

4.11 Energy

4.11.1 Regulatory Framework and Methodology

4.11.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's energy impacts are listed below. For additional information regarding these regulations, please see the Energy Technical Report in Appendix R of this Draft EIS/EIR.

Federal

The following federal regulations are applicable to the proposed project:

- The Energy Policy and Conservation Act of 1975 (EPCA)
- Moving Ahead for Progress in the 21st Century Act (MAP-21)
- The Energy Independence and Security Act of 2007

State

The following state agency and regulations are applicable to the proposed project:

- California Energy Commission
- Executive Order S-3-05
- AB 32: Global Warming Solutions Act
- AB 2076, Reducing Dependence on Petroleum

Local

The following local and regional regulations and policies are applicable to the proposed project:

- Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)
- Metro Energy and Sustainability Policy (June 2007)
- Metro Energy Conservation and Management Plan (September 2011)
- Metro Sustainability Implementation Plan (December 2012)
- Metro Green Construction Policy (July 2011)
- Metro Climate Action and Adaptation Plan (June 2012)
- Los Angeles Department of Water and Power: Power Integrated Resource Plan (December 2012)
- Los Angeles Municipal Code (June 2015)
- Los Angeles Green Building Code (December 2010)

4.11.1.2 Methodology

Construction

The estimate of construction-related energy use was calculated by applying the U.S. Environmental Protection Agency (USEPA)-derived carbon dioxide equivalent (CO₂e) emissions per gallon of fuel to the total CO₂e emissions estimated using the California Emissions Estimator Model™ (CalEEMod) in the air quality emissions analysis prepared for the proposed project. The Air Quality Technical Report includes details on construction equipment and activity assumptions that were used to estimate CO₂e emissions. Emissions were then converted to million British thermal units (MMBTU) using energy unit conversion factors.

Operation

To estimate operational automobile traffic energy consumption, future (2040) local VMT and roadway network travel speeds were calculated using traffic data (VMT apportioned into 5 mph speed bins) derived from a micro-simulation model that captures project effects. The VMT-by-speed-bin data were used as inputs in CT-EMFAC2014, which is Caltrans' tool for estimating pollutant emissions from on-road vehicles. The outputs for CO₂e were converted to MMBTU using conversion factors. The year 2040 was chosen for the definition of future baseline conditions, primarily due to the need to match the future baseline year of the Metro Travel Demand Model.

Each of the build alternatives was compared against existing conditions, which “normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant,” under Section 15125(a) of the CEQA Guidelines. Because Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents the worst-case relative to any of the other “Existing Plus Project” scenarios. Thus, in order to evaluate, analyze, and compare each of the alternatives, the qualitative analysis for the other build alternatives extrapolates from the quantitative analysis for the Existing (2012) with Alternative 3 scenario. In addition, the energy consumption of each of the build alternatives have been evaluated against the No-Build Alternative for a future baseline (2040) analysis.

Bus propulsion energy use was estimated by determining the number of round trips that would be completed under each of the build alternatives to meet the headway goals and multiplying that number by the length of the bus line. The resulting bus VMT was multiplied by the energy intensity of CNG buses per vehicle mile to determine the annual consumption.

For rail Alternatives 3 and 4, CalEEMod was used to estimate emissions from MSF operation that would result from trips made by workers and direct energy electricity and natural gas consumption. The CO₂e emissions were converted to MMBTU. Although three different locations are being considered for the MSF, all would operate in the same manner, and are therefore considered functional equivalents.

Energy estimates for rail vehicle propulsion and station operation under Alternatives 3 and 4 were calculated based on the 2014 energy consumption of Metro's existing LRT lines (the Blue, Gold, Green, and Expo lines). The average per-mile energy consumption was applied to the length of the proposed 9.2-mile alignment and converted to MMBTU. The figure was then increased by 10% to account for proposed 24-hour service.

Energy estimates provided herein are not intended to be used for energy planning purposes; they are used as a standard method to conservatively assess the relative impacts of each of the alternatives. Actual energy use would vary based on the age and efficiency of equipment, operational characteristics, technological changes, and other factors.

4.11.1.3 Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect. The significance thresholds, as defined by federal and state regulations and guidelines, are discussed below.

NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.¹

Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

Under NEPA, the context and intensity of the project's effects are discussed in this Land Use section regardless of any thresholds levels, and mitigation measures would be included where reasonable.

