Appendix E

Energy Analysis Technical Memorandum

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Albert Jarrell, Managing Director, Stream Realty

From: Ryan Chiene, Michael Baker International
Pierre Glaize, Michael Baker International

Date: August 22, 2019

Subject: Alder Logistics Center Project – Energy Analysis Technical Memorandum

PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term energy consumption impacts as a result of the proposed Alder Logistics Center Project ("project" or "proposed project").

PROJECT LOCATION

The project site is generally located south of Interstate 10 (I-10) along Alder Avenue in the unincorporated community of Bloomington, San Bernardino County , California; refer to Exhibit 1, *Regional Vicinity*. The project site is specifically located at 10326, 10339, 10360, 10380, and 10396 Alder Avenue, Assessor's Parcel Numbers (APNs) 0252-131-03, -04, -36, -41, and-43. The project site is bounded by a railroad easement and infrastructure and I-10 to the north; a mix of industrial and residential to the east; single family structures to the south; and industrial uses and railroad infrastructure to the west; refer to Exhibit 2, *Site Vicinity*.

PROJECT DESCRIPTION

The project proposes to demolish the existing food-related warehouse/storage building and construct an approximate 174,780square-foot warehouse building on the project site. The gross site area is 9.44 acres and is comprised of four parcels. The proposed building would be located toward the rear half of the lot, situated farthest from adjacent residential properties; refer to Exhibit 3, *Conceptual Site Plan*. A 65-foot landscaped buffer would serve as a retention basin at the property line closest to adjacent residential properties to provide a buffer between the two uses. A total of 114 parking spaces would be provided on-site.

NOT TO SCALE

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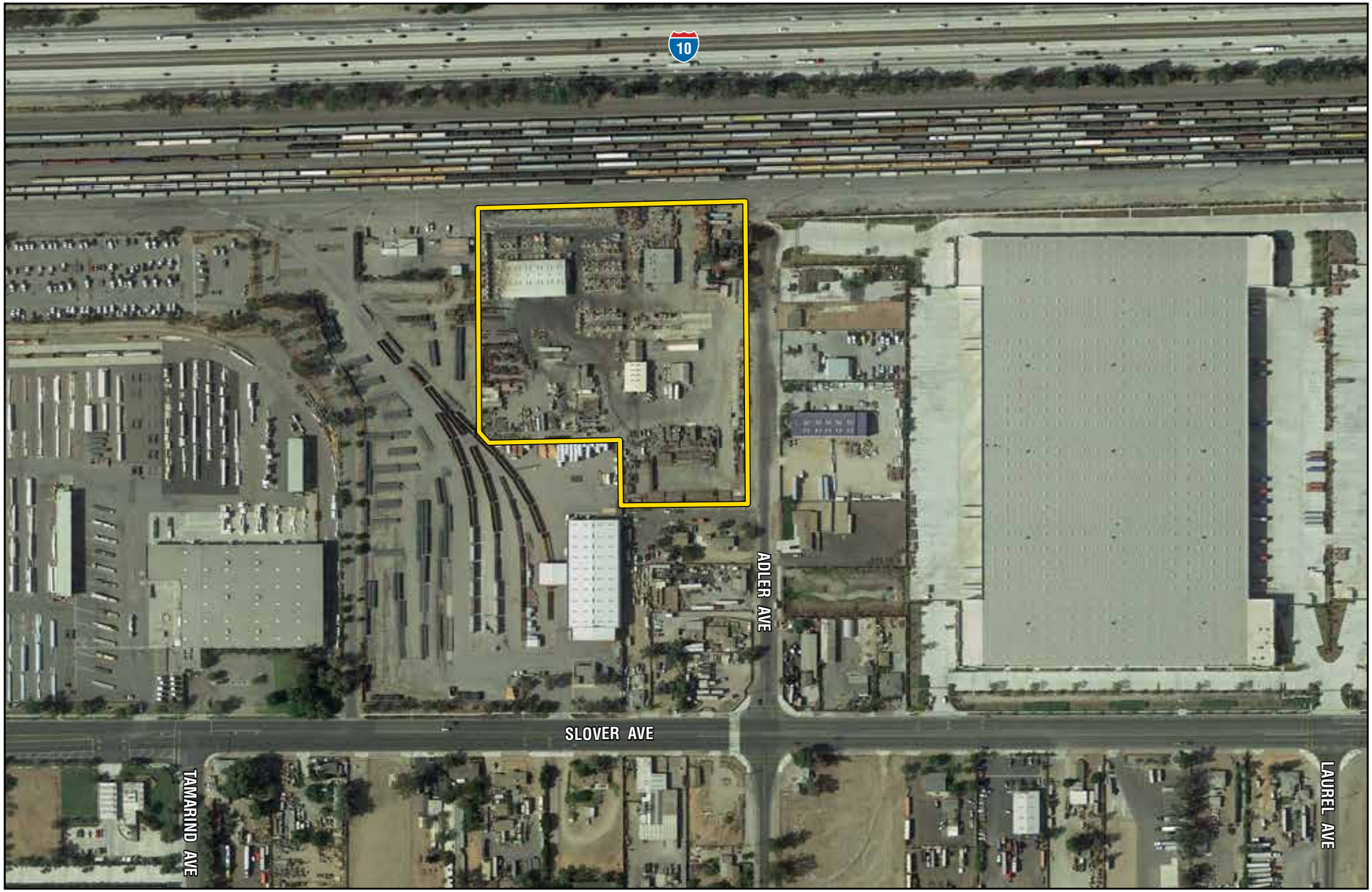
08/19 JN 173563

