3.5 Energy

This section is based on the *Sepulveda Transit Corridor Project Energy Technical Report*, incorporated into this DEIR as Appendix J.

3.5.1 Regulatory and Policy Framework

Additional federal, state and local regulations and policies relevant to energy are described in Section 3.7, Greenhouse Gas Emissions.

3.5.1.1 Federal

The Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was enacted to service the nation's energy demands and promote conservation methods when feasible. This federal Act mandated vehicle fuel economy standards, extended oil price controls to 1979, and directed the creation of a strategic petroleum reserve.

Alternative Motor Fuels Act

The Alternative Motor Fuels Act of 1988 amended a portion of the Energy Policy and Conservation Act to encourage the use of alternative fuels, including electricity. This Act directed the Secretary of Energy to ensure that the maximum practicable number of federal passenger automobiles and light-duty trucks be alcohol-powered vehicles, dual-energy vehicles, natural gas-powered vehicles, or natural gas dual-energy vehicles.

Energy Policy Acts

The Energy Policy Act of 1992 reduced dependence on imported petroleum by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy and energy efficiency. This Act encourages the use of alternative fuels through both regulatory and voluntary activities and through the approaches carried out by the U.S. Department of Energy. It requires federal, state, and alternative-fuel provider fleets to acquire alternative-fuel vehicles.

The Energy Policy Act of 2005 promulgated the development of grant programs, demonstration and testing initiatives, and tax incentives that promote alternative fuels and advanced vehicles production and use. This Act also amended prior regulations, including fuel economy testing procedures and Energy Policy Act of 1992 requirements for federal, state, and alternative-fuel provider fleets. The Energy Policy Act of 2005 addresses energy production in the U.S., including (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Tribal energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 includes several key provisions that will increase energy efficiency and the availability of renewable energy. The Act was designed to increase the supply of alternative fuel sources, improve efficiency for heating and cooling products, phase out incandescent light bulbs, and improve fuel efficiency standards.

Moving Ahead for Progress in the 21st Century Act

The Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21), was a multi-year transportation authorization for funding surface transportation programs. MAP-21 incorporates energy conservation as a core consideration in surface transportation development and included, in surface transportation development funding, the funding of a public transportation research program with a focus on energy efficiency, system capacities, and other surface transportation factors.

3.5.1.2 State

The Warren-Alquist Act

The California Legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the California Energy Commission (CEC), which is the state's primary energy policy and planning agency. The CEC has the following five major responsibilities:

1. Forecasting future energy needs and keeping historical energy data
2. Licensing thermal power plants 50 megawatts (MW) or larger
3. Promoting energy efficiency through appliance and building standards
4. Developing energy technologies and supporting renewable energy
5. Planning for and directing the state's response to energy emergencies

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy. The CEC adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The IEPR provides a summary of priority energy issues, outlining strategies and recommendations to further the goal of ensuring reliable, affordable, and environmentally responsible energy sources. The current IEPR is the 2023 *Integrated Energy Policy Report Update* (CEC, 2024).

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 of 2000, the CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report with recommendations for reducing dependence on petroleum. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per-capita vehicle miles traveled (VMT). A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Assembly Bill 1007: Alternative Fuels Plan

The Alternative Fuels Plan of 2005 requires the CEC to prepare an alternative fuels plan to increase the use of alternative fuels in California. The Plan aims to diversify fuel sources and protect the state from oil spikes that affect prices, the economy, and jobs. Additionally, the Plan indicates that significant efforts would be needed to reduce VMT by all Californians through more effective land use and transportation planning and greater mass movement of people and goods.

Alternative and Renewable Fuel and Vehicle Technology Program

AB 118 of 2007 created the Alternative and Renewable Fuel and Vehicle Technology Program, to be administered by the CEC. The Program establishes measures — including grant awards, revolving loans, and loan guarantees — to develop and deploy new fuel and vehicle technologies to help achieve petroleum reductions. The Program was amended in 2008 and 2013 to allow the CEC itself to develop and deploy alternative and renewable fuels, alternative- and renewable-fueled vehicles, and other advanced transportation technologies to meet the state goals.

California Air Resources Board Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted the Off-Road Vehicle Regulation to reduce diesel particulate matter (DPM) and nitrogen oxides (NO_x) emissions from in-use (existing) off-road, heavy-duty diesel vehicles in California. The regulation applies to all self-propelled off-road diesel vehicles of 25 horsepower or greater used in California and most two-engine vehicles (except on-road two-engine sweepers). The regulation also applies to vehicles that are rented or leased (rental or leased fleets). Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, airport ground support equipment, water well drilling rigs, and two-engine cranes. Such vehicles are used in construction, mining, and industrial operations. The regulation does not apply to stationary equipment or portable equipment such as generators. The off-road vehicle regulation establishes emissions performance requirements, establishes reporting, disclosure, and labeling requirements for off-road vehicles, and it limits unnecessary idling. In November 2022, CARB amended the regulation to require fleets to phase out use of the oldest and highest-polluting off-road diesel vehicles in California; to prohibit the addition of high-emitting vehicles to a fleet; and to require the use of R99 or R100 renewable diesel in off-road diesel vehicles. Beginning January 1, 2024, all fleets are required to procure and use renewable diesel in all vehicles owned or operated in California that are subject to the off-road vehicle regulation, with some limited exceptions, including lack of available renewable diesel.[1]

California Code of Regulations Building Energy Efficiency Standards Title 24

Title 24 applies to all newly constructed non-residential buildings and regulates minimum energy efficiencies for cooling, heating, ventilation, water heating, and lighting. California Code of Regulations, Title 24, Part 11 is the California Green Building Code and identifies mandatory building measures and voluntary measures that may be incorporated into the design of buildings. Title 24 contains requirements for cool roofs, exterior lighting, bicycle parking, and electric-vehicle charging. In addition, it requires mandatory inspections of energy systems (e.g., heat furnace, air conditioner, and mechanical equipment) for non-residential buildings larger than 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. Metro requires buildings over 10,000 square feet to meet the California Green Building Code Tier 2 requirements, which requires meeting more stringent Tier 2 building energy efficiency levels and necessitates the use of the Building Energy Code's "Performance Method" for documenting code compliance.

3.5.1.3 Regional

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the Metropolitan Planning Organization for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG addresses regional issues related to transportation, the economy, community development, and the environment. SCAG develops plans pertaining to transportation, growth management, hazardous waste management, housing, and air quality. SCAG is required by federal law to prepare and update a long-range Regional Transportation Plan (RTP). California SB 375 requires that the RTP include a Sustainable Communities Strategy (SCS) that outlines growth strategies for land use and transportation.

The SCAG Regional Council formally adopted the *Connect SoCal, 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy* (2024-2050 RTP/SCS) on April 4, 2024 (SCAG, 2024). The SCAG 2024-2050 RTP/SCS focuses on maintaining and enhancing management of the transportation network while also expanding mobility choices by creating hubs that connect housing, jobs, and transit

[1] Metro's Green Construction Policy also requires the use of Renewable Diesel.

accessibility. It incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, and encouraging growth in walkable communities. The SCAG 2024-2050 RTP/SCS optimizes opportunities for shorter trip distances and drivers to switch to electric vehicles by directing growth to areas with high-quality transit. Development in these areas will be guided by strategies to focus growth near destinations and mobility options, promoting diverse housing choice, leveraging technology innovations, and supporting implementation of sustainability policies.

Transportation demand management is a set of strategies outlined in the SCAG 2024-2050 RTP/SCS that aims to reduce the demand for roadway travel, particularly from single-occupancy vehicles. Strategies and transportation choices that improve sustainability, public health, and the quality of life by reducing congestion. The SCAG 2024-2050 RTP/SCS acknowledges that when transit ridership, carpooling, bicycling, and walking increase, the efficiency of the entire transportation system improves. Numerous co-benefits can materialize, including energy efficiency savings.

Los Angeles Countywide Sustainability Plan

In 2019, the Los Angeles County Sustainability Office published "Our County," a regional sustainability plan for the communities in Los Angeles County. It outlines what local governments and stakeholders can do to enhance their communities while reducing damage to the environment. It contains 12 goals focusing on a variety of sectors. Goals relevant to the Project include the following:

- Goal 7: A fossil fuel-free LA County
  - By 2025 achieve a 25 percent reduction in total greenhouse gas (GHG) emissions and add 3 gigawatts (GW) of new distributed energy
  - By 2035 achieve a 50 percent reduction in total GHG emissions and add 6 GW of new distributed energy resources
  - By 2045, add 10 GW of new distributed energy resources; and
  - By 2050, achieve carbon neutrality
- Goal 8: A convenient, safe, clean, and affordable transportation system that enhances mobility while reducing car dependency
  - By 2025, increase to at least 15 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 20 miles
  - By 2035, increase to at least 30 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 15 miles
  - By 2045, increase to at least 50 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 10 miles

Los Angeles County Metropolitan Transportation Authority

In recent years, the Los Angeles County Metropolitan Transportation Authority (Metro) has implemented several policies and plans to enhance energy efficiency throughout its system. In 2011, Metro published its *Energy Conservation and Management Plan* (ECMP) (Metro, 2011a) to serve as a strategic blueprint for proactively guiding energy use in a sustainable, cost-effective, and efficient manner. The ECMP complements Metro's 2007 Energy and Sustainability Policy (Metro, 2007), focusing on electricity for rail-vehicle propulsion, electricity for rail and bus facility purposes, natural gas for rail and bus facility purposes, and the application of renewable energy. The ECMP addresses current and

projected energy needs based on 2010 utility data and existing agency plans to meet increasing ridership through system expansion and new facility construction incorporating Measure R (Metro, 2008) initiatives.

The ECMP examines both supply and demand aspects of energy consumption and analyzes energy use profiles and the various procurement options in terms of rate structures and supply contracts available to the agency. It also identifies opportunities to reduce energy consumption and realize cost savings through the implementation of low-cost operational initiatives and cost-effective capital retrofits. The ECMP includes an evaluation of an optimal organizational structure for its implementation and provides recommended strategies for achieving the objectives set forth. The ECMP strategies follow a process of Plan-Do-Check-Act by establishing the *Energy Management Action Plan* (EMAP), implementing the EMAP, conducting annual reviews, and adjusting or modifying the EMAP based on gathered feedback and documented performance. In the short term, the ECMP called for expansion of utility data collection and sub-metering of buildings and propulsion injection points to enhance the accuracy of system analyses and identify primary opportunities for improvements.

Following publication of the ECMP, Metro began preparing annual energy and resource reports to provide evaluations on the effectiveness of ECMP strategies. The most recent iteration is the 2019 *Energy and Resource Report* (Metro, 2019a), which analyzes the sustainability and environmental performance of Metro operational activities during the 2017 calendar year. Key accomplishments highlighted in the 2019 *Energy and Resource Report* (Metro, 2019a) include the expansion of electric-vehicle charging station availability and Metro's electric-vehicle fleet, improvement of Metro's sustainability goals and implementation, implementation of Metro Rail Design Criteria that utilizes sustainable features in project design and encourages the use of third-party certifications such as Leadership in Energy and Environmental Design. Metro's 2017 *Energy and Resource Report* (Metro, 2017) analyzes the 2016 calendar year and is also relevant for information on systemwide energy usage.

In 2020, Metro published *Moving Beyond Sustainability*, a 10-year strategic plan that is the most comprehensive to date and sets goals, targets, strategies, and actions that align with and emanate from other key Metro guidance documents (Metro, 2020b). The plan is organized into topical strategic focus areas including Water Quality and Conservation; Solid Waste; Materials, Construction, and Operations; Energy Resource Management; Emissions and Pollution Control; Resilience and Climate Adaptation; and Economic and Workforce Development. By recognizing the intersectionality of these various focus areas, Metro designed a robust, holistic plan to guide the expansion and enhancement of its transit services into the future. Targets of the plan specifically related to energy include the following:

- Achieve Leadership in Energy and Environmental Design (LEED) Silver certification (or Envision certification where LEED is not applicable) for all new facilities over 10,000 square feet.
- Design and build 100 percent of capital projects to Title 24 Tier 2 standards.
- Reduce energy consumption by 17 percent at facilities from the 2030 Business-as-Usual Scenario.
- Increase on-site renewable energy generation to 7.5 MW.

Construction contractors will be required to comply with the provisions of the Metro *Green Construction Policy (GCP)*, which was adopted in 2011 — and subsequently updated in 2018 — to reduce harmful air pollutant emissions during Metro construction projects (Metro, 2011b; Metro, 2020b). Provisions of the GCP also contribute to minimizing energy consumption. Through adopting the GCP, Metro committed to the construction equipment requirements, construction best management practices, and

implementation strategies for all construction projects performed on Metro properties or within Metro right-of-way. The following summarized requirements are relevant to energy:

- All diesel engines used by contractors must be fueled with renewable diesel (2018 GCP Update).
- All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 4 off-road emission standards at a minimum.
- Every effort shall be made to utilize grid-based electric power at any construction site, where feasible.
- Best management practices shall include, at a minimum:
  - Maintain equipment according to manufacturer's specifications.
  - Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use (CARB exceptions apply).
  - Work with local jurisdictions to improve traffic flow by signal synchronization during construction hours, where feasible.
  - Configure construction parking to minimize traffic interference, where feasible.
  - Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
  - Use electric power in lieu of diesel power where available.

3.5.1.4 Local

City of Los Angeles General Plan and Associated Elements

The *City of Los Angeles General Plan* (General Plan) (DCP, 2001a) provides community development goals and policies relative to the distribution of land use. *The Citywide General Plan Framework Element* (Framework Element) (DCP, 2001b) establishes the broad overall policy and direction for the General Plan. It provides a citywide context and a comprehensive long-range strategy to guide the comprehensive update of the General Plan's other elements. The Framework Element's infrastructure policies seek to ensure that the Los Angeles Department of Water and Power (LADWP) would be able to adequately provide electric power transmission following regional development patterns. The Framework Element's infrastructure policies will continue to ensure that the City of Los Angeles's transmission and distribution system is able to accommodate future peak electric demand for its customers.