Although there are no specific NEPA criteria for analyzing impacts to energy resources, 40 CFR Section 1502.16(e) and (f) direct that EISs shall include a discussion of the "energy requirements and conservation potential of various alternatives," "natural or depletable resource requirements and conservation potential of various alternatives," and, if applicable, mitigation measures.

CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.²

State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).³

¹ Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.*

² OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance.* September.

³ AEP. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency.

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Additionally, Section 15126.4(a)(1)⁴ provides further guidance on determining the significance of energy impacts. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant energy impact under CEQA if it would:

- Result in the wasteful, inefficient, or unnecessary consumption of energy; or
- Result in a substantial increase in demand or transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure, the construction of which could cause significant impacts on the environment.

Additionally, Appendix F to the State CEQA Guidelines recommends consideration of the following impact possibilities and potential energy conservation measures when preparing an EIR:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and requirements for additional capacity.
- The effects of the project on peak- and base-period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* (2006) provides further guidance for determining the significance of impacts on utilities and service systems. With respect to energy, a determination of impacts would be made on a case-by-case basis by considering the following factors:

- The extent to which the project would require new (off-site) energy supply facilities and distribution infrastructure or capacity-enhancing alterations to existing facilities;
- Whether and when the needed infrastructure was anticipated by adopted plans; and
- The degree to which the project design and/or operations incorporate energy conservation measures, particularly those that go beyond City requirements.

⁴ California Public Resources Code, Title 14, Division 6, Chapter 3, California Environmental Quality Act Guidelines, Section 15126.4(a)(1).

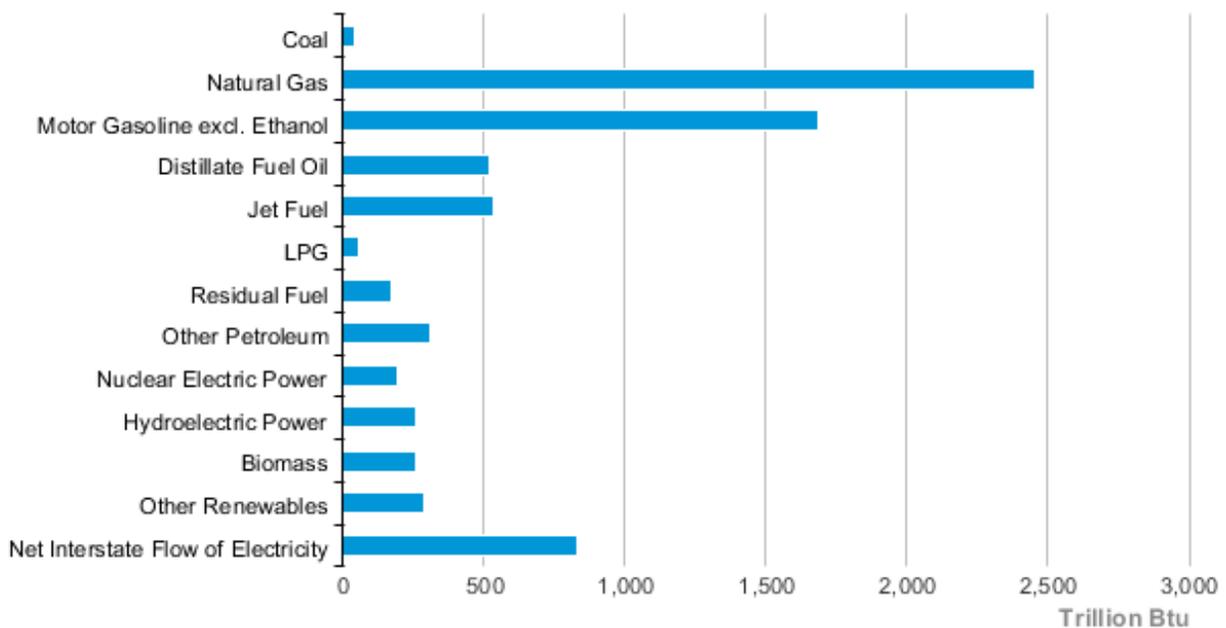
4.11.2 Affected Environment/Existing Conditions

4.11.2.1 Energy Consumption

Statewide Energy Consumption

Energy consumption can be accounted for in a number of ways, with fuel source (i.e. gasoline, natural gas, or coal) and end-use sector (i.e., transportation or residential energy use) being among the most common. As shown in Figure 4.11-1, California’s most prevalent fuel source is natural gas, representing 32% of the state’s energy consumption, and is the fuel source responsible for over 60% of in-state electricity generation.^{5,6} Motor gasoline accounts for 22% of statewide energy consumption and petroleum-based fuels other than motor gasoline represent a combined 21% of California’s energy use.