ALDER LOGISTICS CENTER PROJECT
ENERGY ANALYSIS TECHNICAL MEMORANDUM

Regional Vicinity

Exhibit 1



Source: Google Earth Pro, August 2019

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PROJECT SITE

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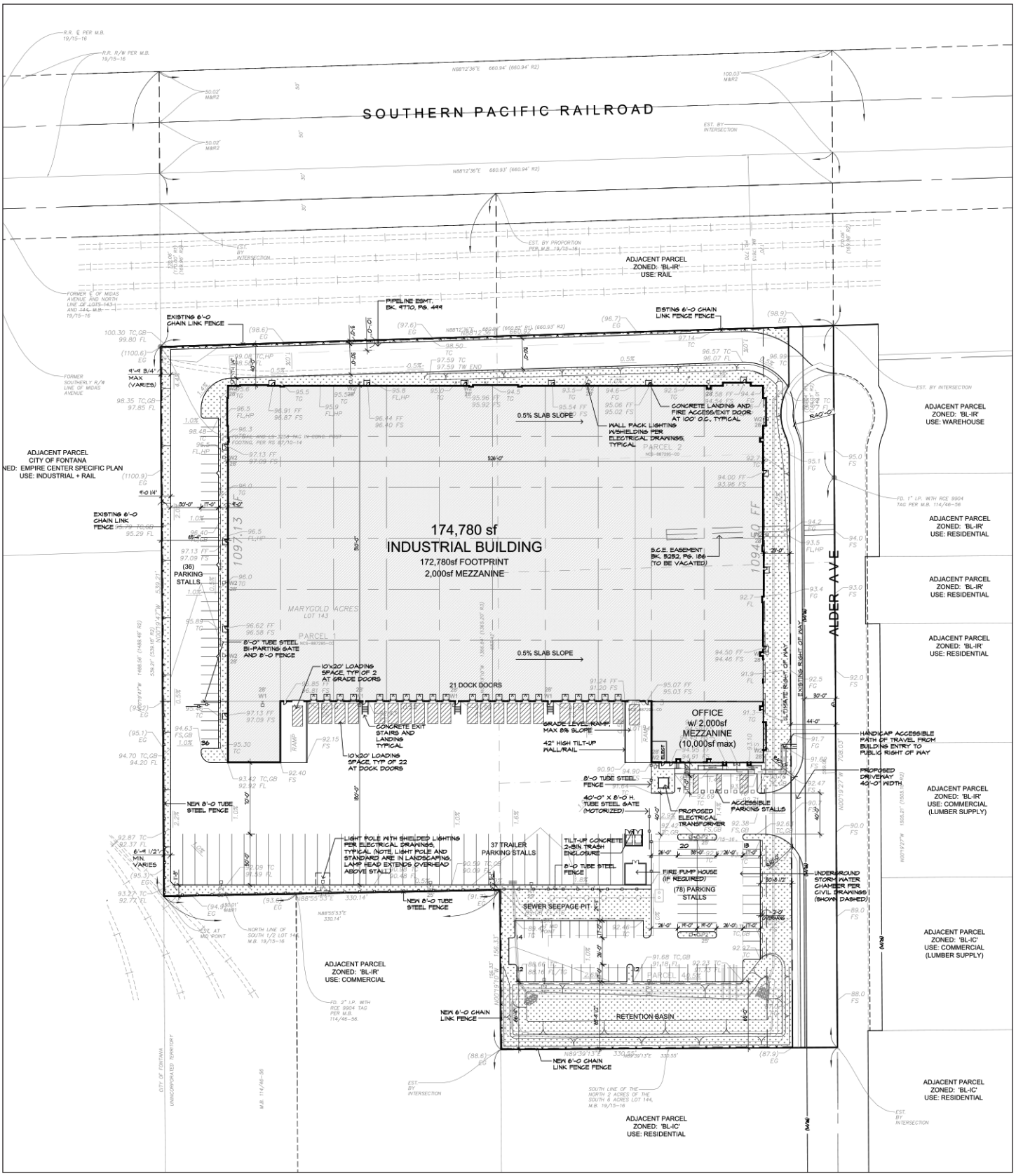
ALDER LOGISTICS CENTER PROJECT
ENERGY ANALYSIS TECHNICAL MEMORANDUM

