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MEMORANDUM

DATE: March 11, 2020

TO: Dan Darnell , Carson Companies

FROM: Ron Brugger, LSA Associates, Inc.

SUBJECT: Energy Use Assessment for the Agua Mansa Industrial Project

INTRODUCTION

LSA has completed an Energy Use Assessment to determine potential energy-related impacts associated with the proposed Agua Mansa Industrial Project (project). This Energy Use Assessment has been conducted consistent with applicable City of Jurupa Valley (City) procedures and California Environment Quality Act (CEQA) requirements. An air quality and greenhouse gas (GHG) impact analysis[1] and a traffic impact analysis[2] were prepared for the project. As GHG emissions are directly related to energy use, this assessment utilizes the findings of these two analyses to conduct this examination of the project's energy-related impacts.

Project Description

The Agua Mansa Industrial Project site is at 12340 Aqua Mansa Road in the Agua Mansa Industrial Corridor (AMIC) of Jurupa Valley. The project would construct two separate buildings on the project site for industrial uses. Building A would be 140,198 square feet (sf) on an 8.94-acre lot, and Building B would be 194,804 sf in a 14.49-acre lot. The project would also include associated parking and landscaping.

REGULATORY FRAMEWORK

Federal Regulations

The Energy Policy Act of 2005 seeks to reduce reliance on nonrenewable 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, 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.

In addition, Corporate Average Fuel Economy (CAFE) standards are federal regulations that are set to reduce fossil-fuel energy consumed by on-road motor vehicles. The National Highway Traffic

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1 LSA, 2019. *Air Quality and Greenhouse Gas Impact Analysis, Agua Mansa Industrial Project, Jurupa Valley, California.* May.

2 LSA, 2020. Traffic Impact Analysis for the Agua Mansa Industrial Project. February,

Safety Administration (NHTSA) regulates the standards, and the United States Environmental Protection Agency (USEPA) measures vehicle fuel efficiency. The standards specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. The current standard is 27.5 miles per gallon (mpg) for passenger cars and 20.7 mpg for light-duty trucks. In 2009, a national fuel economy program was adopted that required an average fuel economy standard of 35.5 mpg in 2016 (39 mpg for cars and 30 mpg for trucks). The second phase of the CAFE standards, finalized in 2012, covered model years 2017–2025, with an equivalency of approximately 54.5 mpg.

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 "correct" the national automobile fuel economy 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 2025. Final rulemaking on the SAFE Vehicles Rule is pending.[3]

State Regulations

In 2002, the California Legislature passed Senate Bill (SB) 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the Integrated Energy Policy Report - IEPR. 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 lowest 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 (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

In August 2018, the CEC adopted the *2018 Integrated Energy Policy Report Update*.[4] The *2018 Integrated Energy Policy Report Update* 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 *2018 Integrated Energy Policy Report Update* 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 (in response to SB 1383), updates on Southern California electricity reliability, the natural gas outlook, and climate adaptation and resiliency.

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3 National Highway Traffic Safety Administration (NHTSA). 2019. SAFE: The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule. Website: www.nhtsa.gov/corporate-average-fuel-economy/safe (accessed January 2020).

4 California Energy Commission (CEC). 2018. *2018 Integrated Energy Policy Report Update*. Publication Number CEC-100-2018-001-V1. Website: www.energy.ca.gov/2018_energypolicy (accessed January 2020).

The State provides a minimum standard for building design and construction standards through Title 24 of the California Code of Regulations (CCR), known as the California Building Code (CBC).[5] The CBC is updated every three years, and the current 2019 California Building Standards Code (CCR Title 24) became effective January 1, 2020. Compliance with Title 24 is mandatory at the time new building permits are issued by local governments. Generally, the CBC is adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions.

The California Building Standards Commission (CBSC) adopted Part 11 of the Title 24 Building Energy Efficiency Standards (also referred to as the California Green Building Standards Code, or CALGreen Code) in 2010 as part of the State's efforts to reduce GHG emissions and reduce energy consumption from residential and nonresidential buildings. The CALGreen Code covers 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.

Local Regulations

City of Jurupa Valley General Plan 2017

The Conservation and Open Space Element of the *City of Jurupa Valley General Plan 2017*[6] includes energy policies intended to conserve energy. The following policies are applicable to the project:

- **Policy COS 5.1 Best Available Practices.** The City will employ the best available practices in energy conservation, procurement, use, and production, and encourage individuals, organizations and other agencies to do likewise. "Best available practices" means behavior and technologies that reflect recommendations of specialists and that use the least energy for a desired outcome, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies. Best available practices include use of sustainable energy sources. Sustainable energy sources are naturally renewed in a relatively short time and avoid substantial undesirable side effects, and include:

    1. Space heating and cooling using earth, plantings, and/or building thermal mass to moderate temperature changes.
    2. Space cooling through natural ventilation.
    3. Space cooling through reflectivity and shading.
    4. Indoor illumination by natural light.
    5. Solar space and water heating.
    6. Wind electricity generation.