The Citywide General Plan Infrastructure Systems Element (DCP, 2001c) provides a broad overview of goals, plans, and policies related to the conservation of the city's infrastructure and public systems. Electrical energy and power within the City of Los Angeles is provided and supplied by LADWP. The *2017 LADWP Power Strategic Long-Term Resource Plan* is a 20-year roadmap that guides the LADWP power system in its efforts to supply reliable electricity in an environmentally responsible and cost-effective manner (LADWP, 2017).

Adopted by the Los Angeles City Council in September 2016, *Mobility Plan 2035* represents the transportation element of the General Plan, dedicated to improving multimodal connectivity throughout the City of Los Angeles (DCP, 2016). The *Mobility Plan 2035* includes goal-oriented policies to decrease

VMT per capita by 5 percent every five years, to 20 percent by 2035, and to reduce transportation-related energy use by 95 percent.

GreenLA Climate Action Plan

The City of Los Angeles began addressing the issue of global climate change in 2007 by publishing *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming* (LA Green Plan) (DCP, 2007). The LA Green Plan identified over 50 action items to address climate adaptation, and ClimateLA evaluated the potential efficacy of a range of strategies related to energy conservation, efficiency, and reduced reliance on automobiles for transportation (DCP, 2008).

City of Los Angeles Sustainable City Plan

Under Mayor Eric Garcetti the City of Los Angeles released its first-ever *Sustainable City pLAn* (the pLAn) on April 8, 2015 (City of Los Angeles Mayor's Office, 2015). Recognizing the risks posed by climate change, the pLAn set time-bound outcomes on climate action, most notably to reduce greenhouse gas emissions by 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050, all against a 1990 baseline. On April 29, 2019, Mayor Garcetti released the Los Angeles' Green New Deal, which is the first four-year update to the 2015 pLAn. The 2019 updates to the pLAn augments, expands, and elaborates in even more detail the city's vision for a sustainable future and new aggressive goals to place the city on the path to a zero-carbon future by 2050. The 2019 updates to the pLAn accelerate the following targets (City of Los Angeles Mayor's Office, 2019):

- Supply 55 percent renewable energy by 2025; 80 percent by 2036; and 100 percent by 2045 (LADWP).
- Reduce VMT per capita by at least 13 percent by 2025, 39 percent by 2035, and 45 percent by 2050.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025; and 75 percent by 2035.
- Increase the percentage of zero-emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.
- Convert all city fleet vehicles to zero emission where technically feasible by 2028

Ordinance No 187714

In December 2022, the City of Los Angeles passed Ordinance No. 187714 which mandates all-new buildings in the City to be equipped with all-electric infrastructure. The core provision of the ordinance is the requirement that newly constructed buildings in Los Angeles eliminate combustion equipment, including fuel or gas piping.

3.5.2 Methodology

This section describes the methodology used to estimate energy effects from temporary construction activities and long-term operations of each project alternative. The analysis for construction activities focuses on temporary, one-time expenditures of transportation fuels that would be consumed by off-road equipment and on-road vehicles involved in construction activities, which are direct energy effects. The operational analysis evaluates both direct (e.g., electricity use) and indirect effects (e.g., fuel savings from VMT reductions) on various energy resources on an annual basis.

The energy analysis discusses the types of energy resources that would be consumed by construction and operation of the Project and how they would be produced and distributed to the respective end

uses at the state and regional levels. Energy resources involved in the transit system implementation would include direct uses such as transportation fuels for locomotives and electricity use at stations and indirect uses such as fuel consumed by regional vehicular travel on the roadway network.

- **Transportation Fuels**. The spark-ignited internal combustion engines of on-road motor vehicles, locomotives, and off-road equipment use fossil fuel (petroleum) energy for propulsion. Gasoline and diesel fuel are formulations of fossil fuels refined for use in various applications. Gasoline is the primary fuel source for most passenger automobiles, and diesel fuel is the primary fuel source for most off-road equipment and medium- and heavy-duty trucks.
- **Electricity**. The production of electricity requires the consumption or conversion of other natural resources, whether it be water (hydroelectric power), wind, oil, gas, coal, or solar energy. The delivery of electricity as a utility involves several system components for distribution and use. Electricity is distributed through a network of transmission and distribution lines referred to as a power grid. Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh), which is the integral electricity consumption over a time period of 1 hour. On a utility scale, the capacity of electricity generation and amount of consumption is generally described in MW and MWh, respectively. For discussions involving regional scale electricity generation and consumption, units of gigawatt-hours (GWh) are used, which is equivalent to 1,000 MWh.

3.5.2.1 Construction

Construction activities would require energy resources for off-road equipment; mobile sources including worker vehicles, vendor trucks, and haul trucks; and electricity consumption from electric-powered equipment and on-site portable offices. Energy use was estimated using a spreadsheet approach based on energy use and methodologies from the California Emissions Estimator Model (CalEEMod), version 2022.1.1.19 (CAPCOA, 2022), CARB Emission Factor (EMFAC) model (EMFAC 2021, version 1.0.2), and the CARB Off-Road Diesel Engine Emissions Factors workbook (CARB, 2024b). CalEEMod is a model developed by the California Air Pollution Control Officers Association (CAPCOA) which quantifies ozone precursors, criteria pollutants, and GHG emissions from construction and operation of new land use development and linear projects in California; EMFAC2021 is a model developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California; and CARB maintains and updates its Off-Road Diesel Models and Documentation as part of its Mobile Source Emissions Inventory program.

The energy use estimates were based on alternative-specific construction data (schedule, equipment quantities, truck volumes, etc.) provided by design team engineers. Construction data for the project alternatives went through a collaborative process to develop reasonable construction assumptions based on current phases of design plans. Where alternative-specific data was not available, reasonable assumptions based on similar infrastructure/transit projects and default values from CalEEMod were used in the analysis. Based on the scale of project alternatives and progress in design development, conservative construction assumptions were used for each project alternative and would likely yield conservative estimates of energy resources consumption.

Off-Road Equipment

Construction activities would utilize a variety of diesel-powered off-road equipment (e.g., cranes, bulldozers, excavators, etc.) throughout the construction period. Off-road equipment horsepower (hp) ratings and load factors (LF) were obtained from the CalEEMod database. Off-road equipment diesel-

fuel use was estimated based on alternative-specific equipment activity data, which included the equipment quantity, horsepower (hp), LF, and daily usage (hours per day). Total diesel-fuel use for a piece of equipment was based on the daily energy use multiplied by the total days of usage during the construction period.

The CARB maintains a database of fuel consumption factors for off-road equipment. For diesel-fueled off-road equipment, the CARB EMFAC database contains fuel consumption factors for equipment up to 100 hp (0.0574 gallons diesel per horsepower-hour [0.0574 gal_D/hp-hr]) and for equipment over 100 hp (0.0516 gal_D/hp-hr). These consumption factors are referred to as Brake-Specific Fuel Consumption factors, as they are based on the brake hp of the equipment being used and the duration of use. Diesel-fuel consumption for off-road equipment type *"i"* during construction activities will be estimated using the following equation, where the LF is the average load of the equipment over the duration of use and is a unitless value between zero and one:

$$Fuel\ Consumption_i\ [gal_D] = \ BSFC_{\ i}\left[{}^{gal_D}/_{bhp\ \cdot\ hr.}\right] \times bhp_i[hp] \times LF_i \times Usage_i[hrs]$$

To estimate the total amount of diesel fuel that would be consumed by off-road equipment during project construction, fuel consumption was estimated for each piece of equipment's total hours of use and summed across the inventory for all equipment, phases, and activities involved in construction of the project alternatives.

On-Road Vehicles

Gasoline and diesel fuel would be used in worker vehicles, vendor trucks, and haul trucks. Consistent with CalEEMod methodology, the worker vehicle fleet mix consisted of 25 percent light-duty autos, 50 percent light-duty trucks type 1 (smaller personal trucks and sport utility vehicles [SUVs]), and 25 percent light-duty trucks type 2 (larger personal trucks and SUVs). Based on EMFAC2021 data, most light-duty vehicle categories are gasoline powered; therefore, worker vehicle emissions are based solely on gasoline powered vehicles.

Consistent with CalEEMod's default parameters, the modeled construction vendor truck fleet mix for the project alternatives consisted of 50 percent medium-heavy duty trucks and 50 percent heavy-heavy duty trucks. The vendor truck fleet would also apply to onsite water trucks used for dust control. The haul truck fleet includes 100 percent heavy-heavy duty trucks. Based on EMFAC2021 data, most heavy-duty trucks vehicle categories are diesel powered; therefore, vendor and haul truck emissions are based solely on diesel-powered trucks.

Regarding the regional fleet mix used in the construction vehicle energy analysis, gasoline and diesel fuel consumption factors for workers' vehicles, vendor delivery trucks, and haul trucks are based on EMFAC2021 aggregate vehicle speeds and aggregate model years for Los Angeles County in the corresponding years that activities are forecast to occur.

Electricity Consumption

Construction activities would also use electricity. For project alternatives that include underground segments —Alternative 3, Alternative 4, Alternative 5, and Alternative 6—an electric-powered tunnel boring machine (TBM) would be utilized to construct the tunnel. Electricity would also be consumed by on-site portable offices for each project alternative. For each project alternative, it was assumed that three portable offices would be utilized throughout the duration of the construction period. Specific sizes of portable offices are currently unknown, and it was assumed that each portable office was assumed to have an area of 720 square feet, which is on the higher end for portable office trailers.

Electricity for the Project Study Area is primarily provided by LADWP. CalEEMod includes electricity use factors for LADWP for general office buildings. For TBM activity, electricity was estimated based on the power requirements of the TBM multiplied by the estimated total hours of use throughout the construction period.

3.5.2.2 Operation

The operational analysis addresses direct and indirect energy effects of the Project's annual operations following the completion of construction activities. Direct effects would result from the energy required to power the transit system and operations at the maintenance and storage facility (MSF). Indirect energy effects would be attributed to changes in overall regional transportation fuels consumption resulting from the reduction in VMT associated with vehicle trips displaced by transit ridership.

On December 10, 2022 the City of Los Angeles passed Ordinance 187714, which would require all newly constructed buildings in the City of Los Angeles to be all-electric (City of Los Angeles, 2022). This ordinance was added to the City of Los Angeles Municipal Code under Section 99.04.106.8 and had an effective date of January 1, 2023. Based on this ordinance, the energy analysis does not include combustion of natural gas related to building space and water heating for stations, the MSF and MSF Option 1, and the electric bus facility proposed for Alternative 1 and Alternative 3. For the purposes of this report, the operational energy consumption estimates for Existing Conditions (2021) and the project alternatives are standardized in British thermal units (Btu), thousand-Btu (kBtu), and million-Btu (MMBtu).

Electricity Consumption

Each project alternative's transit system would be electric powered, and their traction power substations (TPSS) would consume electricity. In addition to TPSSs, various components (such as stations, MSFs, and electric buses) of the project alternatives would consume electricity.

Electricity consumption related to TPSSs and electric buses were estimated outside of CalEEMod based on alternative-specific electricity consumption data. Electricity consumption related to MSFs and stations were provided by the respective design teams for Alternatives 1, 3, 4, and 5. Alternative 6 electricity consumption was estimated using a combination of traction power requirements provided by the project design team and MSF and station demand using CalEEMod. Parking areas were modeled as a "Parking Lot" land use in CalEEMod. For stations, the project design teams provided estimates of lighting, ventilation, and elevator use. Annual electricity consumption in megawatt-hours (MWh) was estimated for the components of each project alternative.

The energy analysis is based on a horizon year of 2045, which is also the target year of SB 100, which would require renewable energy resources and zero-carbon resources to supply 100 percent of electricity. To inform this analysis, this section of the DEIR relies on assumptions from the *Los Angeles 100% Renewable Energy Study* (LA100) (NREL, 2021), conducted by LADWP in partnership with the National Renewable Energy Laboratory (NREL). LA100 analyzed potential scenarios that provided a pathway for the city to achieve a 100 percent renewable power system by 2045. The potential scenarios were based on projections for electricity demand and electricity supply with varying assumptions. Of all the scenarios analyzed, the SB 100 scenario is the only scenario that would allow for electricity generation to come from natural gas through the use of renewable electricity credits, which are a market-based mechanism to help meet renewable energy targets (NREL, 2021). The SB 100 scenario allows for a portion of electricity generation from natural gas combustion. The LA100 has potential scenarios to reach this goal by 2035; however, those forecasts relied upon an assumption that no energy provided by natural gas generation or biofuels would be allowed and additional costs would be incurred

throughout its implementation. For this analysis, it was conservatively assumed the goal would not be met until the compliance date of 2045, ensuring that electricity use from project alternatives is not underestimated.

Under the SB 100 scenario, combustion of natural gas could provide up to 10 percent of electricity generation, thus, it was assumed the 2045 power mix for LADWP would consist of 90 percent renewables and 10 percent non-renewables. LADWP's 2022 power mix consisted of 35 percent renewables and 65 percent non-renewables. In 2022, the non-renewable portion of the power mix was 36 percent and in 2045, the non-renewable portion of the power mix would be 10 percent, which resulted in an approximately 84 percent reduction between 2021 and 2045.

Mobile Sources

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) evaluated VMT in the Project Study Area for the Existing Conditions under baseline year 2021 (Existing Conditions 2021), the 2045 Without Project Conditions, and for each project alternative in the forecast horizon year of 2045. To estimate the annual changes in fuel consumption associated with on-road vehicle activity, the daily VMT values for each scenario were converted to annual VMT using a factor of 347 days per year, which accounts for reduced weekend and holiday mileage (CARB, 2008). Fuel consumption factors were generated from EMFAC2021 and were based on a regional aggregate fleet mix comprising all vehicle categories, fuel types, model years, and average speeds for the corresponding year of analysis (i.e., 2021 or 2045). Additionally, mobile source fuel consumption would be generated from employees traveling to and from each project alternative's MSF. Daily employee trips were based on the number of MSF employees multiplied by two to account for trips to and from the MSF. The trip length for employees was based on CalEEMod's default value for non-residential Home-to-Work trips for a General Office Building. As a conservative approach, the MSF employee trip analysis assumed that each employee would make independent trips commuting to and from the facility, and that no ridesharing would occur. This is consistent with the analyses for Air Quality and Climate Change and Greenhouse Gas Emissions. The daily trips and trip length were multiplied together to derive a daily VMT. Like the VMT analysis, the daily VMT for employee travel was multiplied by 347 to generate the annual VMT. Fuel-use factors were generated from EMFAC2021 and were based on all vehicle categories and fuel types, aggregate speeds and model years, and calendar year 2045.