Figure 4.11-1: California Energy Consumption Estimates by Source, 2012



Source: U.S. Energy Information Administration. 2014a.

Figure 4.11-2 shows California energy use by end-use sector. The transportation sector is responsible for largest share of the state’s energy use, accounting for just under 40% of the California total. Residential, commercial, and industrial users are each responsible for roughly one-fifth of energy use.⁷

Energy resources for transportation include gasoline, natural gas, biofuels, and electricity, with petroleum-based fuels accounting for 96% of the state's transportation needs.⁸

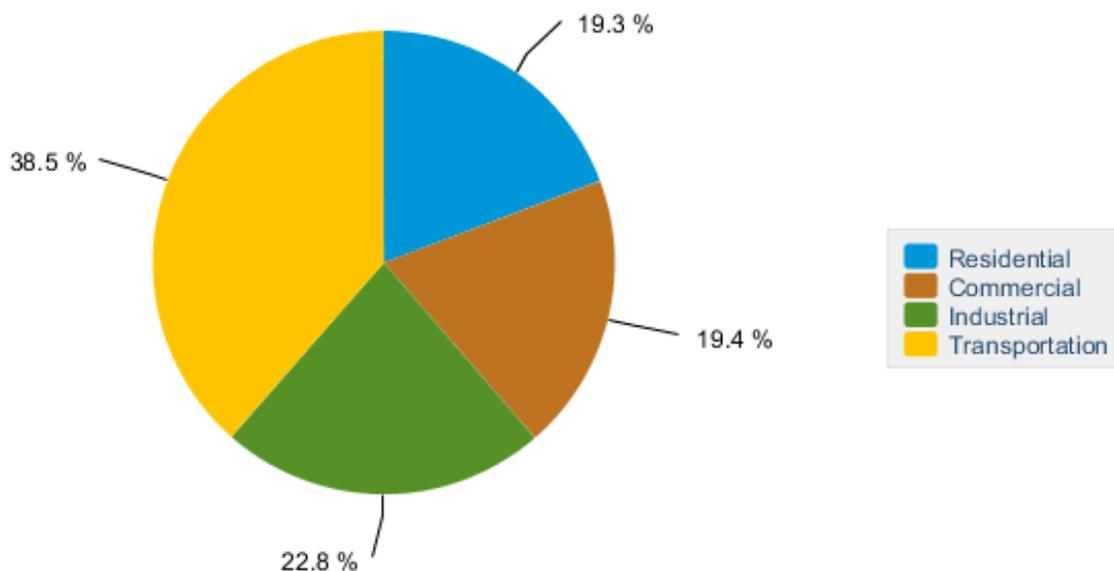
⁵ U.S. Energy Information Administration. 2014a. *California Energy Consumption Estimates by Source, 2012*. Available: <<http://www.eia.gov/state/?sid=CA#tabs-1>>. Accessed: December 10, 2014.

⁶ California Energy Commission. 2014. *California Energy Almanac: 2013 Total System Power in Gigawatt Hours*. Available: <http://energyalmanac.ca.gov/electricity/total_system_power.html>. Accessed: December 10, 2014.

⁷ U.S. Energy Information Administration. 2014b. *California Energy Consumption by End-Use Sector, 2012*. Available: <<http://www.eia.gov/state/?sid=CA#tabs-1>>. Accessed: December 10, 2014.

⁸ California Energy Commission. 2013. *Energy Almanac*. California Petroleum Statistics and Data. Available: <<http://energyalmanac.ca.gov/petroleum/index.html>>. Accessed: February 14, 2013.

Figure 4.11-2: California Energy Consumption by End-Use Sector, 2012



Source: U.S. Energy Information Administration. 2014b.