- **Policy COS 5.5 Energy Efficiency and Green Building.** Encourage energy-efficient "green buildings" as addressed by the U.S. Green Building Council's LEED® (Leadership in Energy and Environmental Design) Program or through other similar programs.
- **Policy COS 5.6 Energy Efficiency Incentives.** Support standards, incentives and innovative technologies that encourage and allow developers, designers, and property owners to design,

[5] California Building Standards Commission 2019 Triennial Edition of Title 24. Website: www.dgs.ca.gov/BSC/Codes (accessed January 2020).

[6] City of Jurupa Valley. 2017. General Plan. October. Website: jurupavalley.org/Departments/Development-Services/Planning/General-Plan (accessed January 2020).

build, and operate buildings to achieve energy savings that exceed Title 24 requirements of the California Building Code.

The Air Quality Element of the *City of Jurupa Valley General Plan 2017*[7] includes an energy policy intended to conserve energy. The following policy is applicable to the project:

- **Policy AQ 5.2 Energy Conservation.** Encourage advanced energy conservation techniques and the incorporation of energy-efficient design elements for private and public developments, including appropriate site orientation and the use of shade and windbreak trees to reduce fuel consumption for heating and cooling, and offer incentives, as appropriate.

Western Riverside Council of Governments Subregional Climate Action Plan June 2014

The Western Riverside Council of Governments (WRCOG) completed a Subregional Climate Action Plan (CAP) in June 2014. Twelve cities in Western Riverside County, including Jurupa Valley, joined efforts to develop this Subregional CAP, which sets forth a subregional emissions reduction target, emissions reduction measures, and action steps to assist each community to demonstrate consistency with California's Global Warming Solutions Act of 2006 (Assembly Bill 32). The following policies are applicable to the project:

- **Measure SR-2: 2013 California Building Energy Efficiency Standards (Title 24, Part 6).** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
- **Measure SR-4: HERO Commercial Program.** A public-private partnership administered by WRCOG, offering financing to business owners in the subregion for the installation of energy efficient, renewable energy, and water conservation improvements.
- **Measure SR-5: Utility Programs**. Southern California Edison (SCE) and Southern California Gas Company (SCG) each offer rebate programs to reduce energy consumption.
- **Measure SR-6: Pavley and Low Carbon Fuel Standard (LCFS).** CARB identified this measure as a "Discrete Early Action Measure." This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.
- **Measure SR-10: Telecommuting.** Telecommuting would reduce GHG emissions associated with vehicles no longer on the road.
- **Measure SR-11: Goods Movement:** Efficient movement of goods through inland Southern California.
- **Measure SR-13: Construction and Demolition Waste Diversion.** Meet mandatory requirement to divert 50 percent of C&D waste from landfills by 2020 and exceed requirement by diverting 90 percent of C&D waste from landfills by 2035.
- **Measure SR-14: Water Conservation and Efficiency.** Reduce per capita water use by 20 percent by 2020. SB X7-7 is part of a California legislative package passed in 2009 that requires urban

[7] City of Jurupa Valley. 2017. General Plan. October. Website: jurupavalley.org/Departments/Development-Services/Planning/General-Plan (accessed January 2020).

retail water suppliers to reduce per-capita water use by 10% from a baseline level by 2015, and to reduce per capita water use by 20 percent by 2020. Green accountability performance (GAP) Goal 16 directly aligns with SB X7-7. In Southern California, energy costs and GHG emissions associated with the transport, treatment, and delivery of water from outlying regions are high. Therefore, the region has extra incentive to reduce water consumption. While this is considered a state measure, it is up to the local water retailers, jurisdictions, and water users to meet these targets.

- **Measure E-1: Energy Action Plans:** Improve municipal and community-wide energy efficiency and reduce energy consumption through the adoption of local Energy Action Plans (EAP).
- **Measure E-3, Shade Trees:** Strategically plant trees at new nonresidential developments to reduce the urban heat island effect.
- **Measure T-3, End of Trip Facilities:** Encourage use of non-motorized transportation modes by providing appropriate facilities and amenities for commuters.
- **Measure T-4, Promotional Transportation Demand Management:** Encourage transportation demand management strategies.
- **Measure T-5: Transit Service Expansion;** Collaborate with local and regional transit providers to increase transit service provided in the subregion.
- **Measure T-6: Transit Frequency Expansion;** Collaborate with local and regional transit providers to provide more frequent transit in the subregion.
- **Measure T-7, Traffic Signal Coordination:** Incorporate technology to synchronize and coordinate traffic signals along local arterials.
- **Measure T-8, Density:** Improve jobs-housing balance and reduce vehicle miles traveled by increasing household and employment densities.
- **Measure T-10: Design/Site Planning:** Design neighborhoods and sites to reduce VMT.