3.5.2.3 CEQA Thresholds of Significance

For the purposes of the Environmental Impact Report, impacts are considered significant if the project would:

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

3.5.3 Project Measures

There are no project measures applicable to energy.

3.5.4 Existing Conditions

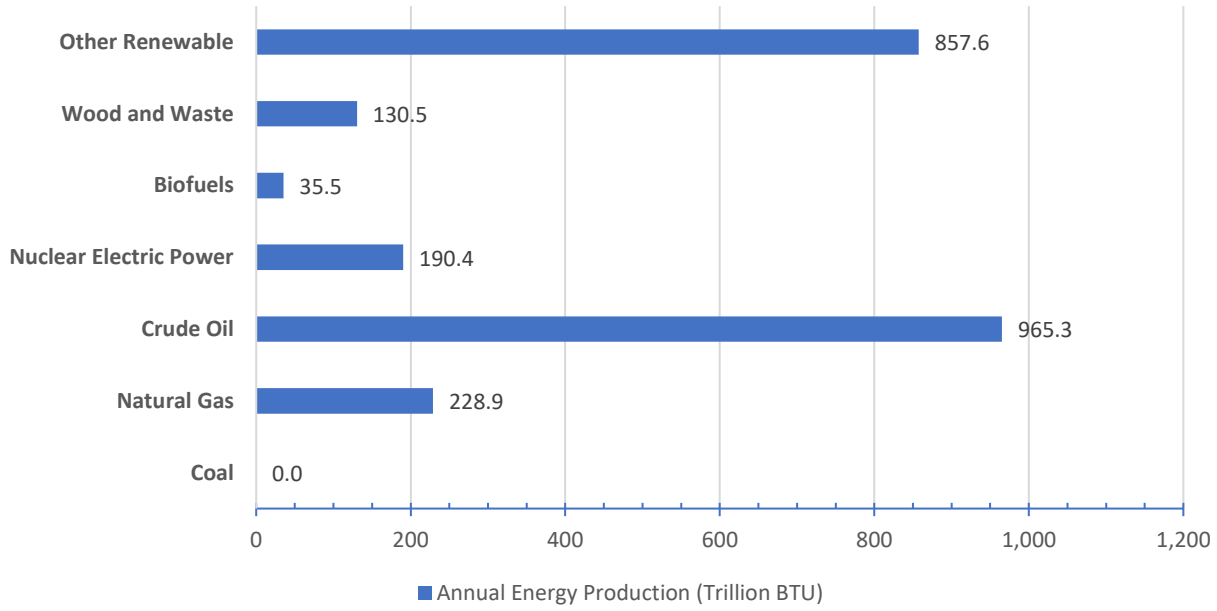
State Energy Resources

California is the most populous state in the nation, has the largest economy, and is second only to Texas in total energy consumption (U.S. Census Bureau, 2021; BEA, 2019a; EIA, 2024b). California also has the

world's fifth-largest economy and leads the nation in both agricultural and manufacturing gross domestic product (BEA, 2019b). Despite California's many energy-intensive industries, the state has one of the lowest per-capita energy consumption levels in the U.S. (EIA, 2023b). California's extensive efforts to increase energy efficiency and implement alternative technologies have slowed growth in energy demand. The state is also rich in energy resources. California is among the nation's top producers of conventional hydroelectric power and is second only to Texas in non-hydroelectric renewable-sourced electricity generation. In addition, California has an abundant supply of crude oil and accounts for one-tenth of the U.S. crude oil refining capacity.

Energy is produced in California from a diverse portfolio of renewable and non-renewable resources. Figure 3.5-1 shows that crude oil was the largest source of energy in California, accounting for approximately 708.9 trillion British thermal units (Btu) in 2022, which represented 46 percent of total statewide energy production (EIA, 2024a). To meet state environmental regulations, California refineries are configured to produce cleaner fuels. Refineries in the state often operate at or near maximum capacity because of the high demand for those petroleum products and the lack of interstate pipelines that can deliver them into the state (CEC, 2021a).

Figure 3.5-1. 2018 Statewide Energy Production Resources



Source: EIA, 2024c

In 2022, the noncombustible renewable energy resources, including hydroelectric, geothermal, solar, and wind energy, collectively accounted for 383.3 trillion Btu of annual energy production, equal to 24.7 percent of the total statewide resources. Natural gas and nuclear electric power constituted approximately 10 percent and 11.8 percent of statewide production, respectively, and the combination of wood energy and biomass waste energy provided 5.4 percent of production in 2022. Biofuels accounted for 1.5 percent, and coal fueled about 0.1 percent of the in-state, utility-scale net generation, and all of that power was generated at industrial facilities (EIA, 2024b).

Electricity Generation

California is the fourth-largest electricity producer in the nation and accounted for about 5 percent of U.S. utility-scale (1-MW and larger) electricity net generation in 2019. Renewable resources, including hydropower and small-scale (less than 1 MW), customer-sited solar photovoltaic (PV) systems, supplied more than half of California's in-state electricity generation, and natural-gas-fired power plants provided two-fifths (EIA, 2023b). Nuclear power's share of state generation was less than one-tenth, down from nearly one-fifth in 2011. The decrease resulted from the retirement of the San Onofre nuclear power plant in mid-2013, which left the state with only one operating commercial nuclear power plant—the two-reactor Diablo Canyon facility. Overall, California generated approximately 201.8 million MWh of electricity annually in 2019, and the statewide grid possessed a net summer capacity of 75.469 MWh.

California has the nation's second-largest conventional hydroelectric power generating capacity after the State of Washington. California is consistently among the nation's top four hydropower producers. However, hydropower's contribution is highly variable. In 2015, because of prolonged drought, hydropower supplied only about 7 percent of California's utility-scale net generation. Hydropower's share has rebounded with increased precipitation, and, in 2019, it provided 19 percent of the state's electricity net generation. In 2019, California was the nation's top producer of electricity from solar, geothermal, and biomass energy, and the state was second in the nation in conventional hydroelectric power generation. California was the fourth-largest electricity producer in the nation, but the state was also the nation's largest importer of electricity and received about 28 percent of its electricity supply from generating facilities outside of California, including imports from Mexico.

In 2019, California's in-state electricity net generation from all renewable resources combined was greater than that of any other state, including generation from hydroelectric power and from small-scale, customer-sited solar generation. California is the nation's top producer of electricity from solar, geothermal, and biomass energy. California's greatest solar resource is in the state's southeastern deserts, where all of its solar thermal facilities and largest solar PV plants are located. However, solar PV facilities are located throughout the state. By 2019, solar supplied 14 percent of the state's utility-scale electricity net generation; and when small-scale solar generation is added, solar energy provided one-fifth of the state's total net generation. By November 2020, California had about 13,000 MW of utility-scale solar power capacity, more than any other state, and, when small-scale, customer-sited facilities are included, the state had almost 24,000 MWs of solar capacity. California's Renewables Portfolio Standard was enacted in 2002 and has been revised several times since then. It requires that 33 percent of electricity retail sales in California come from eligible renewable resources by 2020, 60 percent by 2030, and 100 percent by 2045.

Transportation Fuels Supply

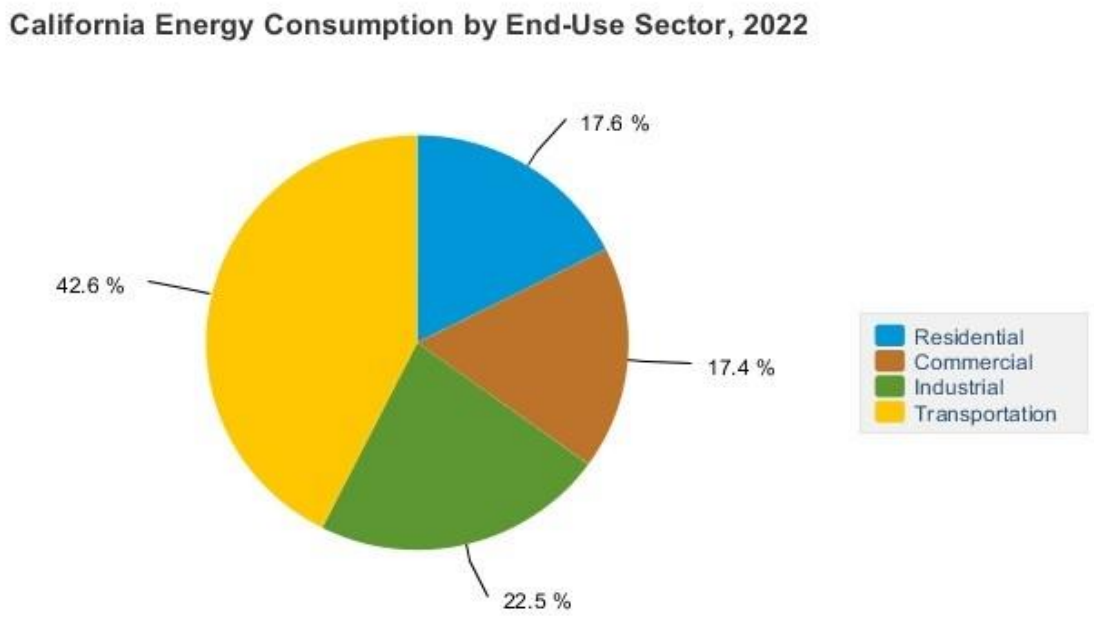
As of 2022, California has the sixth-largest share of crude oil reserves among the 50 states and is the seventh-largest crude oil producer. Reservoirs along California's Pacific Coast — including in the Los Angeles Basin and those in the state's Central Valley — contain major crude oil reserves. The most prolific oil-producing area in the state is the San Joaquin Basin in the southern half of California's Central Valley. Overall, California's crude oil production has declined steadily since 1985, but the state remains one of the nation's top crude oil producers and accounted for about 4 percent of U.S. production in 2022. California ranks third in petroleum refining capacity, after Texas and Louisiana, and accounts for one-tenth of the nation's total. A network of crude oil pipelines connects California's oil production to the state's refining centers, which are located primarily in the Los Angeles area, the San Francisco Bay Area, and the San Joaquin Valley (EIA, 2023b). California refiners also process large volumes of foreign and Alaskan crude oil. As crude oil production in California and Alaska has declined, California refineries

have become increasingly dependent on imports from other countries to meet the state's needs. Led by Saudi Arabia, Iraq, Ecuador, and Colombia, foreign suppliers provided more than half of the crude oil refined in California in 2022.

Statewide Use Patterns

Figure 3.5-2 displays the statewide energy consumption by end-use sector for the most recent year (2022) of verified data available (EIA, 2024b). Overall, the transportation sector accounted for nearly two-fifths of California's end-use energy consumption. Reducing per-capita transportation fuels consumption is a pillar of the state's initiatives to decrease reliance on fossil fuels as the population continues to grow. The industrial sector is the second-largest energy consumer in California and uses almost one-fourth of the state's energy. The commercial sector and the residential sector accounted for roughly equal amounts of the state's end-use energy consumption, at slightly less than one-fifth each. As discussed, California has promulgated a robust regulatory framework to reduce energy consumption across the various end-use sectors.

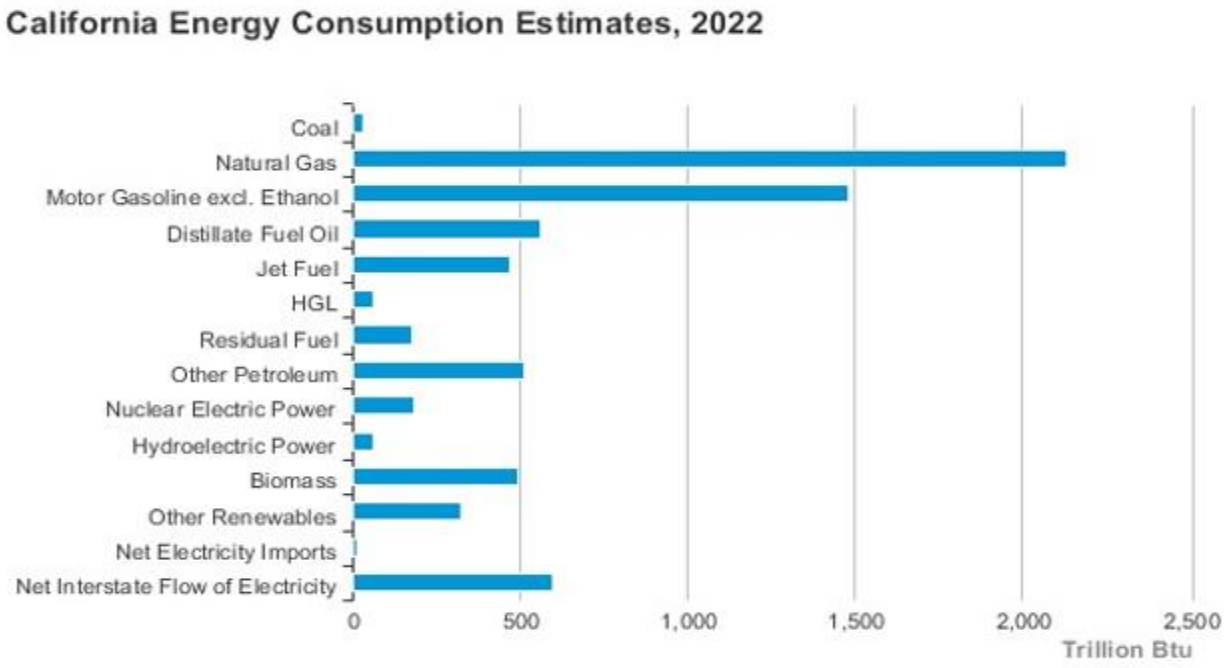
Figure 3.5-2. Annual Statewide Energy Consumption by End-Use Sector



Source: EIA, 2024b

Figure 3.5-3 summarizes the 2022 statewide annual energy consumption by resource origin. As mentioned previously, natural gas was the most consumed energy resource in the state, with nearly 10 times as much natural gas used by consumers as was produced by California reserves and processing facilities. Crude oil is refined and distilled to produce motor gasoline, distillate fuel oil, jet fuel, hydrocarbon gas liquids (HGL), residual fuel, and other petroleum products. Figure 3.5-3 also demonstrates that California had a net import of approximately 600.4 trillion Btu of electricity annually.

