle trips in Orange County based on estimates from EMFAC2017. Therefore, peak annual gasoline demand generated by on-road trips during construction would be approximately 0.07 percent of the total annual gasoline and diesel fuel consumption in Orange County.

Impacts related to energy use during construction would be temporary and relatively small in comparison to the Orange County's overall use of the State's available energy sources. Additionally, implementation of Regulatory Compliance Measure (RCM) EN-1 would require the construction contractor to ensure that all non-essential idling of construction equipment is restricted to 5 minutes or less in compliance with CARB Rule 2449, thus reducing transportation energy consumption. For these reasons, Project construction would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be less than significant, and no mitigation is required.

Operation. Energy use consumed by the proposed Project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the Project. Energy and natural gas consumption was estimated for the project using the CalEEMod model results in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b) prepared for the proposed Project. The proposed buildings would be constructed to CALGreen standards, which were included in the CalEEMod inputs. Electricity, natural gas, and gasoline usage estimates associated with the

operation of the existing nursery and the operation of the proposed Project are shown in Table 4.6.H.

Table 4.6.H: Electricity and Natural Gas Demand from the Proposed Project

Land Use	Electricity (kWh/yr)	Natural Gas (kBTU/yr) / (therms/yr)
Existing Use		
Nursery	71,825	177,650 / 1,776.5
Proposed Use		
Elementary School	460,905	718,738 / 7,187.4
Retirement Community	429,963	900,969 / 9,009.7
Single-Family Housing	5,321,740	10,160,000 / 101,600
Total	**6,212,608**	**11,797,707 / 117,977.7**
Change from Existing	**+6,140,783**	**+11,602,057 / 116,020.6**

Source: *Greenhouse Gas Analysis* (Urban Crossroads 2019b.)
kBTU/yr = thousand British thermal units per year
kWh/yr = kilowatt-hours per year
therms/yr = therms per year

As shown in Table 4.6.H, the estimated potential increased electricity demand associated with operation of the proposed Project is 6,140,783 kWh per year (6.14 GWh per year) more than operation of the existing nursery. Total electricity consumption in Orange County in 2017 was 20,030.5 GWh. Therefore, the increased electricity demand associated with the proposed Project would be less than 0.03 percent of Orange County's total electricity demand.

As shown in Table 4.6.H, the estimated potential increased natural gas demand associated with the proposed Project is 116,020.6 therms per year compared to the existing nursery use. Total natural gas consumption in Orange County in 2018 was 575.1 million therms. Therefore, natural gas demand associated with the proposed Project would be less than 0.02 percent of Orange County's total natural gas demand.

The proposed Project would also result in energy usage associated with gasoline fuel consumed by Project-related vehicle trips. Fuel use associated with vehicle trips generated by the proposed Project was calculated based on the project's trip generation estimates from CalEEMod in the *Greenhouse Gas Analysis* (Urban Crossroads 2019b) prepared for the proposed Project. The proposed Project is estimated to generate approximately 5,948,016 VMT for the elementary school, 1,086,584 VMT for the retirement community, and 19,064,105 VMT for the single-family residential uses annually. Fuel use associated with the vehicle trips generated by the proposed Project was calculated for the 2025 operational year based on vehicle fuel consumption for Orange County provided in EMFAC2017. The vehicle fuel consumption calculations for the proposed Project for the 2025 opening year are shown in Tables 4.6.I and 4.6.J.