THRESHOLDS OF SIGNIFICANCE

While no quantitative thresholds related to energy are included in the *State CEQA Guidelines*, the Guidelines indicate that a project would normally have a significant adverse energy impact if the project would do the following:

- Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency

For purposes of this analysis, impacts to energy resources will be considered significant if the project would result in the wasteful, inefficient, or unnecessary consumption of fuel or energy; and/or conversely if the project would not incorporate renewable energy or energy efficiency measures into building design, equipment use, transportation, or other project features.

PROJECT IMPACTS

The proposed project would increase the demand for electricity, natural gas, and gasoline when compared to the existing vacant condition of the site. The discussion and analysis provided below is

based on the data included in the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 output, which is included in Appendix A of the project's *Air Quality and Greenhouse Gas Impact Analysis*.[8]

Construction-Period Energy Use

The anticipated construction schedule assumes that the proposed project would be built over approximately 22 months. The proposed project would require site preparation, grading, building construction, paving, and architectural coating during construction.

Construction of the proposed project would require energy for the manufacture and transportation of building materials and for preparation of the site for grading activities and building construction. Petroleum fuels (e.g., diesel , gasoline) would be the primary sources of energy for these activities.

Construction activities are not anticipated to result in an inefficient use of energy, as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant, and no mitigation would be required.

Operational Energy Use

Energy use includes both direct and indirect sources of emissions. Direct sources of emissions include on-site natural gas usage for heating, while indirect sources include electricity generated by off-site power plants. Natural gas use in CalEEMod is measured in units of a thousand British Thermal Units (kBTU) per year; however, this analysis converts the results to natural gas in units of therms. Electricity use in CalEEMod is measured in kilowatt hours (kWh) per year.

CalEEMod divides building electricity and natural gas use into uses that are subject to Title 24 standards and those that are not. For electricity, Title 24 uses include the major building envelope systems covered by Part 6 (California Energy Code) of Title 24, such as space heating, space cooling, water heating, and ventilation. Non-Title 24 uses include all other end uses, such as appliances, electronics, and other miscellaneous plug-in uses. Because some lighting is not considered as part of the building envelope energy budget, CalEEMod considers lighting as a separate electricity use category.

For natural gas, uses are likewise categorized as Title 24 or Non-Title 24. Title 24 uses include building heating and hot water end uses. Non-Title 24 natural gas uses include cooking and appliances.

Table A, below, shows the estimated potential increased electricity, natural gas, gasoline, and diesel demand associated with the proposed project. The electricity and natural gas rates are from the CalEEMod analysis while the gasoline and diesel rates are based on the traffic impact analysis and VMT analysis (see attached worksheet) in conjunction with U.S. Department of Transportation fuel efficiency data.

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[8] LSA, 2019. *Air Quality and Greenhouse Gas Impact Analysis, Agua Mansa Industrial Project, Jurupa Valley, California.* May.

Table A: Estimated Annual Energy Use of Proposed Project

Land Use	Electricity Use (kWh per year)	Natural Gas Use (kBTU per year)	Gasoline (gallons per year)	Diesel (gallons per year)
Industrial	3,400,250	10,884,100	182,306	187,743
Parking Lot	32,760	0	0	0
Total	**4,433,010**	**10,884,100**	**182,306**	**187,743**

Source: Compiled by LSA (February 2020).
kBTU = thousand British thermal units
kWh = kilowatt hours

As shown in Table A, the estimated potential increased electricity demand associated with the proposed project is 4,433,010 kWh per year. In 2018, California consumed approximately 281,120 gigawatt-hours (GWh) or 281,120,200,000 kWh.[9] Of this total, Riverside County consumed 15,980 GWh or 15,980,727,891 kWh.[10] Therefore, electricity demand associated with the proposed project would be less than 0.03 percent of Riverside County's total electricity demand.

As shown in Table A, the estimated potential increased natural gas demand associated with the proposed project is 10,884,100 kBTU per year or 108,841 therms.[11] In 2018, California consumed approximately 12,571 million therms or 12,571,000,000 therms, while Riverside County consumed approximately 399 million therms or approximately 398,538,428 therms.[12] Therefore, natural gas demand associated with the proposed project would be less than 0.03 percent of Riverside County's total natural gas demand.