Site Vicinity

Exhibit 2



Source: DouglasFranz Architects, Inc., May 2019

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ALDER LOGISTICS CENTER PROJECT
ENERGY ANALYSIS TECHNICAL MEMORANDUM

Conceptual Site Plan

Exhibit 3

A new trash enclosure is proposed, located in an accessible area on-site for circulation and access by waste services. A total of 2 grade level and 22 high loading docks would be provided on-site. Site access would be provided via Alder Avenue off Slover Avenue, a major arterial road that runs east-west.

Currently, there is no identified tenant for the proposed building. The proposed project is planned for a single tenant with ancillary office component. Since the tenant is unknown, hours of operation and employee count will vary, but is assumed for planning purposes to operate 24 hours a day, seven days a week. Office workers would likely have typical shifts of Monday through Friday, 8:00 a.m. to 5:00 p.m., while warehouse staff would work day, evening, and night shifts. Specific hours of operation would be identified during the tenant improvement process.

ENERGY CONSERVATION

In 1975, largely in response to the oil crisis of the 1970s, the California State Legislature adopted Assembly Bill 1575 (AB 1575), which created the California Energy Commission (CEC). The statutory mission of the CEC is to forecast future energy needs, license thermal power plants of 50 megawatts 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 Section 21100(b)(3) to require Environmental Impact Reports (EIRs) to consider the wasteful, inefficient, and unnecessary consumption of caused by a project. Thereafter, the State Resources Agency created Appendix F, *Energy Conservation*, in the California Environmental Quality Act Guidelines (CEQA Guidelines). CEQA Guidelines Appendix F is an advisory document that assists EIR preparers in determining whether a project will result in the inefficient, wasteful, and unnecessary consumption of energy.

In addition, the California Natural Resources Agency finalized updates to the CEQA Guidelines in December 2018. New CEQA Guidelines Section 15126.2(b) treats "wasteful, inefficient, or unnecessary" energy consumption as a significant environmental impact. As a result, energy thresholds have been incorporated into Appendix G of the CEQA Guidelines; refer to the *Standards of Significance* discussion below. This technical memorandum has been prepared to assess energy impacts in accordance with Appendix G of the CEQA Guidelines.

Environmental Setting

Energy consumption is analyzed in this technical memorandum due to the potential direct and indirect environmental impacts associated with the project. Such impacts include the depletion of nonrenewable resources and emissions of pollutants during both construction and long-term operational phases.

Southern California Edison (SCE) provides electrical services to the County through State-regulated public utility contracts. Over the past 15 years, electricity generation in California has undergone a transition. Historically, California has relied heavily on oil- and gas-fired plants to generate electricity. Spurred by regulatory measures and tax incentives, California's electrical system has become more reliant on renewable energy sources; including cogeneration, wind energy, solar energy, geothermal energy, biomass conversion, transformation plants, and small hydroelectric plants. Unlike petroleum production, electricity generation is not usually tied to the location of the fuel source and can be delivered great distances via the electrical grid. The generating capacity of a unit of electricity is expressed in megawatts (MW). Net generation refers to the gross amount of energy produced by a unit, minus the amount of energy the unit consumes. Generation is typically measured in megawatt-hours (MWh), kilowatt-hours (kWh), or gigawatt-hours (GWh).