In the 2011 Integrated Energy Policy Report, CEC staff forecasted that future gasoline consumption may range from a decline of 15.6% from 2009 levels to an increase of 3.6% by 2030, based respectively on low and high petroleum fuel demand scenarios. The CEC projects diesel consumption to increase by between 22% and 50% compared to 2009 levels, and expects an increase in the consumption of alternative fuels. CEC estimates the consumption of natural gas as a transportation fuel to increase at a compound annual rate of more than 3% with natural gas consumption by 2030, representing 87% to 96% above 2009 levels.⁹ Presently, after ethanol, natural gas is the most consumed alternative fuel for transportation use in California, with electricity consumption ranked third.¹⁰

Regional Energy Consumption

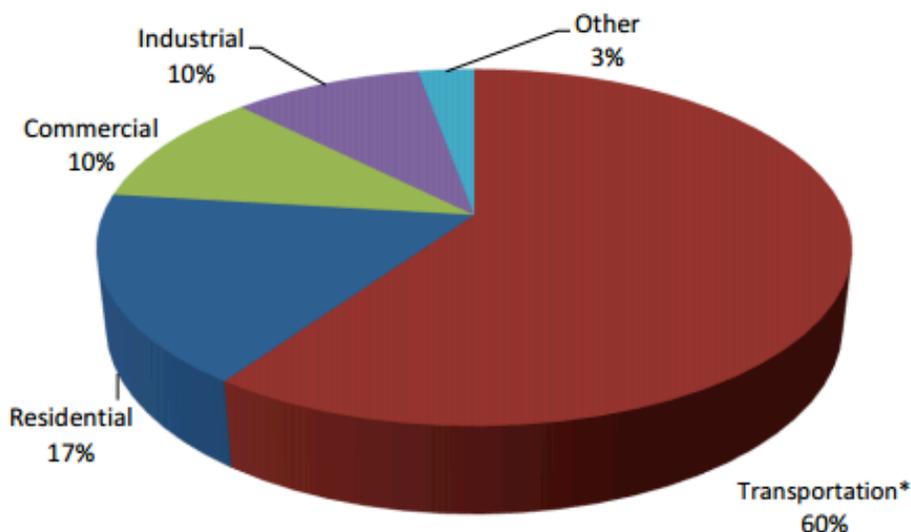
Southern California’s energy consumption differs from the state as a whole in that a greater proportion of the energy consumed in the region is for the purposes of transportation, owing to the high density of population that relies on freeways and local roads for mobility, two major ports that serve as a hub for the movement of goods, as well as three large airports. As shown in Figure 4.11-3, approximately 60% of energy used in the South Coast Air Basin (which comprises all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties) is transportation-related.¹¹

⁹ California Energy Commission. 2012. *2011 Integrated Energy Policy Report*. February. Available: <<http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf>>. Accessed: February 14, 2013.

¹⁰ California Energy Commission. 2011. *Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report*. Draft staff report. August. Report No. CEC-600-2011-007-SD. Available: <<http://energy.ca.gov/2011publications/CEC-600-2011-007/CEC-600-2011-007-SD.pdf>>. Accessed: February 17, 2013.

¹¹ South Coast Air Quality Management District. 2012. *2012 Air Quality Management Plan*. Chapter 10: Energy and Climate. Available: <<http://www.aqmd.gov/aqmp/2012aqmp/Final/Ch10.pdf>>. Accessed: February 18, 2013.

Figure 4.11-3: Share of Energy Use in South Coast Basin in 2008
(“Transportation” includes off-road sources)



According to SCAG’s 2016-2040 RTP/SCS, the six-county SCAG region (Ventura, Los Angeles, Orange, San Bernardino, Riverside, and Imperial counties) is expected to add approximately 3.8 million people by 2040.¹² This additional population growth is expected to pose transportation challenges for the region, as travel demand in California will likely increase.

Transportation energy consumption reflects the type and number of vehicles, the extent of their use, and their fuel economy. According to the SCAG 2012–2035 RTP/SCS, the six-county region’s transportation network supports a daily total of approximately 445.8 million VMT, almost half of which occurs in Los Angeles County. Even with implementation of the 2012 RTP/SCS measures intended to reduce VMT, projections show that the Los Angeles region will experience a 16.3% increase in VMT by 2035.¹³ The addition of alternative modes of transportation could result in a change in the dynamics of all vehicle classes with regard to VMT. Changes in VMT, in turn, could affect regional energy consumption. A reduction in VMT through alternative modes of transportation could lower energy needs and reduce pollutant emissions.