Further, the proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 mpg in 1980 to 22.0 mpg in 2015.[13] The average fuel economy for heavy-duty trucks in the United States has also steadily increased, from 5.7 mpg in 2013 to 6.7 mpg in 2019.[14]

Using the USEPA gasoline fuel economy estimates for 2015 and California diesel fuel economy estimates for 2019, and the traffic data, including the estimated truck trips, from the project traffic analyses, the proposed project would result in the annual consumption of approximately 182,306 gallons of gasoline and 187,743 gallons of diesel. As shown in the attached worksheet, these fuel usage rates are anticipated to be greatest in the opening year. In 2015, vehicles in California

9 CEC. 2018. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed January 2020).

10 CEC. 2018. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed January 2020).

11 1 therm = 100 kBTU

12 CEC. 2018. Gas Consumption by County. Website: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed January 2020).

13 U.S. Department of Transportation (USDOT). 2017. Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles. Website: www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/ (accessed January 2020).

14 CEC. 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: efiling.energy.ca.gov/getdocument.aspx?tn=206180 (accessed January 2020).

consumed approximately 15.1 billion gallons of gasoline and 4.2 billion gallons of diesel.[15] Therefore, gasoline and diesel demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California, and by extension, in Riverside County.

In addition, automobiles associated with trips to and from the project site would be subject to fuel economy and efficiency standards, which are applicable throughout the State. Similarly, the fuel efficiency of the trucks associated with project operations would also increase throughout the life of the project. As such, the fuel efficiency of vehicles associated with project operations would increase throughout the life of the project. Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses.

Operational Energy Use Summary

The *Air Quality and Greenhouse Gas Impact Analysis* also analyzed the project's consistency with the South Coast Air Quality Management District's (SCAQMD) and the WRCOG's CAP, adopted by Jurupa Valley. The project would produce GHG emissions greater than the SCAQMD GHG screening threshold, but would be consistent with the WRCOG's CAP GHG policies and goals.

Goals and policies in the WRCOG's CAP work to reduce GHG emissions and energy use through land use management, education, energy and water use, air quality, transportation, waste reduction, economic development, and natural habitats. Compliance with the WRCOG's CAP would help to reduce energy and natural gas consumption as well as gasoline usage. Therefore, 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 uses, and transportation. Impacts would be less than significant, and no mitigation measures would be necessary.

Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to 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 impacts to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the CEC's *2018 Integrated Energy Policy Report Update*. In addition, as indicated above, the proposed project would comply with Title 24 and CALGreen Code standards and be consistent with Municipal Code requirements and the WRCOG's CAP. Thus, as shown above, the proposed project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant, and no mitigation measures would be necessary.

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[15] CEC. 2017. California Gasoline Data, Facts, and Statistics. Website: www.energy.ca.gov/almanac/transportation_data/gasoline/ (accessed January 2020).

Attachment: Project Fuel Usage Worksheet

Fuel Usage Worksheet

Project Fuel Usage

Year	VMT per employee trip	VMT per truck trip	Gasoline employee vehicle annual VMT	Gasoline truck annual VMT	Diesel employee vehicle annual VMT	Diesel truck annual VMT	Employee Vehicle mpg	Truck mpg	Annual Gasoline Consumption	Annual Diesel Consumption
2012	9.7	19.4	3,668,481	104,232	367,731	1,145,891	22	6.7	182,306	187,743
2018	9.5	19.4	3,592,842	104,232	360,149	1,145,891	22	6.7	178,868	187,399
2040	8.9	19.5	3,365,926	104,769	337,402	1,151,797	22	6.7	168,634	187,247

Notes: VMT per employee and truck trips from project VMT analysis

Assumed that the daily ADT does not vary from year to year and occurs for 365 days per year

Assumed that the car and 2-axle truck categories represent the employee vehicles

Assumed that the 3-axle and 4-axle truck categories represent the truck trips

Gasoline Fuel Economy from U.S. Department of Transportation (USDOT). 2017. Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles. Website: www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/ (accessed January 2020).

Diesel Fuel Economy from California Energy Commission (CEC). 2015. Medium and Heavy-Duty Truck Prices and Fuel Economy 2013–2026. Website: efiling.energy.ca.gov/getdocument.aspx?tn=206180 (accessed January 2020).

Summary	ADT	% of Vehicles That Are Diesel-Powered
Trip Generation (Cars)	1,035	2.6%
Trip Generation (2-Axle Trucks)	105	73.5%
Trip Generation (3-Axle Trucks)	51	73.5%
Trip Generation (4+ Axle Trucks)	125	99.1%

ADT data from the LSA 2020. Traffic Impact Analysis for the Agua Mansa Industrial Project. February. Diesel percentages from EMFAC2017 fleet populations.