Figure 3.5-3. 2018 Annual Statewide Energy Consumption by Source



Source: EIA, 2024a

Electricity Consumption

In 2022, California was the nation's largest net importer of electricity from out of state and received about 28 percent of its electricity supply from generating facilities outside the state (EIA, 2024a). California had the second-highest electricity retail sales in the nation, after Texas, but it had the lowest retail sales per capita. The commercial sector accounted for almost half of California's electricity retail sales. The residential sector, where more than one-fourth of California households used electricity for home heating, accounted for more than one-third of sales. Almost all the rest of the state's electricity retail sales were to the industrial sector. A very small amount went to the transportation sector.

Transportation Fuels Consumption

California is the second-largest consumer of petroleum products, after Texas, and accounts for 10 percent of the nation's total consumption. The state is the largest U.S. consumer of motor gasoline and jet fuel, and 85 percent of the petroleum consumed in California is used in the transportation sector. The industrial sector, the second-largest petroleum-consuming sector, uses 12 percent of the petroleum consumed in the state. The commercial sector accounts for more than two percent, and the residential sector consumes less than one percent (EIA, 2023a).

Local Energy Resources

The discussion of local energy resources focuses on electricity, natural gas, and petroleum-based transportation fuels (motor gasoline and diesel fuel) supplied to Los Angeles County and the Project Area. This section also summarizes Metro's existing systemwide energy consumption using the most recently published data available (Metro, 2019a).

Electricity

The LADWP power system serves approximately 4 million people and is the nation's largest municipal utility. Its service territory area covers the City of Los Angeles and many areas of Owens Valley, with annual sales exceeding 26 million MWh. LADWP is a "vertically integrated" utility, both owning and operating the majority of its generation, transmission, and distribution systems. LADWP strives to be self-sufficient in providing electricity to its customers and does so by maintaining generation resources that are equal to or greater than its customers' electrical needs. LADWP's operations are financed solely through sales of water and electric services.

LADWP obtains electricity from various generating resources that utilize coal, nuclear, natural gas, hydroelectric, and renewable resources to generate power. LADWP obtains power from four municipally owned power plants within the Los Angeles Basin, LADWP Hydrogenerators on the Los Angeles Aqueduct, and shared ownership generating facilities in the Southwest. LADWP also purchases power from the Southwest and Pacific Northwest. LADWP has a power infrastructure comprising a total of 34 generation plants and approximately 3,636 miles of overhead transmission lines spanning five western states. LADWP also purchases excess power, as it is available, from self-generators interconnected with the LADWP within the City of Los Angeles.

According to LADWP's 2019 Power Content Label submitted to the CEC, LADWP has a net dependable generation capacity greater than 8,000 MW (LADWP, 2021). On August 31, 2017, LADWP's power system experienced a record instantaneous peak demand of 6,502 MW. As of 2019, approximately 34 percent of LADWP's delivered power mix to customers was derived from renewable resources, which met and exceeded the statewide target of 33 percent renewably sourced electricity generation by 2020, pending verification by the CEC (LADWP, 2021). The annual LADWP electricity sale to customers for 2019 was approximately 23,402.7 GWh (CEC, 2019).

Transportation Fuels

As previously discussed, transportation accounted for nearly 40 percent of the total statewide energy consumption, and petroleum-based fuels accounted for 90 percent of California's transportation energy sources (CEC, 2020a). However, the state is now working on developing flexible strategies to reduce petroleum use, as evidenced by the robust regulatory framework promulgated to enhance energy efficiency and decrease reliance on passenger vehicles and non-renewable resources in general. The CEC predicts that the demand for gasoline will continue to decrease over the next decade, and there will be an increase in the use of alternative fuels, such as natural gas, biofuels, and electricity (CEC, 2018). On September 23, 2020, Governor Gavin Newsom signed Executive Order N-79-20, setting a 100 percent zero-emission vehicle target for new passenger vehicle sales by 2035 and 100 percent zero-emissions vehicle operations target for medium- and heavy-duty vehicles in the state by 2045 (CEC, 2021b).

According to CEC fuel sales data, Los Angeles County contained approximately 2,063 transportation fueling stations in 2019 (CEC, 2020b). In the same year, countywide fuel sales comprised approximately 3,559 million gallons of gasoline and 276 million gallons of diesel fuel. By volume, Los Angeles County accounted for approximately 23.2 percent of statewide gasoline sales and approximately 15.7 percent of statewide diesel fuel sales. Despite substantial increases in population (from approximately 9.8 million in 2010 to 10.0 million in 2019), total countywide gasoline fuel sales have remained relatively constant between 2010 and 2019, as the CEC estimates approximately 3,658 million gallons of gasoline were sold within Los Angeles County in 2010.

Metro Energy Inventory

Metro's contribution to regional energy consumption includes on-road vehicle fuel use (primarily compressed natural gas) and electricity for rail-vehicle propulsion and maintenance and administrative facility operation. The *2019 Energy and Resource Report* examined Metro's energy use for the 2019 calendar year and refined estimates prepared by previous analysis (Metro, 2019a).

Table 3.5-1 presents an overview of the Metro system energy consumption by end use between 2015 and 2019. As of 2019, the Metro system comprised 124,695,827 million revenue miles consuming approximately 5,357.3 million megajoules (MJ) of energy per revenue mile, for a total of 6,667.1 million MJ. Overall, Metro system energy consumption decreased by 6.9 percent during the period from 2015 to 2019. Metro has prioritized generating system energy from alternative fuels in recent years. Approximately 30 percent of Metro's electricity was generated by renewable sources. Metro is in the process of phasing out all directly operated natural gas buses by 2030 to be replaced by zero-emissions vehicles.

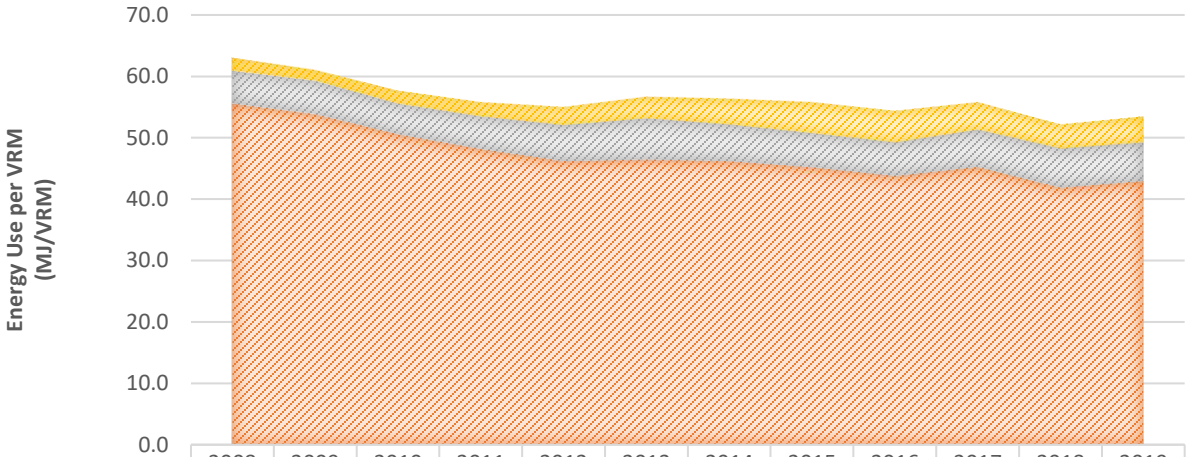
Table 3.5-1. Metro Operations Annual Energy Consumption (in Megajoules)

End Use	2015	2016	2017	2018	2019
Vehicle Fuel	5,796,786,075	5,644,897,527	5,787,683,879	5,317,489,842	5,357,290,785
Rail Propulsion	719,276,609	711,196,744	775,022,735	817,378,502	781,571,203
Facilities	642,626,521	660,898,312	564,325,336	491,666,179	528,225,942
Total	**7,158,689,205**	**7,016,992,583**	**7,127,031,949**	**6,626,534,523**	**6,667,087,930**

Source: Metro, 2019a

The *2019 Energy and Resource Report's* technical appendix also includes data describing Metro system energy use per vehicle revenue mile (VRM) (Metro, 2019a). Examining this data provides insight as to how Metro is managing its energy resource consumption in relation to the expansion of its service network. Figure 3.5-4 presents a chart that shows the trend in Metro energy use per VRM between 2008, the year the reporting program began, and 2019. As shown on Figure 3.5-4, total energy use per VRM decreased from 63.0 MJ/VRM in 2008 to 53.5 MJ/VRM in 2019, representing a 15 percent reduction over the 12-year period. The data demonstrate the efficacy of Metro's energy efficiency programs to deliver high-quality transit options that meet regional growth demands while also conserving energy where possible.

Figure 3.5-4. Metro Systemwide Energy Use per Vehicle Revenue Mile



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Facilities	2.1	1.7	2.1	2.3	2.9	3.5	4.2	5.0	5.1	4.4	3.9	4.2
Rail Propulsion	5.3	5.4	5.0	5.3	5.9	6.7	6.0	5.6	5.5	6.1	6.4	6.3
Vehicle Fuel	55.6	53.9	50.6	48.2	46.2	46.5	46.2	45.2	43.8	45.3	41.9	43.0

Year

Source: Metro, 2019a

Includes mixed commercial and industrial land uses within the Project Study Area.
MJ= megajoules
VRM = vehicle revenue mile

3.5.5 Environmental Impacts

3.5.5.1 Impact ENG-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Project Alternatives

No Project Alternative

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

The No Project Alternative annual vehicle travel energy resource consumption was estimated for two scenarios: No Project Alternative compared to 2045 Without Project Conditions and No Project Alternative compared to Existing Conditions 2021. Under the No Project Alternative, the Project would not be implemented and no new rail transit infrastructure and associated energy consumption would occur. Metro's current energy demand would remain unchanged with planned improvements in the energy efficiency of Metro's facilities and transit services to be implemented consistent with Metro's ECMP.

While no increase in direct energy consumption would result from the No Project Alternative, the No Project Alternative also would not provide the benefit of long-term reductions in regional VMT associated with the project alternatives. The additional bus stops related to Metro Line 761 would not place substantially new demands on energy supply as Metro Line 761 is an existing bus line. The bus line would be operated in accordance with Metro's ECMP and would therefore not be a wasteful, inefficient, or unnecessary energy use.

The No Project Alternative would maintain existing transit service through the year 2045. No new rail transit infrastructure would be built within the Project Study Area aside from projects currently under construction or funded for construction and operation by 2045 via the 2008 Measure R (Metro, 2008) or 2016 Measure M (Metro, 2016) sales taxes. The 2045 Without Project Conditions includes highway and transit projects identified for funding in Metro's Long-Range Transportation Plan (LRTP) (Metro, 2020a) and the SCAG 2024–2050 RTP/SCS (SCAG, 2024). It also includes existing projects from the regional base year (2019) and planned regional projects in operation in the horizon year (2045). These existing and future projects would consume energy but have undergone or would undergo project-specific environmental clearance and would implement project-specific mitigation measures, as necessary, to avoid or minimize wasteful, inefficient, or unnecessary energy use.

Table 3.5-2 presents a summary of the annual VMT and energy resource consumption associated with on-road vehicle activity for Existing Conditions (2021) and the 2045 Without Project Conditions. The comparison for the 2045 Without Project Conditions and Existing Conditions 2021 is presented for informational purposes only. The 2045 Without Project Conditions would result in an 899 percent increase in electricity consumption, a 17 percent decrease in gasoline consumption, a 20 percent increase in diesel fuel consumption, and a 57 percent decrease in natural gas consumption compared to Existing Conditions. Relative to Existing Conditions, the 2045 Without Project Conditions would consume 12,006,139 MWh more electricity, 1,056,617,543 gallons less of gasoline, 216,546,528 gallons more of diesel fuel, and 67,378,887 diesel gallon equivalent (DGE) less natural gas. Using a standardized conversion to million British thermal units (MMBtu) of energy, the 2045 Without Project Conditions would consume 70,442,694 MMBtu less energy annually than Existing Conditions in 2021. This amount of energy is equivalent to 563,686,062 gallons of motor gasoline per year.

Regional highway traffic emissions would be the same under the No Project Alternative and 2045 Without Project Conditions because none of the Project alternatives would not be implemented. Because the No Project Alternative highway traffic emissions would be the same as 2045 Without Project Conditions (projected future conditions baseline), there would be no increase in energy consumption relative to the baseline on the project level under the No Project Alternative. Therefore, the No Project Alternative would result in a less than significant impact related to operational energy consumption.

Table 3.5-2. Annual On-Road Vehicle Travel Energy Resource Consumption for 2045 Without Project Conditions Compared to Existing Conditions (Baseline Year 2021)

Scenario/Parameter	Annual VMT	Electricity (MWh)	Gasoline (gal)	Diesel (gal)	Natural Gas (DGE)
Existing Conditions (2021)	158,533,647,100	1,335,920	6,263,093,314	1,086,863,738	118,752,791
2045 Without Project Conditions	197,289,348,400	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Consumption	**38,755,701,300**	**12,006,139**	**-1,056,617,543**	**216,546,528**	**-67,378,887**
Net Change (%)	24.4	898.7	-16.9	19.9	-56.7
Conversion Factor (kBtu/MWh or kBtu/gal)		3,412/MWh	125.0/gal	138.7 /gal	138.7/gal
Annual Energy Consumption (MMBtu)		**40,964,947**	**-132,077,193**	**30,035,003**	**-9,345,452**
Net Annual Energy Consumption (MMBtu)		**-70,422,694**			

Source: HTA, 2024

MWh = megawatt-hours
DGE = diesel gallon equivalents
gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units

Construction Impacts

Under the No Project Alternative, none of the project alternatives would be constructed. As a result, the energy consumption associated with the construction activities, such as the operation of construction equipment, on-road vehicles, and the manufacturing and transport of materials for the Project, would not occur. As no construction related to the Project would take place, there would be no temporary increase in demand for fossil fuels, energy, or other resources associated with construction activities. Therefore, no-construction related energy impacts would occur under the No Project Alternative. The only transportation improvement that is reasonably foreseeable within the Project Study Area is the rerouting of Metro Line 761, which is anticipated to transition to electric vehicles by 2035. Rerouting Metro Line 761 may result in construction of new bus stops; however, energy requirements to construct these improvements would be minimal and would be conducted in accordance with Metro's GCP. Construction of additional bus stops along Metro Line 761 would result in minimal energy resource (i.e., fossil fuels and electricity) consumption as installation of the bus stop components would involve relatively minor off-road equipment and on-road vehicle activities to install the benches, enclosures, signage, and other features.