As stated in the SCAG 2012-2035 RTP/SCS, the daily total VMT in the SCAG transportation network is approximately 445.8 million VMT; of this six-county total, the daily total VMT in the Los Angeles County is approximately 225.6 million VMT.

¹² Southern California Association of Governments. 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Available: <<http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>>. Accessed: July 20, 2016.

¹³ Southern California Association of Governments. 2012. 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy. April. Available: <<http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>>. Accessed: February 13, 2013.

Metro’s contribution to regional energy consumption includes on-road vehicle fuel use (which is primarily compressed natural gas, or CNG) and electricity for rail vehicle propulsion and maintenance and administrative facility operation. Metro’s bus fleet is now fueled by CNG. In 2011, Metro’s fleet, excluding vanpool services, used over 41 million gallons of gasoline-equivalent (GGE) fuels. When accounting for gasoline used in vanpools, Metro’s gasoline use accounts for 6% of all fuel use, when compared on a GGE basis. Metro’s electric power comes from several sources including the Los Angeles Department of Water and Power (over 50% of all power), Southern California Edison, and Pasadena Water and Power. In 2011, Metro’s rail lines consumed approximately 164 million kilowatt hours (kWh) of electricity and Metro facilities used 97 million kWh of electricity.¹⁴

4.11.3 Environmental Consequences, Impacts, and Mitigation Measures

4.11.3.1 No-Build Alternative

Construction Impacts

The No-Build Alternative would not include construction of any project-related facilities or infrastructure; therefore, no impacts or effects under CEQA and NEPA would occur.

Operational Impacts

Under the No-Build Alternative, no new project facilities, infrastructure, or development would be constructed as part of East San Fernando Valley Transit Corridor Project. The No-Build Alternative would not result in an increase in the consumption of energy and no energy infrastructure would be required to meet project demands. Consequently, no operational energy impacts or effects would occur. The projected conditions under the No-Build Alternative represent the existing and future baselines (for year 2012 and 2040, respectively) against which the proposed build alternatives are compared to determine project impacts. Existing and future (2040) baseline bus propulsion energy for the 233 and 761 bus lines is shown in Table 4.11-1.

Table 4.11-1: Existing (2012) and Future (2040) Baseline Operational Energy Consumption – Bus Lines 233 and 761

Baseline Conditions	Operational (Annual MMBTU)
2012 Traffic Energy	927,114,152
2040 Traffic Energy	786,014,117
Bus Propulsion Energy (233 and 761 Bus Lines)	60,484

Source: ICF, 2015.

¹⁴ Los Angeles County Metropolitan Transportation Authority. 2012. *Moving Towards Sustainability, 2012 Metro Sustainability Report Using Operational Metrics*. Available: <http://www.metro.net/projects_studies/sustainability/images/Sustainability_Report.pdf>. Accessed: February 21, 2013.

Cumulative Impacts

The No-Build Alternative would not result in any construction impacts; therefore, it would not contribute to any cumulative impacts.

Mitigation Measures

Construction Mitigation Measures

No mitigation measures are required.

Operational Mitigation Measures

No operational mitigation measures are required.

Impacts Remaining After Mitigation

NEPA Finding

No adverse effects would occur under NEPA.

CEQA Determination

No impacts would occur under CEQA.

4.11.3.2 TSM Alternative

Construction Impacts

The TSM Alternative would consist of relatively low-cost transit service improvements, such as increased bus frequencies, and minor physical improvements. Construction activities that would occur under the TSM Alternative would be limited to minor roadway modifications and bus stop enhancements. As such, construction would require minimal amounts of energy and construction activities would comply with the Metro Green Construction Policy. No buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed under the TSM Alternative. Construction impacts on energy would be less than significant under CEQA and non-adverse under NEPA.

Operational Impacts

The TSM Alternative would result in both direct and indirect operational energy consumption impacts. Direct impacts could include electricity consumption and fuel consumption due to enhanced operating hours and increased bus frequencies for the existing Metro Rapid Line 761 and Local Line 233. Operation of the TSM Alternative would not result in a substantial increase in demand for electricity, as the additional buses would be accommodated at the existing Division 15 MSF and no new maintenance facilities would be required. The enhanced bus operating hours and increased bus frequencies would result in an estimated increase in consumption of approximately 12,000 MMBTU of CNG, or 570,000 GGE. This would represent a 20% increase in CNG consumption for the 233 and 761 bus lines due to the TSM Alternative, compared to existing baseline conditions for the 233 and 761 bus lines. This increase is not substantial relative to Metro's annual consumption of more than 40 million GGE (Metro 2014). Given that Metro has access to CNG fueling stations and non-transit vehicle drivers would maintain their access to the extensive network of fueling stations, no new or expanded infrastructure would be required to meet the

energy demands. The TSM Alternative would not change the existing operations of buses along San Fernando Road or Truman Street, so there would not be any change to the existing energy demand along those corridors.