The Southern California Gas Company (SoCalGas) provides natural gas services to the County. Natural gas is a hydrocarbon fuel found in reservoirs beneath the Earth's surface and is composed primarily of methane (CH_4). It is used for space and water heating, process heating and electricity generation, and as transportation fuel. Use of natural gas to generate electricity is expected to increase in coming years because it is a relatively clean alternative to other fossil fuels (e.g., oil and coal). In California and throughout the western United States, many new electrical generation plants fired by natural gas are being brought online. Thus, there is great interest in importing liquefied natural gas from other parts of the world. Nearly 45 percent of the natural gas burned in California was used for electricity generation.[1] While the supply of natural gas in the United States and production has increased greatly, California produces little, and imports 90 percent of its natural gas.[2]

The County's ongoing development review process includes a review and comment opportunity for privately owned utility companies, including SCE and SoCalGas, to provide input on all development proposals. The input facilitates a detailed review of projects by service purveyors to assess the potential demands for utility services on a project-by-project basis. The ability of utility providers to provide services concurrently with each project is evaluated during the development review process. Utility companies are bound by contract to update energy systems to meet any additional demand.

[1] California Energy Commission, *Supply and Demand of Natural Gas in California*, https://ww2.energy.ca.gov/almanac/naturalgas_data/overview.html, accessed July 9, 2019.

[2] Ibid.

Energy Usage

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,881.3 trillion BTUs in 2017 (the most recent year for which this specific data is available), which equates to an average of 199 million BTUs per capita.[3] Of California's total energy usage, the breakdown by sector is 39.8 percent transportation, 23.7 percent industrial, 18.9 percent commercial, and 17.7 percent residential.[4] Electricity and natural gas in California are generally consumed by stationary users such as residences, commercial, and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use.[5] In 2018, taxable gasoline sales (including aviation gasoline) in California accounted for 15,589,042,965 gallons of gasoline.[6]

The electricity consumption attributable to the County from 2008 to 2018 is shown in Table 1, *Electricity Consumption in San Bernardino County 2008-2018*. As indicated in Table 1, energy consumption in the County remained relatively constant between 2008 and 2018 with no substantial increase.

Table 1
Electricity Consumption in San Bernardino County 2008-2018

Year	Electricity Consumption (in millions of kilowatt hours)
2008	14,809
2009	13,785
2010	13,481
2011	13,729
2012	14,349
2013	14,367
2014	14,749
2015	14,760
2016	14,950
2017	15,274
2018	15,323

Source: California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed July 8, 2019.

[3] U.S. Energy Information Administration, *Table F32: Total energy consumption, price, and expenditure estimates, 2017*, https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_te.html&sid=CA, accessed by June 26, 2019.

[4] Ibid.

[5] U.S. Energy Information Administration, *California State Profile and Energy Estimates*, https://www.eia.gov/state/?sid=CA, accessed July 9, 2019.

[6] California Department of Tax and Fee Administration, *Net Taxable Gasoline Gallons*, http://www.cdtfa.ca.gov/taxes-and-fees/MVF-10-Year-Report.pdf, accessed July 9, 2019.

The natural gas consumption attributable to the County from 2008 to 2018 is shown in Table 2, *Natural Gas Consumption in San Bernardino County 2008-2018*. Similar to energy consumption, natural gas consumption in the County remained relatively constant between 2008 and 2018, with no substantial increase.

Table 2
Natural Gas Consumption in San Bernardino County 2008-2018

Year	Natural Gas Consumption (in millions of therms)
2008	500
2009	461
2010	493
2011	504
2012	486
2013	503
2014	452
2015	469
2016	494
2017	493
2018	500

Source: California Energy Commission, *Natural Gas Consumption by County*, http://www. ecdms.energy.ca.gov/, accessed July 8, 2019.

Automotive fuel consumption in the County from 2008 to 2018 is shown in Table 3, *Automotive Fuel Consumption in San Bernardino County 2008-2018* (projections for year 2019 are also shown). As shown in Table 3, on-road automotive fuel consumption in the County has declined steadily, since 2008. Heavy-duty vehicle fuel consumption dropped in 2009 and has steadily risen since 2013.

Table 3
Automotive Fuel Consumption in San Bernardino County 2008-2018

Year	On-Road Automotive Fuel Consumption (gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Construction Equipment) (gallons)
2008	1,078,761,761	242,523,262
2009	1,056,487,271	218,096,045
2010	1,053,937,667	223,377,530
2011	1,029,260,310	222,681,533
2012	1,009,366,568	220,866,898
2013	984,917,207	226,125,510
2014	990,916,486	232,068,889
2015	991,677,748	243,664,179
2016	992,497,647	253,337,780
2017	986,521,546	260,099,932
2018	968,309,772	267,033,998
2019 (projected)	945,024,765	274,404,444

Source: California Air Resources Board, EMFAC2014.