Table 4.6.I: Proposed Project Operational Trips – Fuel Efficiency

Year	Fuel	Vehicle Class	EMFAC2017 Outputs[1]			
			Fleet Mix (%)[2]	Fuel Consumption (1,000 gpd)	VMT (mi/day)	Fuel Efficiency[3] (mpg)
2025	Gas	LDA	57	1,458.1	50,397,810	34.6
		LDT1	4	185.9	5,474,703	29.4
		LDT2	21	601.6	16,783,491	27.9
		MDV	11	481.9	10,814,941	22.4
		LHD1	1	113.5	1,249,765	11.0
		LHD2	1	22.7	216,895	9.6
		MHDT	3	67.1	351,384	5.2
		HHDT	2	0.3	1,372	4.6
		OBUS	<1	8.0	43,165	5.4
		UBUS	<1	4.7	20,409	4.3
		MCY	<1	11.7	435,214	37.2
		SBUS	<1	2.6	24,717	9.5
		MH	<1	11.7	63,527	5.4
		Fleet Mix	–	–	–	**29.9**
	Diesel	LDA	13	10.3	556,199	54.0
		LDT1	<1	<0.1	914	0
		LDT2	3	3.6	142,974	39.7
		MDV	7	10.5	314,811	30.0
		LHD1	25	47.2	1,065,628	22.6
		LHD2	10	20.2	411,549	20.4
		MHDT	27	173.5	1,976,807	11.4
		HHDT	10	173.0	969,310	5.6
		OBUS	0	0.0	0	0
		UBUS	0	0.0	0	0
		MCY	0	0.0	0	0
		SBUS	1	4.9	38,030	7.8
		MH	3	2.6	28,623	11.0
		Fleet Mix	–	–	–	**22.0**
	Electric	LDA	74	0.0	1,893,890	0.0
		LDT1	4	0.0	95,830	0.0
		LDT2	14	0.0	251,954	0.0
		MDV	8	0.0	159,630	0.0
		Fleet Mix	–	–	–	**0.0**
	Natural Gas	HHDT	59	19.0	44,800	2.4
		UBUS	41	22.8	88,045	3.9
		Fleet Mix	–	–	–	**3.0**

Sources: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Greenhouse Gas Analysis* (Urban Crossroads 2019b).

[1] EMFAC2017 was run for Orange County for the operational year 2025. Data were aggregated over all vehicle model years and speed bins.

[2] Fleet mix is based on assumptions made in CalEEMod for the proposed project.

[3] The fuel efficiency was calculated by dividing the VMT (mi/day) by the fuel consumption (gpd).

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gpd = gallons per day
HHDT = heavy heavy-duty truck
LDA = light-duty automobile
LDT1 = light-duty truck 1
LDT2 = light-duty truck 2
LHD1 = light heavy-duty truck 1
LHD2 = light heavy-duty truck 2
MCY = motorcycle
MDV = medium-duty truck
MH = motor home
MHDT = medium heavy-duty truck
mi/day = miles per day
mpg = miles per gallon
OBUS = other bus
SBUS = school bus
UBUS = urban bus
VMT = vehicle miles traveled

Table 4.6.J: Proposed Project Operational Trips – Fuel Usage

Year[1]	Land Use	Total Annual VMT[2] (mi/yr)	Fuel Type	Portion of Fleet[3] (%)	VMT by Fuel Type (mi/yr)	Fleet Mix Efficiency[4] (mpg)	Fuel Usage (gal/yr)
2025	Elementary School	5,948,016	Gas	92	5,472,175	29.9	183,016
			Diesel	6	356,881	22.0	16,222
			Electric	2	118,960	N/A	0
			Natural Gas	<1	0	3.0	0
	Retirement Community	1,086,584	Gas	92	999,657	29.9	33,433
			Diesel	6	65,195	22.0	2,963
			Electric	2	21,732	N/A	0
			Natural Gas	<1	0	3.0	0
	Single-Family Housing	19,064,105	Gas	92	17,538,977	29.9	586,588
			Diesel	6	1,143,846	22.0	51,933
			Electric	2	381,282	N/A	0
			Natural Gas	<1	0	3.0	0
Total Diesel Consumption per Year – Proposed Project							**70,522**
Total Gasoline Consumption per Year – Proposed Project							**803,037**
Total Diesel Consumption per Year – Existing Nursery							758
Total Gasoline Consumption per Year – Existing Nursery							54,189
Diesel Consumption – Change from Existing							**+69,764**
Gasoline Consumption – Change from Existing							**+745,848**

Sources: CARB EMFAC2017 Web Database, https://www.arb.ca.gov/emfac/2017/, accessed July 1–4, 2017; and *Greenhouse Gas Analysis* (Urban Crossroads 2019b).