Alternative 1

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

As described in Section 3.5.2, Methodology, Alternative 1 operations would consume energy resources in the forms of electricity (at TPSSs for monorail propulsion, electric bus power, MSF and Electric Bus MSF operations, at stations for lighting, accessibility features, and parking facilities, and as power for a fraction of regional VMT by electric and plug-in hybrid vehicles), petroleum fuels (gasoline for Metro

employee trips and a fraction of regional VMT, and diesel fuel for an emergency generator at the MSF and a fraction of regional VMT), and natural gas (a small fraction of regional VMT by vehicles powered by natural gas). End uses that comprise direct energy resource consumption associated with Alternative 1 operations would include TPSSs, electric buses, MSFs, stations and parking, and Metro employee trips, and end uses comprising indirect energy consumption would include the changes in regional vehicle trips and VMT patterns resulting from implementation of the new transit system. Table 3.5-3 presents a summary of the annual energy consumption by resource attributable to Alternative 1 operations in the horizon year of 2045, and compares the consumption to the 2045 Without Project Conditions.

Table 3.5-3 Alternative 1: Operations Annual Energy Consumption Relative to 2045 Without Project Conditions

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 1				
Traction Power	70,560	NA	NA	NA
Stations & Parking	9,291	NA	NA	NA
MSF & Electric Bus MSF[a]	9,991	NA	4,421	NA
Metro Employee Trips	281	109,767	27,480	1,083
Regional On-Road VMT	13,334,038	5,203,345,789	1,302,626,693	51,343,019
Alternative 1 Total Annual Consumption[b]	**13,424,161**	**5,203,455,557**	**1,302,658,593**	**51,344,102**
2045 Without Project Conditions				
Regional On-Road VMT	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Annual Resource Consumption	**82,102**	**-3,020,214**	**-751,672**	**-29,801**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBTU)	***280,132***	***-377,527***	***-104,257***	***-4,134***
Net Change in Energy Consumption (MMBtu)	**- 205,785**			

Source: LASRE, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

As shown in Table 3.5-3, operation of Alternative 1 in the horizon year of 2045 would result in a net annual increase in regional electricity demand of 82,102 MWh and would result in a net annual reduction of 3,020,214 gallons of gasoline, 751,672 gallons of diesel fuel, and 29,801 DGE of natural gas relative to 2045 Without Project Conditions. Converting each of these quantities to standardized units of million British thermal units (MMBtu), Alternative 1 operations would result in a net decrease of 205,785 MMBtu annually in 2045. This amount of energy savings is equivalent to 1,646,702 gallons of motor gasoline per year. The electricity consumption would be more than offset by the energy savings in

the forms of petroleum fuels and natural gas, and the consumption would power a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, implementation of Alternative 1 would result in a substantial decrease in overall regional energy consumption, and this impact would be less than significant.

Table 3.5-4 summarizes the Alternative 1 annual energy consumption for each resource compared to Existing Conditions (2021). This is presented for informational purposes only. As shown in Table 3.5-4, Alternative 1 operations would result in a net increase of 12,088,241 MWh of electricity and 215,794,856 gallons of diesel fuel and would result in a net decrease of 1,059,637,757 gallons of gasoline and 67,408,689 DGE of natural gas relative to Existing Conditions (2021). Increases in regional diesel fuel consumption from existing conditions to 2045 are attributed to natural population and economic growth projected to occur by 2045. When standardized in units of MMBtu, operation of Alternative 1 in 2045 would consume approximately 70,628,480 MMBtu less of collective energy resources on an annual basis than Existing Conditions in the baseline year of 2021. This amount of energy is equivalent to 565,172,731 gallons of motor gasoline per year.

Table 3.5-4. Alternative 1: Operations Annual Energy Consumption (Horizon Year 2045) Relative to Existing Conditions (Baseline Year 2021)

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 1 (2045)				
Traction Power	70,560	NA	NA	NA
Stations & Parking	9,291	NA	NA	NA
MSF & Electric Bus MSF[a]	9,991	NA	4,421	NA
Metro Employee Trips	281	109,767	27,480	1,083
Regional On-Road VMT	13,334,038	5,203,345,789	1,302,626,693	51,343,019
Alternative 1 Total Annual Consumption[b]	**13,424,161**	**5,203,455,557**	**1,302,658,593**	**51,344,102**
Existing Conditions (2021)				
Regional On-Road VMT	1,335,920	6,263,093,314	1,086,863,738	118,752,791
Net Change in Annual Resource Consumption	**12,088,241**	**-1,059,637,757**	**215,794,856**	**-67,408,689**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBTU)	***41,245,078***	***-132,454,720***	***29,930,746***	***-9,349,585***
Net Change in Energy Consumption (MMBtu)	**- 70,628,480**			

Source: LASRE, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MWh = Megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

Construction Impacts

Alternative 1 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction activities would comply with Metro's GCP and construction equipment would be maintained in accordance with manufacturers' specifications. Construction would result in a one-time expenditure of approximately 5,609,190 gallons of diesel fuel, 515,777 gallons of gasoline, and 255 MWh of electricity. Table 3.5-5 provides a summary of the energy consumption estimated for construction of Alternative 1.

Table 3.5-5. Alternative 1: Construction Fuel and Electricity Consumption

Source Type	Fuel Consumption (gal)	Electricity Consumption (MWh)
Mobile Source Fuel Consumption		
Off-Road Equipment (Diesel)	4,881,426	NA
Worker Vehicles (Gasoline)	515,777	NA
Vendor Trucks (Diesel)	169,976	NA
Haul Trucks (Diesel)	557,789	NA
Electricity Consumption		
On-site Portable Offices	NA	255
Summary		
Total Gasoline (gal):	**515,777**	**NA**
Total Diesel (gal):	**5,609,190**	**NA**
Total Electricity (MWh):	**NA**	**255**

Source: Metro, 2025b

NA = not applicable
MWh = megawatt-hour
gal = gallons

All equipment and vehicles used in construction activities would comply with applicable CARB regulations, Low Carbon Fuel Standards, and the Corporate Average Fuel Economy (CAFE) Standards. Construction would not place an undue burden on available energy resources. The one-time expenditure of energy associated with diesel-fuel consumption would be offset by operations within approximately 7.5 years through transportation mode shift, and the one-time expenditure of energy associated with gasoline consumption would be offset by operations within one year. The temporary additional mobile source fuel consumption would not require additional capacity provided at the local or regional level. CEC transportation energy supply and demand forecasts indicate that gasoline and diesel fuel production is anticipated to increase between 2021 and 2035, while demand for both gasoline and diesel transportation fuels is projected to decrease over the same time period (CEC, 2021b). Construction vehicles and equipment activities would not place an undue burden on available petroleum fuel resources during construction of Alternative 1.

Construction activities may include lighting for security and safety in construction zones. Nighttime construction would be limited, and lighting would be sparse and would not require additional capacity provided at the local or regional level.

The GCP requires and commits project contractors to using renewable diesel as well as newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. All equipment and vehicles would be maintained in accordance with manufacturer specifications and would be subject to idling limits. As required by the CALGreen Code Tier 2, at least 80 percent of the non-hazardous construction debris generated by demolition activities will be diverted from landfills. Also,

CALGreen includes the mandatory requirement to reuse or recycle all clean soil that would be displaced during construction of Alternative 1. Furthermore, the Metro 2020 MBSSP and the Metro Design Criteria and Standards require and commit contractors to using high-efficiency lighting as opposed to less energy-efficient lighting sources in alignment with LEED sustainability energy standards.

Based on the substantiation previously described, construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Alternative 1 would result in a less than significant impact related to construction activities.

Alternative 3

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

As described in Section 3.5.2, Methodology, Alternative 3 operations would consume energy resources in the forms of electricity (at TPSSs for monorail propulsion, MSF operations, at stations for lighting, accessibility features, and parking facilities, and as power for a fraction of regional VMT by electric and plug-in hybrid vehicles), petroleum fuels (gasoline for Metro employee trips and a fraction of regional VMT, and diesel fuel for emergency generators at the MSF and underground stations and a fraction of regional VMT), and natural gas (a small fraction of regional VMT by vehicles powered by natural gas). End uses that comprise direct energy resource consumption associated with Alternative 3 operations would include TPSSs, electric buses, MSFs, stations and parking, and Metro employee trips, and end uses comprising indirect energy consumption would include the changes in regional vehicle trips and VMT patterns resulting from implementation of the new transit system. Table 3.5-6 presents a summary of the annual energy consumption by resource attributable to Alternative 3 operations in the horizon year of 2045, and compares the consumption to the 2045 Without Project Conditions.

Table 3.5-6. Alternative 3: Operations Annual Energy Consumption Relative to 2045 Without Project Conditions

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 3				
Traction Power	81,428	NA	NA	NA
Stations & Parking[a]	12,749	NA	8,841	NA
MSF[a]	6,110	NA	4,421	NA
Metro Employee Trips	234	91,473	22,900	903
Regional On-Road VMT	13,331,473	5,202,344,891	1,302,376,124	51,333,143
Alternative 3 Total Annual Consumption[b]	**13,431,994**	**5,202,436,364**	**1,302,412,286**	**51,334,046**
2045 Without Project Conditions				
Regional On-Road VMT	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Annual Resource Consumption	**89,935**	**-4,039,407**	**-997,980**	**-39,858**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBtu)	***306,858***	***-504,926***	***-138,420***	***-5,528***
Net Change in Energy Consumption (MMBtu)	**-342,016**			

Source: LASRE, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF and Stations is attributed to emergency generators
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MSF = maintenance and storage facility
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

As shown in Table 3.5-6, operation of Alternative 3 in the horizon year of 2045 would result in a net annual increase in regional electricity demand of 89,935 MWh and would result in a net annual reduction of 4,039,407 gallons of gasoline, 997,980 gallons of diesel fuel, and 39,858 DGE of natural gas relative to 2045 Without Project Conditions. Increases in regional diesel fuel consumption from existing conditions to 2045 are attributed to natural population and economic growth projected to occur by 2045. Converting each of these quantities to standardized units of MMBtu, Alternative 3 operations would result in a net decrease of 342,016 MMBtu annually as compared with 2045 Without Project Conditions. This amount of energy savings is equivalent to 2,736,830 gallons of motor gasoline per year. The electricity consumption would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would power a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, implementation of Alternative 3 would result in a substantial decrease in overall regional energy consumption, and this impact would be less than significant.

Table 3.5-7 summarizes the Alternative 3 annual energy consumption for each resource compared to Existing Conditions 2021. This is presented for informational purposes only. As shown in Table 3.5-7,

Alternative 3 operations would result in a net increase of 12,096,074 MWh of electricity and 215,548,548 gallons of diesel fuel and would result in a net decrease of 1,060,656,950 gallons of gasoline and 67,418,745 DGE of natural gas relative to Existing Conditions (2021). When standardized in units of MMBtu, operation of Alternative 3 in 2045 would consume approximately 70,764,711 MMBtu less of collective energy resources on an annual basis than Existing Conditions (2021). This amount of energy is equivalent to 566,262,859 gallons of motor gasoline per year.

Table 3.5-7. Alternative 3: Operations Annual Energy Consumption (Horizon Year 2045) Relative to Existing Conditions (Baseline Year 2021)

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 3 (2045)				
Traction Power	81,428	NA	NA	NA
Stations & Parking[a]	12,749	NA	8,841	NA
MSF[a]	6,110	NA	4,421	NA
Metro Employee Trips	234	91,473	22,900	903
Regional On-Road VMT	13,331,473	5,202,344,891	1,302,376,124	51,333,143
Alternative 3 Total Annual Consumption[b]	**13,431,994**	**5,202,436,364**	**1,302,412,286**	**51,334,046**
Existing Conditions (2021)				
Regional On-Road VMT	1,335,920	6,263,093,314	1,086,863,738	118,752,791
Net Change in Annual Resource Consumption	**12,096,074**	**-1,060,656,950**	**215,548,548**	**-67,418,745**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBTU)	***41,271,804***	***-132,852,119***	***29,896,584***	***-9,350,980***
Net Change in Energy Consumption (MMBtu)	**- 70,764,711**			

Source: LASRE, 2024; HTA, 2024; BTS, 2024

[a]Diesel fuel consumption at the MSF and stations is attributed to emergency generators.
[b]Values may not add up exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MSF = maintenance and storage facility
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

Construction Impacts

Alternative 3 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction activities would comply with Metro's GCP, and construction equipment would be maintained in accordance with manufacturers' specifications. Construction would result in a one-time expenditure of approximately 7,563,002 gallons of diesel fuel, 533,406 gallons of gasoline, and 536,969 MWh of electricity. Construction activities may include lighting for security and safety in construction zones. Nighttime construction would be limited, and lighting would be sparse and would not require additional capacity provided at the local or regional level. Table 3.5-8 provides a summary of the energy consumption estimated for construction of Alternative 3.