REGULATORY SETTING

The following is a description of State and local environmental laws and policies related to energy consumption that are relevant to the proposed project.

State of California

California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24)

In 1978, the CEC established Title 24, California's energy efficiency standards for residential and non-residential buildings, in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. In 2013, the CEC updated Title 24 standards with more stringent requirements. The 2016 standards substantially reduce electricity and natural gas consumption. Additional savings result from the application of the standards on building alterations. For example, requirements for cool roofs, lighting, and air distribution ducts are expected to save additional electricity. These savings are cumulative, doubling as years go by. The 2016 standards have been approved and went into effect on January 1, 2017. California's energy efficiency standards are updated on an approximate three-year cycle. The 2019 Title 24 standards will take effect on January 1, 2020. Under 2019 Title 24 standards, non-residential buildings will use about 30 percent less energy, mainly due to lighting upgrades, when compared to buildings constructed under 2016 Title 24 standards.[7]

California Green Building Standards

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a Statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and will go into effect on January 1, 2020. CALGreen requires new buildings to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials.

[7] California Energy Commission, *2019 Building Energy Efficiency* Standards, https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf, accessed July 9, 2019.

California Public Utilities Commission Energy Efficiency Strategic Plan

The California Public Utilities Commission (CPUC) prepared an Energy Efficiency Strategic Plan in 2011 with the goal of promoting energy efficiency and a reduction in greenhouse gases. Assembly Bill 1109, adopted in 2007, also serves as a framework for lighting efficiency. This bill requires the State Energy Resources Conservation and Development Commission to adopt minimum energy efficiency standards as a means to reduce average Statewide electrical energy consumption by not less than 50 percent from the 2007 levels for indoor residential lighting and not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018. According to the Energy Efficiency Strategic Plan, lighting comprises approximately one-fourth of California's electricity use while non-residential sector exterior lighting (parking lot, area, walkway, and security lighting) usage comprises 1.4 percent of California's total electricity use, much of which occurs during limited occupancy periods.

STANDARDS OF SIGNIFICANCE

Significance Criteria

In accordance with CEQA Guidelines, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. This memorandum will focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Appendix G of the CEQA Guidelines, the proposed project would have a significant impact related to energy, if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation (refer to Impact Statement EN-1); and/or

- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency (refer to Impact Statement EN-2).

The impact analysis focuses on the three sources of energy that are relevant to the proposed project: electricity, natural gas, and transportation fuel for vehicle trips associated with the project as well as the fuel necessary for project construction.

IMPACTS AND MITIGATION MEASURES

ENERGY CONSUMPTION

EN-1 WOULD THE PROJECT RESULT IN WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES?

Energy consumption associated with the proposed project is summarized in Table 4, *Project and Countywide Energy Consumption*. As shown in Table 4, the project's increase in electricity usage would constitute an approximate 0.042 percent increase in typical annual electricity usagee and an approximate 0.017 percent increase in typical annual natural gas consumption in the County. The project-related off-road automotive fuel consumption (i.e. fuel consumed during construction) would result in a 0.014 percent increase, and on-road automotive fuel consumption (i.e. fuel consumed from operational vehicle trips to and from the project site) would result in a 0.006 percent increase over Countywide automotive fuel consumption.

Table 4
Project and Countywide Energy Consumption

Energy Type	Project Annual Energy Consumption	San Bernardino County Annual Energy Consumption[1,2]	Percentage Increase Countywide
Electricity Consumption	6,501 MWh	15,323,269 MWh	0.042%
Natural Gas Consumption	83,926 therms	500,082,474 therms	0.017%
Automotive Fuel Consumption[3,4]			
• Project Construction[5]	39,385 gallons	274,404,444 gallons	0.014%
• Project Operations	58,114 gallons	945,024,765 gallons	0.006%

Notes:
1. The project increases in electricity and natural gas consumption are compared with the total consumption in San Bernardino County in 2019.
2. The project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2019.
3. Construction fuel consumption is based equipment and load factors from California Emissions Estimator Model (CalEEMod version 2016.3.2)
4. Countywide fuel consumption is from the California Air Resources Board EMFAC2014 model.
5. The estimated construction fuel consumption is based on the project's construction equipment list timing/phasing, and hours of duration for construction equipment, as well as vendor, hauling, and construction worker trips.

Refer to Appendix A, *Energy Data* for assumptions used in this analysis.