[1] Calculated for operational year 2025 only. Future years will likely use less fuel due to more efficient cars.

[2] Total VMT is based on project's trip generation and trip lengths.

[3] Fleet distribution is based on EMFAC2017 output and CalEEMod assumptions.

[4] Fuel efficiency is based on fuel consumption and VMT data from EMFAC2017 for Orange County and total VMT.

CalEEMod = California Emissions Estimator Model
CARB = California Air Resources Board
gal/yr = gallons per year
mi/yr = miles per year
mpg = miles per gallon
N/A = not applicable
VMT = vehicle miles traveled

As shown in Tables 4.6.I and 4.6.J, the estimated annual fuel consumption for the proposed Project would be 54,189 gallons of gasoline and 758 gallons of diesel. It should be noted that the estimated operational fuel from vehicle trips associated with the proposed Project is conservatively based on the year 2025. The fuel efficiency of vehicles is expected to continue to increase and improve throughout the life of the project as new fuel economy standards are established. Therefore, the actual annual fuel consumption during operation of the proposed Project would be anticipated to decrease each year.

As shown in Table 4.6.J, vehicle trips associated with the proposed Project would consume approximately 745,848 gallons of gasoline and 69,764 gallons of diesel fuel per year. Based on fuel consumption obtained from the CARB EMFAC2017, 160.5 million gallons of diesel and 1.3 billion gallons of gasoline were consumed from vehicle trips in Orange County in 2018. Therefore, gasoline demand generated by vehicle trips associated with the proposed Project would be less than 0.06 percent of the total gasoline and diesel fuel consumption in California.

As specified in RCM AQ-4 and RCM GHG-1, the proposed Project would be constructed to CALGreen standards and appliances would be energy efficient, which would help to reduce energy and natural gas consumption. Vehicles would continue to become more efficient each

year in compliance with federal and State regulations, which would reduce fuel consumption. Additionally, school buses would be required to limit idling, which reduces fuel consumption, as specified in RCM EN-2. The proposed Project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Impacts related to consumption of energy resources during operation would be less than significant, and no mitigation is required.

Threshold 4.6.2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for ZEVs and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The CEC recently adopted the *2017 Integrated Energy Policy Report* (CEC 2018a) and the *2018 Integrated Energy Policy Report Update* (CEC 2018b). The Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas, updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency. The City of Lake Forest relies on the State integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency.

As indicated above, energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in the County. In addition, energy usage associated with operation of the proposed Project would be relatively small in comparison to the overall use in Orange County, and the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the Project's total impact on regional energy supplies would be minor, the proposed Project would not conflict with or obstruct California's energy conservation plans as described in the CEC's Integrated Energy Policy Report. Additionally, as demonstrated above under Threshold 4.6.1, the proposed Project would not result in the inefficient, wasteful, and unnecessary consumption of energy. Potential impacts related to conflict with or

obstruction of a State or local plan for renewable energy or energy efficiency would be less than significant, and no mitigation is required.

4.6.7 Cumulative Impacts

Please refer to Table 4.A and Figure 4.0.1 in Section 4.0, Existing Setting, Environmental Analysis, Impacts, and Mitigation Measures, for the descriptions and locations of the related projects considered in the cumulative impact analysis.

The geographic area for electricity service is that of the SCE boundaries, while the geographic area for natural gas service is that of the SoCalGas boundaries. The proposed Project would result in an increased services demand in electricity and natural gas. Although the proposed Project would result in a net increase in electricity, this increase would not require SCE to expand or construct infrastructure that could cause substantial environmental impacts. As discussed previously, the total annual electricity consumption in the SCE service area in 2017 was 84,291.6 GWh. By 2030, consumption is anticipated to increase by approximately 12,000 GWh for the low-demand scenario and by 22,000 GWh for the high-demand scenario (CEC 2018c). While this forecast represents a large increase in electricity consumption, the Project's percent of cumulative consumption would be less than 0.008 percent. The Project, in combination with cumulative development, is well within SCE's system-wide net annual increase in electricity supplies over the 2018 to 2030 period, and there are sufficient planned electricity supplies in the region for estimated net increases in energy demands.