Table 3.5-8. Alternative 3: Construction Fuel and Electricity Consumption

Source Type	Fuel Consumption (gal)	Electricity Consumption (MWh)
Mobile Source Fuel Consumption		
Off-Road Equipment (Diesel)	5,331,054	NA
Worker Vehicles (Gasoline)	533,406	NA
Vendor Trucks (Diesel)	203,735	NA
Haul Trucks (Diesel)	2,028,213	NA
Electricity Consumption		
TBM	NA	536,668
On-site Portable Offices	NA	301
Summary		
Total Gasoline (gal):	**533,406**	**NA**
Total Diesel (gal):	**7,563,002**	**NA**
Total Electricity (MWh):	**NA**	**536,969**

Source: Metro, 2025b

NA = not applicable
MWh = Megawatt-hour
gal = gallons
TBM = tunnel boring machine

All equipment and vehicles used in construction activities would comply with applicable CARB regulations, Low Carbon Fuel Standards, and the CAFE Standards. Construction would not place an undue burden on available energy resources. The one-time expenditure of energy associated with diesel-fuel consumption would be offset by operations within approximately 7.5 years through transportation mode shift, and the one-time expenditure of energy associated with gasoline consumption would be offset by operations within one year. The temporary additional mobile source fuels consumption would not require additional capacity provided at the local or regional level. CEC transportation energy supply and demand forecasts indicate that gasoline and diesel fuel production is anticipated to increase between 2021 and 2035, while demand for both gasoline and diesel transportation fuels is projected to decrease over the same time period (CEC, 2021b). Construction vehicles and equipment activities would not place an undue burden on available petroleum fuel resources during construction of Alternative 3.

The GCP requires and commits project contractors to using renewable diesel as well as newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. All equipment and vehicles would be maintained in accordance with manufacturer specifications and would be subject to idling limits. As required by the CALGreen Code Tier 2, at least 80 percent of the non-hazardous construction debris generated by demolition activities would be diverted from landfills. Also, CALGreen includes the mandatory requirement to reuse or recycle all clean soil that would be displaced during construction of Alternative 3, which would result in reduced energy consumption from hauling trucks. Furthermore, the Metro 2020 *Moving Beyond Sustainability Strategic Plan* and the Metro Design Criteria and Standards require and commit contractors to using high-efficiency lighting as opposed to less energy-efficient lighting sources in alignment with LEED sustainability energy standards.

Based on the substantiation previously described, construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Alternative 3 would result in a less than significant impact related to construction activities.

Alternative 4

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

As described in Section 3.5.2, Methodology, Alternative 4 operations would consume energy resources in the forms of electricity (at TPSSs for rail propulsion, for MSF operations, at stations for lighting, accessibility features, and parking facilities, and as power for a fraction of regional VMT by electric and plug-in hybrid vehicles), petroleum fuels (gasoline for Metro employee trips and a fraction of regional VMT, and diesel fuel for an emergency generator at the MSF and a fraction of regional VMT), and natural gas (a small fraction of regional VMT by vehicles powered by natural gas). End uses comprising indirect energy consumption include the changes in regional vehicle trips and VMT patterns resulting from implementation of the new transit system. Table 3.5-9 presents a summary of the annual energy consumption by resource attributable to Alternative 4 operations in the horizon year of 2045, and compares the consumption to the 2045 Without Project Conditions.

Table 3.5-9. Alternative 4: Operations Annual Energy Consumption Relative to 2045 Without Project Conditions

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 4				
Traction Power	71,062	NA	NA	NA
Stations & Parking	39,294	NA	NA	NA
MSF[a]	24,110	NA	4,421	NA
Metro Employee Trips	127	49,657	12,431	490
Regional On-Road VMT	13,324,042	5,199,444,759	1,301,650,094	51,304,527
Alternative 4 Total Annual Consumption[b]	**13,458,635**	**5,199,494,416**	**1,301,666,945**	**51,305,017**
2045 Without Project Conditions				
Regional On-Road VMT	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Annual Resource Consumption	**116,576**	**-6,981,355**	**-1,743,320**	**-68,887**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Energy Consumption (MMBTU)	***397,757***	***-872,669***	***-241,798***	***-9,555***
Net Change in Energy Consumption (MMBtu)	**- 726,265**			

Source: STCP, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MWh = megawatt-hour
NA = not applicable

VMT = vehicle miles traveled

As shown in Table 3.5-9, operation of Alternative 4 in the horizon year of 2045 would result in a net annual increase in regional electricity demand of 116,576 MWh, and would result in a net annual reduction of 6,981,355 gallons of gasoline, 1,743,320 gallons of diesel fuel, and 68,887 DGE of natural gas when compared to 2045 Without Project Conditions. Increases in regional diesel fuel consumption from existing conditions to 2045 are attributed to natural population and economic growth projected to occur by 2045. Converting each of these quantities to standardized units of MMBtu, Alternative 4 operations would result in a net decrease of 726,265 MMBtu annually in 2045. This amount of energy savings is equivalent to 5,811,610 gallons of motor gasoline per year. The electricity consumption would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would power a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, implementation of Alternative 4 would result in a substantial decrease in overall regional energy consumption when compared to 2045 Without Project Conditions, and this impact would be less than significant.

Table 3.5-10 summarizes the Alternative 4 annual energy consumption for each resource compared to Existing Conditions (2021). This is presented for informational purposes only. As shown in Table 3.5-10, Alternative 4 operations would result in a net increase of 12,122,715 MWh of electricity and 214,803,208 gallons of diesel fuel and would result in a net decrease of 1,063,598,898 gallons of gasoline and 67,447,774 DGE of natural gas. When standardized in units of MMBtu, operation of Alternative 4 in 2045 would consume approximately 71,148,960 MMBtu less of collective energy resources on an annual basis than Existing Conditions in the baseline year of 2021. This amount of energy is equivalent to 569,337,639 gallons of motor gasoline per year.

Table 3.5-10. Alternative 4: Operations Annual Energy Consumption (Horizon Year 2045) Relative to Existing Conditions (Baseline Year 2021)

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 4 (2045)				
Traction Power	71,062	NA	NA	NA
Stations & Parking	39,294	NA	NA	NA
MSF[a]	24,110	NA	4,421	NA
Metro Employee Trips	127	49,657	12,431	490
Regional On-Road VMT	13,324,042	5,199,444,759	1,301,650,094	51,304,527
Alternative 4 Total Annual Consumption[b]	**13,458,635**	**5,199,494,416**	**1,301,666,945**	**51,305,017**
Existing Conditions (2021)				
Regional On-Road VMT	1,335,920	6,263,093,314	1,086,863,738	118,752,791
Net Change in Annual Resource Consumption	**12,122,715**	**-1,063,598,898**	**214,803,208**	**-67,447,774**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7kBtu/gal
Net Change in Energy Consumption (MMBtu)	**-71,148,960**			

Source: STCP, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon

kBtu = thousand British thermal units
MMBtu = million British thermal units
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

Construction Impacts

Alternative 4 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction activities would comply with Metro's GCP and construction equipment would be maintained in accordance with manufacturers' specifications. Construction would result in a one-time expenditure of approximately 16,198,435 gallons of diesel fuel, 1,106,877 gallons of gasoline, and 393,824 MWh of electricity. Table 3.5-11 provides a summary of the energy consumption estimated for construction of Alternative 4.

Table 3.5-11. Alternative 4: Construction Fuel and Electricity Consumption

Source Type	Fuel Consumption (gal)	Electricity Consumption (MWh)
Mobile Source Fuel Consumption		
Off-Road Equipment (Diesel)	9,180,785	NA
Worker Vehicles (Gasoline)	1,106,877	NA
Vendor Trucks (Diesel)	336,469	NA
Haul Trucks (Diesel)	6,681,181	NA
Electricity Consumption		
TBM	NA	393,480
On-site Portable Offices	NA	344
Summary		
Total Gasoline (gal):	**1,106,877**	**NA**
Total Diesel (gal):	**16,198,435**	**NA**
Total Electricity (MWh):	**NA**	**393,824**

Source: Metro, 2025b

gal = gallons
MWh = Megawatt-hour
NA = not applicable
TBM = tunnel boring machine

All equipment and vehicles used in construction activities would comply with applicable CARB regulations, Low Carbon Fuel Standards, and the CAFE Standards. Construction would not place an undue burden on available energy resources. The one-time expenditure of energy associated with diesel-fuel consumption would be offset by operations within approximately nine years through transportation mode shift, and the one-time expenditure of energy associated with gasoline consumption would be offset by operations within one year. The temporary additional mobile source fuels consumption does not require additional capacity provided at the local or regional level. CEC transportation energy supply and demand forecasts indicate that gasoline and diesel fuel production is anticipated to increase between 2021 and 2035, while demand for both gasoline and diesel transportation fuels is projected to decrease over the same time period (CEC, 2021b). Construction vehicles and equipment activities would not place an undue burden on available petroleum fuel resources during construction of Alternative 4.

Construction activities may include lighting for security and safety in construction zones. Nighttime construction would be limited, and lighting would be sparse and would not require additional capacity provided at the local or regional level.

The GCP requires and commits project contractors to using renewable diesel as well as newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. All equipment and vehicles would be maintained in accordance with manufacturer specifications and would be subject to idling limits. As required by the CALGreen Code Tier 2, at least 80 percent of the non-hazardous construction debris generated by demolition activities would be diverted from landfills. Also, CALGreen includes the mandatory requirement to reuse or recycle all clean soil that would be displaced during construction of Alternative 4, which would result in reduced energy consumption from hauling trucks. Furthermore, the Metro 2020 *Moving Beyond Sustainability Strategic Plan* and the Metro Design Criteria and Standards require and commit contractors to using high-efficiency lighting as opposed to less energy-efficient lighting sources in alignment with LEED sustainability energy standards.

Based on the substantiation previously described, construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Alternative 4 would result in a less than significant impact related to construction activities.

Alternative 5

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

As described in Section 3.5.3, Methodology, Alternative 5 operations would consume energy resources in the forms of electricity (at TPSSs for rail propulsion, for MSF operations, at stations for lighting, accessibility features, and parking facilities, and as power for a fraction of regional VMT by electric and plug-in hybrid vehicles), petroleum fuels (gasoline for Metro employee trips and a fraction of regional VMT, and diesel fuel for an emergency generator at the MSF and a fraction of regional VMT), and natural gas (a small fraction of regional VMT by vehicles powered by natural gas). End uses that comprise direct energy resource consumption associated with Alternative 5 operations include TPSSs, the MSF, stations and parking facilities, and Metro employee trips, and end uses comprising indirect energy consumption include the changes in regional vehicle trips and VMT patterns resulting from implementation of the new transit system. Table 3.5-12 presents a summary of the annual energy consumption by resource attributable to Alternative 5 operations in the horizon year of 2045, and compares the consumption to the 2045 Without Project Conditions.

Table 3.5-12. Alternative 5: Operations Annual Energy Consumption Relative to 2045 Without Project Conditions

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 5				
Traction Power	71,062	NA	NA	NA
Stations & Parking	55,893	NA	NA	NA
MSF[a]	24,110	NA	4,421	NA
Metro Employee Trips	127	49,657	12,431	490
Regional On-Road VMT	13,323,870	5,199,377,911	1,301,633,358	51,303,867
Alternative 5 Total Annual Consumption[b]	**13,475,063**	**5,199,427,567**	**1,301,650,210**	**51,304,357**
2045 Without Project Conditions				
Regional On-Road VMT	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Annual Resource Consumption	**133,004**	**-7,048,203**	**-1,760,055**	**-69,547**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBtu)	***453,810***	***-881,026***	***-244,120***	***-9,646***
Net Change in Energy Consumption (MMBtu)	**-680,982**			

Source: STCP, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MSF = maintenance and storage facility
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

As shown in Table 3.5-12, operation of Alternative 5 in the horizon year of 2045 would result in a net annual increase in regional electricity demand of 133,004 MWh and would result in a net annual reduction of 7,048,203 gallons of gasoline, 1,760,055 gallons of diesel fuel, and 69,547 DGE of natural gas. Increases in regional diesel fuel consumption are attributed to natural population and economic growth projected to occur by 2045. Converting each of these quantities to standardized units of MMBtu, Alternative 5 operations would result in a net decrease of 680,982 MMBtu annually in 2045. This amount of energy savings is equivalent to 5,449,253 gallons of motor gasoline per year. The electricity consumption would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would power a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, implementation of Alternative 5 would result in a substantial decrease in overall regional energy consumption, and this impact would be less than significant.

Table 3.5-13 summarizes the Alternative 5 annual energy consumption for each resource compared to Existing Conditions 2021. This is presented for informational purposes only. As shown in Table 3.5-13, Alternative 5 operations would result in a net increase of 12,139,143 MWh of electricity and

214,786,473 gallons of diesel fuel and would result in a net decrease of 1,063,665,746 gallons of gasoline and 67,448,434 DGE of natural gas. When standardized in units of MMBtu, operation of Alternative 5 in 2045 would consume approximately 71,103,677 MMBtu less of collective energy resources on an annual basis than Existing Conditions in the baseline year of 2021. This amount of energy is equivalent to 568,975,282 gallons of motor gasoline per year.

Table 3.5-13. Alternative 5: Operations Annual Energy Consumption (Horizon Year 2045) Relative to Existing Conditions (Baseline Year 2021)

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 5 (2045)				
Traction Power	71,062	NA	NA	NA
Stations & Parking	55,893	NA	NA	NA
MSF[a]	24,110	NA	4,421	NA
Metro Employee Trips	127	49,657	12,431	490
Regional On-Road VMT	13,323,870	5,199,377,911	1,301,633,358	51,303,867
Alternative 5 Total Annual Consumption[b]	**13,475,063**	**5,199,427,567**	**1,301,650,210**	**51,304,357**
Existing Conditions (2021)				
Regional On-Road VMT	1,335,920	6,263,093,314	1,086,863,738	118,752,791
Net Change in Annual Resource Consumption	**12,139,143**	**-1,063,665,746**	**214,786,473**	**-67,448,434**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBtu)	***41,418,756***	***-132,958,218***	***29,790,884***	***-9,355,098***
Net Change in Energy Consumption (MMBtu)	**-71,103,677**			

Source: STCP, 2024; HTA, 2024; BTS, 2024

[a]Diesel-fuel consumption at the MSF is attributed to emergency generators.
[b]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu= thousand British thermal units
MMBtu = million British thermal units
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

Construction Impacts

Alternative 5 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction activities would comply with Metro's GCP and construction equipment would be maintained in accordance with manufacturers' specifications. Construction would result in a one-time expenditure of approximately 19,369,362 gallons of diesel fuel, 1,182,417 gallons of gasoline, and 605,367 megawatt-hours (MWh) of electricity. Table 3.5-14 provides a summary of the energy consumption estimated for construction of Alternative 5.