Construction-Related Energy

During construction, the project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during grading, paving, and building construction. Fuel energy consumed during construction would be temporary in nature and would not represent a significant demand on energy resources. Some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest EPA and California Air Resources Board engine emissions standards. These emissions standards require highly efficient combustion systems that maximize fuel efficiency and reduce unnecessary fuel consumption. Due to increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction.

Substantial reductions in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than non-recycled materials. The incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. It is reasonable to assume that production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest in minimizing the cost of doing business.

As indicated in Table 4, the overall fuel consumption during construction of the project would be 39,385 gallons, which would result in a nominal increase (0.014 percent) in fuel use in the County. As such, project construction would have a minimal effect on the local and regional energy supplies. It is noted that construction fuel use is temporary and would cease upon completion of construction activities. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. Therefore, construction fuel consumption would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. A less than significant impact would occur in this regard.

Operational Energy

Energy Demand

Transportation Energy Demand

Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration (NTSA) is responsible for establishing additional vehicle standards and for revising existing standards. Compliance with Federal fuel economy standards is not determined for each individual vehicle model. Rather, compliance is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. Table 4 provides an estimate of the daily fuel consumed by vehicles traveling

to and from the project site. As indicated in Table 4, project operations are estimated to consume approximately 58,114 gallons of fuel per year, which would increase Countywide automotive fuel consumption by 0.006 percent. The project would not result in any unusual characteristics that would result in excessive long-term operational fuel consumption. Fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

Building Energy Demand

Operations of the proposed project would require approximately 6,501 MWh of electricity per year and approximately 83,926 therms of natural gas per year. The proposed project would be required to comply with Title 24 Building Energy Efficiency Standards, which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. Furthermore, the electricity provider, SCE, is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 50 percent of total procurement by 2030. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance of such energy resources further ensures projects will not result in the waste of the finite energy resources.

As indicated in Table 4, operational energy consumption would represent an approximate 0.042-percent increase in electricity consumption over the current Countywide usage. The project would adhere to all Federal, State, and local requirements for energy efficiency, including the Title 24 standards. As such, the project would not result in the inefficient, wasteful, or unnecessary consumption of building energy.

Conclusion

As shown in Table 4, the increase in electricity and automotive fuel consumption over existing conditions is minimal (less than one percent). For the reasons described above, the project would not place a substantial demand on regional energy supply or require significant additional capacity, or significantly increase peak and base period electricity demand. Thus, the project would not cause a wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance, or preempt future energy development or future energy conservation.

CONFLICT WITH APPLICABLE ENERGY PLAN

EN-2 WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY?

The Renewable Energy and Conservation Element of the *County of San Bernardino General Plan (*General Plan*)* provides a road map for the County to achieve its energy goals. Implementation of the Renewable Energy and Conservation Element will benefit each of the County's unincorporated regions, including the project site. Table 5, *Project Consistency with the Renewable Energy and Conservation Element*, provides an evaluation of project consistency with applicable goals and policies of the Renewable Energy and Conservation Element. As shown in Table 5, the project would comply with the applicable goals and policies of the Renewable Energy and Conservation Element.

Table 5
Project Consistency with the Renewable Energy and Conservation Element

Goals and Policies	Project Consistency Analysis
RE Goal 1: The County will pursue energy efficiency tools and conservation practices that optimize the benefits of renewable energy. *RE Policy 1.2: Optimize energy efficiency in the built environment.*	**Consistent.** The project would be required to comply with the CALGreen Non-residential Mandatory Measure 5.106.5.2, *Designated parking for clean air vehicles*, and CALGreen Non-residential Mandatory Measure 5.106.5.3, *Electric Vehicle (EV) Charging*. These measures require the project to incorporate 11 spaces for clean air vehicles and seven stalls for electric vehicle (EV) charging.
RE Goal 4: The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.	**Consistent.** The project would support sustainable energy production through utilization of SCE electricity (refer to *RE Goal 6* below). Further, the project would support sustainable energy consumption by complying with CALGreen standards (refer to *RE Goal 1* above).
RE Goal 6: County regulatory systems will ensure that renewable energy facilities are designed, sited, developed, operated and decommissioned in ways compatible with our communities, the natural environment, and applicable environmental laws. *RE Policy 6.4: Support the governor's initiative to obtain 50% of the energy consumed in the state through RE generation sources by 2040.*	**Consistent.** Although the project would not be an electricity provider, the project would utilize electricity from SCE which would be subject to Senate Bill 100 (SB 100). SB 100 requires 44 percent of the energy mix to be renewable energy by 2024, 52 percent by 2027, 60 percent by 2030, and 100 percent by 2045. In 2017, 29 percent of SCE's electricity came from renewable resources.[1] By 2030 SCE plans to achieve 80 percent carbon-free energy.[2] As the project would utilize electricity from SCE, the project would be consistent with RE Goal 6.