Similarly, additional natural gas infrastructure is not anticipated due to cumulative development. Total natural gas consumption in the SoCalGas service area in 2018 was 5,156.1 million therms. Between 2018 and 2035, total natural gas consumption in the SoCalGas service area is forecast to remain steady for the low- and mid-demand scenarios and to increase by approximately 650 million therms in the high-demand scenario due to intense energy efficiency efforts (CEC 2018c). The Project's percent of cumulative consumption of natural gas in the SoCalGas service area would be less than 0.003 percent. It is anticipated that SoCalGas would be able to meet the natural gas demand of the related projects without additional facilities. In addition, both SCE and SoCalGas demand forecasts include the growth contemplated by the Project and the related projects. SCE and SoCalGas plan to continue to provide reliable service to its customers and upgrade their distribution systems as necessary to meet future demand.

Transportation energy use would also increase; however, this transportation energy use would not represent a major amount of energy use when compared to the amount of existing development and to the total number of vehicle trips and VMT throughout Orange County and the region. The proposed Project and related projects are required to comply with various federal and State government legislation to improve energy efficiency in buildings, equipment, and appliances, and reduce VMT. Increased energy efficiency to comply with building energy efficiency standards will reduce energy consumption on a per-square-foot basis. In addition, utility companies are required to increase their renewable energy sources to meet the Renewable Portfolio Standards mandate of 60 percent renewable supplies by 2030. Further, compliance with the existing regulatory requirements and project design features would ensure that the proposed Project does not result in

an inefficient, wasteful, and unnecessary consumption of energy. Therefore, the proposed Project's contribution to impacts related to the inefficient, wasteful, and unnecessary consumption of energy would not be cumulatively considerable, and no mitigation is required.

4.6.8 Level of Significance Prior to Mitigation

Energy impacts related to the inefficient, wasteful, and unnecessary consumption of energy as well as impacts due to conflicts or obstruction of a State or local plan for renewable energy or energy efficiency would be less than significant, and no mitigation is required.

4.6.9 Regulatory Compliance Measures and Mitigation Measures

4.6.9.1 Regulatory Compliance Measures

The following RCMs are applicable South Coast Air Quality Management District (SCAQMD) Rules. The City of Lake Forest considers these requirements to be mandatory; therefore, they are not mitigation measures.

RCM EN-1 **California Code of Regulations, Title 13, General Requirements for In-Use Off-Road Diesel-Fueled Fleets.** The construction contractor shall ensure that all non-essential idling of construction equipment is restricted to 5 minutes or less in compliance with California Code of Regulations (CCR) Title 13, Chapter 9, Article 4.8, Section 2449. Prior to issuance of any grading or building permits, the City of Lake Forest Director of Community Development, or designee, shall confirm that plans include notes with this requirement.

RCM EN-2 **California Code of Regulations, Title 13, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** During operation, all school bus drivers shall comply with CCR Title 13, Article 1, Chapter 10, Section 2480 to limit bus idling at schools. School bus shall be turned off upon stopping at the school or within 100 feet of the school. School buses shall not be turned on more than 30 seconds before beginning to depart from the school or from within 100 feet of the school. School bus within 100 feet of the school shall not idle for more than 5 consecutive minutes and shall not idle for more than a cumulative 5 minutes in any 1 hour.

RCM AQ-4 **California Code of Regulations, Title 24.** Prior to issuance of building permits, the City of Lake Forest Director of Community Development, or designee, shall ensure that the project design complies with the 2019 Building Energy Efficiency Standards (CCR Title 24) energy conservation and green building standards.

RCM GHG-1 **California Code of Regulations, Title 20, Appliance Energy Efficiency Standards.** Appliances installed in project buildings shall comply with the energy efficiency requirements in CCR Title 20, Appliance Energy Efficiency Standards. All appliances shall be Energy Star appliances.

4.6.9.2 Mitigation Measures

The proposed Project would not result in significant impacts related to energy use, and no mitigation is required.

4.6.10 Level of Significance after Mitigation

Energy impacts during construction and operation would be less than significant.

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