Table 3.5-14. Alternative 5: Construction Fuel and Electricity Consumption

Source Type	Fuel Consumption (gal)	Electricity Consumption (MWh)
Mobile Source Fuel Consumption		
Off-Road Equipment (Diesel)	9,212,396	NA
Worker Vehicles (Gasoline)	1,182,417	NA
Vendor Trucks (Diesel)	485,939	NA
Haul Trucks (Diesel)	9,671,026	NA
Electricity Consumption		
TBM	NA	604,980
On-site Portable Offices	NA	387
Summary		
Total Gasoline (gal):	**1,182,417**	**NA**
Total Diesel (gal):	**19,369,362**	**NA**
Total Electricity (MWh):	**NA**	**605,367**

Source: Metro, 2025b

gal = gallons
MWh = megawatt-hours
NA = not applicable
TBM = tunnel boring machine

All equipment and vehicles used in construction activities would comply with applicable CARB regulations, Low Carbon Fuel Standards, and the CAFE Standards. Construction would not place an undue burden on available energy resources. The one-time expenditure of energy associated with diesel-fuel consumption would be offset by operations within approximately 11 years through transportation mode shift, and the one-time expenditure of energy associated with gasoline consumption would be offset by operations within one year. The temporary additional mobile source fuels consumption would not require additional capacity provided at the local or regional level. CEC transportation energy supply and demand forecasts indicate that gasoline and diesel fuel production is anticipated to increase between 2021 and 2035, while demand for both gasoline and diesel transportation fuels is projected to decrease over the same time period (CEC, 2021b). Construction vehicles and equipment activities would not place an undue burden on available petroleum fuel resources during construction of Alternative 5.

Construction activities may include lighting for security and safety in construction zones. Lighting would be sparse and would not require additional energy capacity provided at the local or regional level.

The GCP requires and commits project contractors to using renewable diesel as well as newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. All equipment and vehicles would be maintained in accordance with manufacturer specifications and would be subject to idling limits. As required by the CALGreen Code Tier 2, at least 80 percent of the non-hazardous construction debris generated by demolition activities will be diverted from landfills. Also, CALGreen includes the mandatory requirement to reuse or recycle all clean soil that would be displaced during construction of Alternative 5. Furthermore, the Metro 2020 *Moving Beyond Sustainability Strategic Plan* and the Metro Design Criteria and Standards require and commit contractors to using high-efficiency lighting as opposed to less energy-efficient lighting sources.

Based on the substantiation previously described, construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Alternative 5 would result in a less than significant impact related to construction activities.

Alternative 6

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

As described in Section 3.5.2, Methodology, Alternative 6 operations would consume energy resources in the forms of electricity (at TPSSs for rail propulsion, for MSF operations, at stations for lighting, accessibility features, and parking facilities, and as power for a fraction of regional VMT by electric and plug-in hybrid vehicles), petroleum fuels (gasoline for Metro employee trips and a fraction of regional VMT, and diesel fuel for an emergency generator at the MSF and a fraction of regional VMT), and natural gas (a small fraction of regional VMT by vehicles powered by natural gas). End uses that comprise direct energy resource consumption associated with Alternative 6 operations include TPSSs, the MSF, stations and parking facilities, and Metro employee trips, and end uses comprising indirect energy consumption include the changes in regional vehicle trips and VMT patterns resulting from implementation of the new transit system. Table 3.5-15 presents a summary of the annual energy consumption by resource attributable to Alternative 6 operations in the horizon year of 2045, and compares the consumption to the No Project Alternative.

Table 3.5-15. Alternative 6: Operations Annual Energy Consumption Relative to 2045 Without Project Conditions

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 6				
Traction Power	44,803	NA	NA	NA
Stations & Parking	15,810	NA	NA	NA
MSF	2,255	NA	NA	NA
Metro Employee Trips	352	137,209	34,349	1,354
Regional On-Road VMT	13,325,741	5,200,107,751	1,301,816,070	51,311,069
Alternative 6 Total Annual Consumption[a]	**13,388,960**	**5,200,244,960**	**1,301,850,419**	**51,312,422**
2045 Without Project Conditions				
Regional On-Road VMT	13,342,059	5,206,475,771	1,303,410,265	51,373,904
Net Change in Annual Resource Consumption	**46,901**	**-6,230,810**	**-1,559,846**	**-61,481**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBtu)	***160,026***	***-778,851***	***-216,351***	***-8,528***
Net Change in Energy Consumption (MMBtu)	**-843,703**			

Source: HTA, 2024; BTS, 2024

[a]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units

MSF = maintenance and storage facility
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

As shown in Table 3.5-15, operation of Alternative 6 in the horizon year of 2045 would result in a net annual increase in regional electricity demand of 46,901 MWh, and would result in a net annual reduction of 6,230,810 gallons of gasoline, 1,559,846 gallons of diesel fuel, and 61,481 DGE of natural gas. Increases in regional diesel fuel consumption are attributed to natural population and economic growth projected to occur by 2045. Converting each of these quantities to standardized units of MMBtu, Alternative 6 operations would result in a net decrease of 843,703 MMBtu annually in 2045. This amount of energy savings is equivalent to 6,751,355 gallons of motor gasoline per year. The electricity consumption would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would power a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, implementation of Alternative 6 would result in a substantial decrease in overall regional energy consumption, and this impact would be less than significant.

Table 3.5-16 summarizes the Alternative 6 annual energy consumption for each resource compared to Existing Conditions 2021. This is presented for informational purposes only. As shown in Table 3.5-16, Alternative 6 operations would result in a net increase of 12,053,040 MWh of electricity and 214,986,682 gallons of diesel fuel and would result in a net decrease of 1,062,848,353 gallons of gasoline and 67,440,369 DGE of natural gas. When standardized in units of MMBtu, operation of Alternative 6 in 2045 would consume approximately 71,266,398 MMBtu less collective energy resources on an annual basis than Existing Conditions in the baseline year of 2021. This amount of energy is equivalent to 570,277,384 gallons of motor gasoline per year.

Table 3.5-16. Alternative 6: Operations Annual Energy Consumption (Horizon Year 2045) Relative to Existing Conditions (Baseline Year 2021)

End Use	Electricity (MWh)	Gasoline (Gal)	Diesel (Gal)	Natural Gas (DGE)
Alternative 6 (2045)				
Traction Power	44,803	NA	NA	NA
Stations & Parking	15,810	NA	NA	NA
MSF	2,255	NA	NA	NA
Metro Employee Trips	352	137,209	34,349	1,354
Regional On-Road VMT	13,325,741	5,200,107,751	1,301,816,070	51,311,069
Alternative 6 Total Annual Consumption[a]	**13,388,960**	**5,200,244,960**	**1,301,850,419**	**51,312,422**
Existing Conditions (2021)				
Regional On-Road VMT	1,335,920	6,263,093,314	1,086,863,738	118,752,791
Net Change in Annual Resource Consumption	**12,053,040**	**-1,062,848,353**	**214,986,682**	**-67,440,369**
Conversion Factor	3,412 kBtu/MWh	125.0 kBtu/gal	138.7 kBtu/gal	138.7 kBtu/gal
Net Change in Annual Energy Consumption (MMBtu)	***41,124,972***	***-132,856,044***	***29,818,653***	***-9,353,979***
Net Change in Energy Consumption (MMBtu)	**-71,266,398**			

Source: HTA, 2024; BTS, 2024

[a]Values may not sum exactly due to rounding.

DGE = diesel gallon equivalent
Gal = gallon
kBtu = thousand British thermal units
MMBtu = million British thermal units
MSF = maintenance and storage facility
MWh = megawatt-hour
NA = not applicable
VMT = vehicle miles traveled

Construction Impacts

Alternative 6 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction activities would comply with Metro's GCP and construction equipment would be maintained in accordance with manufacturers' specifications. Construction would result in a one-time expenditure of approximately 7,803,150 gallons of diesel fuel, 1,324,088 gallons of gasoline, and 471,395 MWh of electricity. Table 3.5-17 provides a summary of the energy consumption estimated for construction of Alternative 6.

Table 3.5-17. Alternative 6: Construction Fuel and Electricity Consumption

Source Type	Fuel Consumption (gal)	Electricity Consumption (MWh)
Mobile Source Fuel Consumption		
Off-Road Equipment (Diesel)	4,430,397	NA
Worker Vehicles (Gasoline)	1,324,088	NA
Vendor Trucks (Diesel)	710,776	NA
Haul Trucks (Diesel)	2,667,977	NA
Electricity Consumption		
Tunnel Boring Machine	NA	471,120
On-site Portable Offices	NA	275
Summary		
Total Gasoline (gal):	**1,324,088**	**NA**
Total Diesel (gal):	**7,803,150**	**NA**
Total Electricity (MWh):	**NA**	**471,395**

Source: Metro, 2025b

gal = gallons
MWh = megawatt-hour
NA = not applicable

All equipment and vehicles used in construction activities would comply with applicable CARB regulations, Low Carbon Fuel Standards, and the CAFE Standards. Construction would not place an undue burden on available energy resources. The one-time expenditure of energy associated with diesel-fuel consumption would be offset by operations within approximately five years through transportation mode shift, and the one-time expenditure of energy associated with gasoline consumption would be offset by operations within one year. The temporary additional mobile source fuels consumption would not require additional capacity provided at the local or regional level. CEC transportation energy supply and demand forecasts indicate that gasoline and diesel fuel production is anticipated to increase between 2021 and 2035, while demand for both gasoline and diesel transportation fuels is projected to decrease over the same time period (CEC, 2021b). Construction

vehicles and equipment activities would not place an undue burden on available petroleum fuel resources during construction of Alternative 6.

Construction activities may include lighting for security and safety in construction zones. Lighting would be sparse and would not require additional energy capacity provided at the local or regional level.

The GCP requires and commits project contractors to using renewable diesel as well as newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. All equipment and vehicles would be maintained in accordance with manufacturer specifications and would be subject to idling limits. As required by the CALGreen Code Tier 2, at least 80 percent of the non-hazardous construction debris generated by demolition activities would be diverted from landfills. Also, CALGreen includes the mandatory requirement to reuse or recycle all clean soil that would be displaced during construction of Alternative 6. Furthermore, the Metro 2020 *Moving Beyond Sustainability Strategic Plan* and the Metro Design Criteria and Standards require and commit contractors to using high-efficiency lighting as opposed to less energy-efficient lighting sources.

Based on the substantiation previously described, construction would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, Alternative 6 would result in a less than significant impact related to construction activities.

Maintenance and Storage Facilities

Monorail Transit Maintenance and Storage Facility Base Design (Alternatives 1 and 3)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

As shown in Table 3.5-3 and Table 3.5-4, operation of the MSF Base Design and the Electric Bus MSF in the horizon year of 2045 would result in an annual increase in regional electricity demand of 9,991MWh and 4,421 gallons of diesel fuel. Alternative 1 or Alternative 3 operations would result collectively in a net decrease of 250,257 MMBtu annually in 2045. Construction of the MSF Base Design would require petroleum-based transportation fuels and electricity to construct the facility. Construction activities would comply with Metro's GCP. The required energy demand to construct and operate the MSF Base Design would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would support a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. There is no potential for construction or operations of the MSF Base Design to result in wasteful, inefficient, or unnecessary consumption of energy resources, and the MSF Base Design would result in a less than significant impact.

Monorail Transit Maintenance and Storage Facility Design Option 1 (Alternatives 1 and 3)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

MSF Design Option 1 would locate the MSF at a different address than the MSF Base Design. Energy use would be similar as presented for the MSF Base Design. Like the MSF Base Design, the required energy demand to construct and operate the MSF Design Option 1 would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would support a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, construction and operation would not result in wasteful, inefficient, or unnecessary consumption of energy resources and MSF Design Option 1 would result in a less than significant impact.

Electric Bus Maintenance and Storage Facility (Alternative 1)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

The Electric Bus MSF energy demand is included in the discussion of the MSF Base Design and as described for Alternative 1 in Section 3.5.5.1. Like the MSF Base Design, the required energy demand to construct and operate the Electric Bus MSF would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would support a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. Therefore, construction and operation of the Electric Bus MSF would not result in wasteful, inefficient, or unnecessary consumption of energy resources, and the Electric Bus MSF would result in a less than significant impact.

Heavy Rail Transit Maintenance and Storage Facility (Alternatives 4 and 5)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

As shown in Table 3.5-9 and Table 3.5-10, operation of the MSF in the horizon year of 2045 would result in an annual increase in regional electricity demand of 24,110 MWh and 4,421 gallons of diesel fuel. Alternative 4 or Alternative 5 operations would collectively result in a net decrease of 726,265 or 680,982 MMBtu, respectively, in 2045. Construction of the MSF would require petroleum-based transportation fuels and electricity to construct the facility. Construction activities would comply with Metro's GCP. The required energy demand to construct and operate the MSF would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would support a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. There is no potential for construction or operations of the MSF to result in wasteful, inefficient, or unnecessary consumption of energy resources, and the MSF would result in a less than significant impact.

Heavy Rail Transit Maintenance and Storage Facility (Alternative 6)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

As shown in Table 3.5-15 and Table 3.5-16, operation of the MSF in the horizon year of 2045 would result in an annual increase in regional electricity demand of 2,255 MWh. Alternative 6 operations would collectively result in a net decrease of 843,703 MMBtu annually in 2045. Construction of the MSF would require petroleum-based transportation fuels and electricity to construct the facility. Construction activities would comply with Metro's GCP. The required energy demand to construct and operate the MSF would be more than offset by the energy savings in the forms of petroleum fuels and natural gas, and the consumption would support a mass transit system that would contribute to regional efforts to enhance energy efficiency and reduce reliance on non-renewable resources. There is no potential for construction or operations of the MSF to result in wasteful, inefficient, or unnecessary consumption of energy resources, and the MSF would result in a less than significant impact.

3.5.5.2 Impact ENG-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Project Alternatives

No Project Alternative

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

The No Project Alternative would maintain existing transit service through the year 2045. The only transportation improvement that is reasonably foreseeable within the Project Study Area is the rerouting of Metro Line 761 which would not provide new transit service but would provide a transit connection to the Metro G Line Van Nuys Station and the Metro E Line Expo/Sepulveda Station. It is anticipated that Metro Line 761 along with most bus service in the Metro system would be electrically powered by 2035. No substantial physical change to the environment would occur under the No Project Alternative.