Notes:
1. California Energy Commission, *2017 Power Content Label Southern California Edison*, file:///H:/pdata/171776/Admin/Reports/Environmental/Technical%20Studies/AQGHG/Resources/SCE_2017_PCL.pdf, accessed July 23, 2019.
2. Southern California Edison, *The Clean Power and Electrification Pathway*, https://newsroom.edison.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/166/files/20187/g17-pathway-to-2030-white-paper.pdf, accessed July 23, 2019.

Source: County of San Bernardino, *County of San Bernardino General Plan Renewable Energy and Conservation Element*, adopted August 8, 2017 and amended February 2019.

Additionally, State and local plans for renewable energy and energy efficiency include the CPUC Energy Efficiency Strategic Plan, the 2019 California Building Energy Efficiency Standards (Title 24), and the 2016 CALGreen standards. The project would be required to comply with Title 24 and CALGreen standards. Compliance with the 2019 Title 24 standards and 2016 CALGreen standards would ensure the project incorporates energy efficient windows, insulation, lighting, ventilation systems, as well as water efficient fixtures and electric vehicle charging infrastructure. Further, the project would recycle and/or salvage a minimum of 65 percent of the nonhazardous construction and demolition waste per the 2019 CalGreen standards. Adherence to the CPUC's energy requirements would ensure conformance with the State's goal of promoting energy and lighting efficiency. Therefore, the proposed project would result in less than significant impacts associated with renewable energy or energy efficiency plans.

REFERENCES

1. California Air Resources Board, EMFAC2014.

2. California Energy Commission, *2017 Power Content Label Southern California Edison*, file:///H:/pdata/171776/Admin/Reports/Environmental/Technical%20Studies/AQGHG/Resources/SCE_2017_PCL.pdf, accessed July 23, 2019.

3. California Energy Commission, *2019 Building Energy Efficiency Standards*, https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf, accessed July 9, 2019.

4. California Energy Commission, *Electricity Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed July 8, 2019.

5. California Energy Commission, *Natural Gas Consumption by County*, http://www.ecdms.energy.ca.gov/, accessed July 8, 2019.

6. California Energy Commission, *Supply and Demand of Natural Gas in California*, https://ww2.energy.ca.gov/almanac/naturalgas_data/overview.html, accessed July 9, 2019.

7. California Department of Tax and Fee Administration, *Net Taxable Gasoline Gallons*, http://www.cdtfa.ca.gov/taxes-and-fees/MVF-10-Year-Report.pdf, accessed July 9, 2019.

8. California Public Utilities Commission, Energy Efficiency Strategic Plan, 2011.

9. County of San Bernardino, *County of San Bernardino General Plan Renewable Energy and Conservation Element*, adopted August 8, 2017 and amended February 2019.

10. Southern California Edison, *The Clean Power and Electrification Pathway*, https://newsroom.edison.com/internal_redirect/cms.ipressroom.com.s3.amazonaws.com/166/files/20187/g17-pathway-to-2030-white-paper.pdf, accessed July 23, 2019.

11. U.S. Energy Information Administration, *Table F32: Total energy consumption, price, and expenditure estimates, 2017*, https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_te.html&sid=CA, accessed June 26, 2019.

12. U.S. Energy Information Administration, *California State Profile and Energy Estimates*, https://www.eia.gov/state/?sid=CA, accessed July 9, 2019.

APPENDIX A
ENERGY DATA

Land Use	Natural Gas Use	Electricity Use	Electricity Use
	(kBTU/yr)	(kWh/yr)	(MWh/yr)
General Office Building	24,290	75010	75
Refrigerated Warehouse- No Rail	8,368,350	6413400	6,413
Other asphalt Surfaces	-	0	0
Parking Lot	-	12,152	12
City Park	-	-	0
Total kBTU	**8,392,640**	**6,500,562**	6,501
Total Therms	83,926	--	--
Total MWh	--	6,501	

1 kBTU = 0.01 therms

Energy Type	Project Annual Energy Consumption	San Bernardino County Annual Energy	Percentage Increase Countywide
Electricity (MWh)	6,501	15,323,269	0.042%
Natural Gas (Therms)	83,926	500,082,474	0.017%

Vehicle Type	Percent of Vehicle Trips[1]	Daily Trips[2]	Annual Vehicle Miles Traveled[3]	Average Fuel Economy (miles per gallon)[4]	Total Annual Fuel Consumption (gallons)[5]
Passenger Cars	0.80	--	714881.55	22	32,495
Light/Medium Trucks	0.03	--	31085.71	17.3	1,797
Heavy Trucks/Other	0.17	--	152463.74	6.4	23,822
TOTAL [6]	***1.00***	--	***898,431***	**--**	***58,114***

Notes:

1. Percent of Vehicle Trip distribution based on trip characteristics within the CalEEMod model.

2. Daily Trips calculated by multiplying the total daily trips by percent vehicle trips (i.e., Daily Trips x percent of Vehicle Trips).

3. Daily Vehicle Miles Traveled (VMT) calculated by multiplying percent vehicle trips by total VMT (i.e., VMT x percent of Vehicle Trips).

4. Average fuel economy derived from the Department of Transportation.

5. Total Daily Fuel Consumption calculated by dividing the daily VMT by the average fuel economy (i.e., VMT/Average Fuel Economy).

6. Values may be slightly off due to rounding.

Worker Trips						
Phase	**Phase Length (# days)**	**# Worker Trips**	**Worker Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption**
Demolition	20	13.00	14.70	191.1		7.673822831
Building Construction	165	159.00	14.70	2337.3		93.85675617
Grading	26	23.00	14.70	338.1	**24.90284233**	13.57676347
Paving	22	5.00	14.70	73.5		2.95147032
Architectural Coating	33	32.00	14.70	470.4		18.88941005
						136.9482228

VENDOR TRIPS						
Phase	**Phase Length (# days)**	**# Vendor Trips**	**Vendor Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption**
Demolition	20	0.00	6.90	0		0
Building Construction	165	63.00	6.90	434.7		52.09802628
Grading	26	0.00	6.90	0	**8.343886151**	0
Paving	22	0.00	6.90	0		0
Architectural Coating	33	0.00	6.90	0		0
						52.09802628

HAULING TRIPS						
Phase	**Phase Length (# days)**	**# Hauling Trips**	**Hauling Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption**
Demolition	20	1,052.00	20.00	21040		3678.815745
Building Construction	165	0.00	20.00	0		0
Grading	26	1,500.00	20.00	30000	**5.719231801**	5245.459713
Paving	22	0.00	20.00	0		0
Architectural Coating	33	0.00	20.00	0		0
						8924.275458

TOTAL OFF-SITE MOBILE GALLONS CONSUMED DURING CONSTRUCTION	**9,113.32**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallons per hour)	Duration (total hours/day)	# days	Total Fuel Consumption (gallons)
Demolition	Crawler Tractors	1	8.00	212	0.43	3.6464	8	20	583.424
Demolition	Excavators	1	8.00	158	0.38	2.4016	8	20	384.256
Demolition	Graders	2	8.00	187	0.41	3.0668	16	20	981.376
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37	1.4356	8	20	229.696
Building Construction	Cranes	1	7.00	231	0.29	2.6796	7	165	3094.938
Building Construction	Forklifts	3	8.00	89	0.20	0.712	24	165	2819.52
Building Construction	Generator Sets	1	8.00	84	0.74	2.4864	8	165	3282.048
Building Construction	Paving Equipment	2	8.00	132	0.36	1.9008	16	165	5018.112
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	1.4356	21	165	4974.354
Building Construction	Welders	1	8.00	46	0.45	0.828	8	165	1092.96
Grading	Graders	3	8.00	187	0.41	3.0668	24	26	1913.6832
Grading	Rubber Tired Dozers	1	8.00	247	0.40	3.952	8	26	822.016
Grading	Scrapers	1	8.00	367	0.48	7.0464	8	26	1465.6512
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37	1.4356	32	26	1194.4192
Paving	Pavers	2	8.00	130	0.42	2.184	16	22	768.768
Paving	Paving Equipment	2	8.00	132	0.36	1.9008	16	22	669.0816
Paving	Rollers	2	8.00	80	0.38	1.216	16	22	428.032
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37	1.4356	8	22	252.6656
Architectural Coating	Air Compressors	1	6.00	78	0.48	1.4976	6	33	296.5248
								Sum Total:	30,272
								Off-Site Mobile Construction Total:	9,113.32
								TOTAL:	**39,385**

Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Where:

Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.