As of 2017, approximately 30 percent of Metro's electricity was generated by renewable sources, and the seven Metro-owned solar installations around the greater Los Angeles area generated a total of 2,670 MWh. Metro has a goal of 50 percent renewable energy use by 2030. Additionally, Metro operates 11 LEED-certified buildings representing nearly 2 million square feet of floor area. The No Project Alternative would not provide a high-capacity rail transit improvement in the Project Study Area to support regional and local conservation plans in reducing VMT. Rerouting Metro Line 761 would have little influence on regional VMT though it would support regional and local conservation plans by improving transit service. The No Project Alternative would also not interfere with Metro's commitments to improving energy efficiency or expanding its alternative energy infrastructure. The No Project Alternative would result in a less than significant operational impact related to energy plans.

Construction Impacts

The No Project Alternative would not include construction of any project components that could interfere with energy plans. Construction activities associated with rerouting Metro Line 761 would involve limited use of power tools in order to install new bus stop infrastructure. However, all construction activities under the No Project Alternative would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. Therefore, the No Project Alternative would result in a less than significant construction impact related to energy plans.

Alternative 1

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

Alternative 1 would be a high-capacity fixed guideway transit system providing energy-efficient mass transit to a region in need of enhanced accessibility options. It would reduce auto passenger vehicle trips and reduce reliance on petroleum-based transportation fuels. Alternative 1 is considered to be a "sustainable transportation project," as defined by the California Office of Planning and Research (OPR), because it would encourage the use of transit and zero-emission vehicles (OPR, 2018). The benefits of Alternative 1 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles as outlined in the local regulatory framework previously described. As the renewable energy portfolios of Metro and local jurisdictions expand over time, natural resources consumption to provide the electricity required for operations would become more energy efficient. Alternative 1 would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's 2019 *Climate Action and Adaptation Plan* (Metro, 2019b). In addition, Alternative 1 would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. Alternative 1 would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, Alternative 1 would result in a less than significant impact related to operational activities.

Construction Impacts

Alternative 1 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction would result in a one-time expenditure of approximately 5,609,190 gallons of diesel fuel, 515,777 gallons of gasoline, and 255 MWh of electricity. Alternative 1 would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. The GCP requires and commits project contractors to using newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models, as well as using renewable diesel fuel for all applicable on-road truck and off-road equipment. Compliance with GCP would limit excess petroleum fuels consumption. The CALGreen Code requires reduction, disposal, and recycling of at least 50 percent of non-hazardous construction materials and requires demolition debris to be recycled and/or salvaged, which would ultimately result in reductions of indirect energy use associated with waste disposal and storage. Alternative 1 would comply with state and local plans for energy efficiency in construction activities. Therefore, Alternative 1 would result in a less than significant impact related to construction activities.

Alternative 3

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

Alternative 3 would be a high-capacity fixed guideway transit system providing energy-efficient mass transit to a region in need of enhanced accessibility options. It would reduce auto passenger vehicle trips and reduce reliance on petroleum-based transportation fuels. Alternative 3 is considered to be a "sustainable transportation project," as defined by the California OPR, because it encourages the use of transit and zero-emission vehicles (OPR, 2018). The benefits of Alternative 3 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles as outlined in the local regulatory framework previously described. As the renewable energy portfolios of Metro and local jurisdictions expand over time, natural resources consumption to provide the electricity required for operations would become more energy efficient. Alternative 3 would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, Alternative 3 would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. Alternative 3 would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, Alternative 3 would result in a less than significant impact related to operational activities.

Construction Impacts

Alternative 3 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction would result in a one-time expenditure of approximately 7,563,002 gallons of diesel fuel, 533,406 gallons of gasoline, and 536,969 MWh of electricity. Alternative 3 would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. The GCP requires and commits project contractors to using newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. Compliance with GCP would limit excess petroleum fuels consumption. The CALGreen Code requires reduction, disposal, and recycling of at least 50 percent of non-hazardous construction materials and requires demolition debris to be recycled and/or salvaged, which would ultimately result in reductions of indirect energy use associated with waste disposal and storage. Alternative 3 would comply with state and local plans for energy efficiency in construction activities. Therefore, Alternative 3 would result in a less than significant impact related to construction activities.

Alternative 4

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

Alternative 4 would be a high-capacity rail transit system providing energy-efficient mass transit to a region in need of enhanced accessibility options. It would reduce auto passenger vehicle trips and reduce reliance on petroleum-based transportation fuels. Alternative 4 is considered to be a

"sustainable transportation project," as defined by the California OPR, because it encourages the use of transit and zero-emission vehicles (OPR, 2018). The benefits of Alternative 4 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles as outlined in the local regulatory framework previously described. As the renewable energy portfolios of Metro and local jurisdictions expand over time, natural resources consumption to provide the electricity required for operations would become more energy efficient. Alternative 4 would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, Alternative 4 would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. Alternative 4 would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, Alternative 4 would result in a less than significant impact related to operational activities.

Construction Impacts

Alternative 4 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction would result in a one-time expenditure of approximately 16,198,435 gallons of diesel fuel, 1,106,877 gallons of gasoline, and 393,824 MWh of electricity. Alternative 4 would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. The GCP requires and commits project contractors to using newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. Compliance with GCP would limit excess petroleum fuels consumption. The CALGreen Code requires reduction, disposal, and recycling of at least 50 percent of non-hazardous construction materials and requires demolition debris to be recycled and/or salvaged, which would ultimately result in reductions of indirect energy use associated with waste disposal and storage. Alternative 4 would comply with state and local plans for energy efficiency in construction activities. Therefore, Alternative 4 would result in a less than significant impact related to construction activities.

Alternative 5

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

Alternative 5 would be a high-capacity rail transit system providing energy-efficient mass transit to a region in need of enhanced accessibility options. It would reduce auto passenger vehicle trips and reduce reliance on petroleum-based transportation fuels. Alternative 5 is considered to be a "sustainable transportation project," as defined by the California OPR, because it encourages the use of transit and zero-emission vehicles (OPR, 2018). The benefits of Alternative 5 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles as outlined in the local regulatory framework previously described. As the renewable energy portfolios of Metro and local jurisdictions expand over time, natural resources consumption to provide the electricity required for operations would become more energy efficient. Alternative 5 would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, Alternative 5 would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. Alternative 5 would positively contribute to statewide, regional, and local efforts to

create a more efficient and sustainable transportation infrastructure network. Therefore, Alternative 5 would result in a less than significant impact related to operational activities.

Construction Impacts

Alternative 5 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction would result in a one-time expenditure of approximately 19,369,362 gallons of diesel fuel, 1,182,417 gallons of gasoline, and 605,367 MWh of electricity. Alternative 5 would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. The GCP requires and commits project contractors to using newer engines for off-road diesel-powered construction equipment that are more fuel efficient than older models. Compliance with GCP would limit excess petroleum fuels consumption. The CALGreen Code requires reduction, disposal, and recycling of at least 50 percent of non-hazardous construction materials and requires demolition debris to be recycled and/or salvaged, which would ultimately result in reductions of indirect energy use associated with waste disposal and storage. Alternative 5 would comply with state and local plans for energy efficiency in construction activities. Therefore, Alternative 5 would result in a less than significant impact related to construction activities.

Alternative 6

Impact Statement

Construction Impact: Less Than Significant

Operational Impact: Less Than Significant

Operational Impacts

Alternative 6 would be a high-capacity rail transit system providing energy-efficient mass transit to a region in need of enhanced accessibility options. It reduces auto passenger vehicle trips and reduces reliance on petroleum-based transportation fuels. Alternative 6 is considered to be a "sustainable transportation project," as defined by the California OPR, because it encourages the use of transit and zero-emission vehicles (OPR, 2018). The benefits of Alternative 6 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles as outlined in the local regulatory framework previously described. As the renewable energy portfolios of Metro and local jurisdictions expand over time, natural resources consumption to provide the electricity required for operations would become more energy efficient. Alternative 6 would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of the Metro's *2019 Climate Action and Adaptation Plan*. In addition, Alternative 6 would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. Alternative 6 would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, Alternative 6 would result in a less than significant impact related to operational activities.

Construction Impacts

Alternative 6 would require petroleum-based transportation fuels and electricity to construct the transit system. Construction would result in a one-time expenditure of approximately 7,809,150 gallons of diesel fuel, 1,324,088 gallons of gasoline, and 471,395 MWh of electricity. Alternative 6 would be consistent with state and local energy plans and policies to reduce energy consumption as activities would comply with Metro's GCP, CALGreen Code, and Title 24. The GCP requires and commits project contractors to using newer engines for off-road diesel-powered construction equipment that are more

fuel efficient than older models. Compliance with GCP would limit excess petroleum fuels consumption. The CALGreen Code requires reduction, disposal, and recycling of at least 50 percent of non-hazardous construction materials and requires demolition debris to be recycled and/or salvaged, which would ultimately result in reductions of indirect energy use associated with waste disposal and storage. Alternative 6 would comply with state and local plans for energy efficiency in construction activities. Therefore, Alternative 6 would result in a less than significant impact related to construction activities.

Maintenance and Storage Facilities

Monorail Transit Maintenance and Storage Facility Base Design (Alternatives 1 and 3)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

The MSF Base Design would support Alternative 1 or Alternative 3 operations, providing energy-efficient mass transit to the region and reducing auto passenger vehicle trips. The benefits of Alternative 1 or Alternative 3 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles. In addition, the MSF Base Design would be designed to achieve a minimum of LEED Silver certification and would be designed to meet Tier 2 of the California Green Building Standards Code (LASRE, 2024). The MSF Base Design would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, the MSF Base Design would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. The MSF Base Design would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, the MSF Base Design would result in a less than significant impact.

Monorail Transit Maintenance and Storage Facility Design Option 1 (Alternatives 1 and 3)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

MSF Design Option 1 would locate the MSF at a different address than the MSF Base Design. Energy use would be similar as presented for the MSF Base Design. Like the MSF Base Design, MSF Design Option 1 would be designed to achieve a minimum of LEED Silver certification and would be designed to meet Tier 2 of the California Green Building Standards Code (LASRE, 2024). The MSF Design Option 1 would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, the MSF Design Option 1 would result in a less than significant impact.

Electric Bus Maintenance and Storage Facility (Alternative 1)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

The Electric Bus MSF would support the Alternative 1 electric bus connection connecting the Wilshire Boulevard/Metro D Line Station, Westwood Village, and UCLA Gateway Plaza. Like the MSF Base Design, the Electric Bus MSF would support Alternative 1 operations, providing energy-efficient mass transit to the region and reducing auto passenger vehicle trips and thereby supporting regional and local goals, objectives, and policies. The benefits of Alternative 1 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles. Like the MSF Base Design, the Electric Bus MSF would be designed to achieve a minimum of LEED Silver certification and would be designed to meet Tier 2 of the California Green Building Standards Code (LASRE, 2024). The Electric Bus MSF would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, the Electric Bus MSF would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. The Electric Bus MSF would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, the Electric Bus MSF would result in a less than significant impact.

Heavy Rail Transit Maintenance and Storage Facility (Alternatives 4 and 5)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

The MSF would support Alternative 4 or Alternative 5 operations, providing energy-efficient mass transit to the region and reducing auto passenger vehicle trips. The benefits of Alternative 4 or Alternative 5 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles. The MSF would be designed to meet the LEED Version 4 Building Design and Construction (LEED v4 BD+C) and Tier 2 of the California Green Building Standards Code (STCP, 2024). There is no potential for construction or operations of the MSF to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The MSF would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, the MSF would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. The MSF would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, the MSF would result in a less than significant impact.

Heavy Rail Transit Maintenance and Storage Facility (Alternative 6)

Impact Statement

Operational Impact: Less Than Significant

Construction Impact: Less Than Significant

Operational and Construction Impacts

The MSF would support Alternative 6 operations, providing energy-efficient mass transit to the region and reducing auto passenger vehicle trips. The benefits of Alternative 6 would be consistent with the goals, objectives, and policies of SCAG and the City of Los Angeles. Additionally, Alternative 6 would

comply with design requirements for components outlined in the *Moving Beyond Sustainability Strategic Plan*, such as achieving LEED sustainable certifications (or Envision certification where LEED is not applicable) and Tier 2 of the California Green Building Standards Code. There is no potential for construction or operations of the MSF to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The MSF would not conflict with any adopted plan or regulation to enhance energy efficiency or reduce transportation fuels consumption and would support the initiatives of Metro's *2019 Climate Action and Adaptation Plan*. In addition, the MSF would not interfere with renewable portfolio targets and would not result in a wasteful or inefficient expenditure of energy resources. The MSF would positively contribute to statewide, regional, and local efforts to create a more efficient and sustainable transportation infrastructure network. Therefore, the MSF would result in a less than significant impact.

3.5.6 Mitigation Measures

No mitigation measures are required.

Impacts After Mitigation

No mitigation measures are required; impacts are less than significant.

Table 3.5-18. Summary of Mitigation Measures and Impacts Before and After Mitigation for the Project Alternatives

CEQA Impact Topic		No Project	Alt 1	Alt 3	Alt 4	Alt 5	Alt 6
Operational							
Impact ENG-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
Impact ENG-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
Construction							
Impact ENG-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
Impact ENG-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS

Source: HTA, 2024

Alt = Alternative
ENG = Energy
LTS = less than Significant
NA = not applicable

Table 3.5-19. Summary of Mitigation Measures and Impacts Before and After Mitigation for the Maintenance and Storage Facilities

CEQA Impact Topic		MRT MSF Base Design (Alts 1 and 3)	MRT MSF Design Option 1 (Alts 1 and 3)	Electric Bus MSF (Alt 1)	HRT MSF (Alts 4 and 5)	HRT MSF (Alt 6)
Operational						
Impact ENG-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS
Impact ENG-2: Would the project conflict or obstruct a state or local plan for renewable energy or energy efficiency?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS
Construction						
Impact ENG-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS
Impact ENG-2: Would the project conflict or obstruct a state or local plan for renewable energy or energy efficiency?	Impacts Before Mitigation	LTS	LTS	LTS	LTS	LTS
	Applicable Mitigation	NA	NA	NA	NA	NA
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS

Source: HTA, 2024

Alt = Alternative
ENG = Energy
LTS = Less than Significant
NA = not applicable