Indirect effects on energy consumptions of the TSM Alternative would occur as a result of changes to traffic circulation. As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under the TSM Alternative would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the energy consumption from enhanced and more frequent bus service.

Although net increases in overall operational energy consumption associated with the 2012 TSM Alternative scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use that could occur under the 2012 TSM Alternative scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 TSM Alternative would result in an annual 2,600-mile reduction in regional VMT relative to the 2040 No-Build Alternative. However, the speeds at which vehicles within the project vicinity would operate would be less efficient and result in a negligible net increase in fuel consumption (see Energy Technical Report in Appendix R). As shown in Table 4.11-2, the TSM Alternative would result in a projected increase of approximately 51,000 MMBTU or 0.006% compared to future (2040) baseline conditions. This increase would not be substantial.

Table 4.11-2: TSM Alternative – Operational Energy Consumption

Comparison to Future (2040) Baseline	Operational (Annual MMBTU)	Percent Change
Net Traffic Energy	39,087	0.005%
Net Bus Propulsion Energy (233 and 761 Bus Lines)	11,918	19.70%
Net Total	51,005	0.006%

Source: ICF, 2016.

No new buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed and operated under the TSM Alternative.

Cumulative Impacts

This cumulative impacts discussion is applicable to each of the proposed project build alternatives as well as the TSM Alternative. The study area for this cumulative energy impacts analysis is Los Angeles County, within which nearly all project-related electricity, fuel, and natural gas consumption would occur. Because each energy resource is managed by different entities, the specific approach to the cumulative analysis is identified below.

With the exception of instances in which projects require the physical development of new power generation, transmission, or fueling facilities, energy use impacts are cumulative impacts in that all energy consumed comes from a common resource pool. No new power generation, transmission, or fueling facilities would be required for implementation of the proposed project.

Electricity

For the purposes of electricity consumption, this cumulative impact discussion uses the projections/plans approach identified in CEQA Guideline 15130 (b)(1), specifically the projections contained within the LADWP 2014 Power Integrated Resource Plan.

Electricity consumption would be required for operational lighting and accessory features at stops/stations, MSF operation, fixed guideway vehicle propulsion (for Alternatives 3 and 4), and may be necessary for a minority of the components of construction.

The LADWP 2014 Power Integrated Resource Plan was used for this cumulative electricity impact analysis. The resource study area is the LADWP service area covered by the plan, which includes the City of Los Angeles and surrounding areas.¹⁵ The LADWP 2014 Power Integrated Resource Plan projects future energy demand in the LADWP service area. LADWP sales, net energy for load forecasting, peak demand forecast, and hourly allocation are based on:

- An economic forecast of Los Angeles County from the Los Angeles Modeling Group of the University of California, Los Angeles (Anderson Forecast Project);
- Demographic information from the California Department of Finance, Demographic Research Unit; and
- A construction forecast from McGraw-Hill construction services.

LADWP has been contacted, via mailed letter, regarding the energy requirements of fixed guideway vehicle service for rail Alternatives 3 and 4. It is anticipated that forecasting efforts have allowed for new energy consumption levels sufficient to meet the demands of fixed guideway transit vehicle propulsion. However, increased electricity consumption associated with the proposed project in combination with future projects within LADWP's service area may require new electricity transmission infrastructure or the rehabilitation of existing electricity infrastructure to meet that increased demand and maintain adequate levels of service, notwithstanding future savings resulting from increased energy efficiencies. Although regional utility providers have planned for long-term increases in demand, new supply and delivery infrastructure facilities could be required to meet increased regional demands, the construction of which could result in impacts to the environment. However, the project's contribution to such impacts would not be substantial enough to affect potential increases in energy demand, and therefore, impacts related to electricity would not be cumulatively considerable.

Gasoline and Diesel Fuel

For the purposes of fuel consumption, this cumulative impact discussion uses the list of past, present, and reasonably foreseeable projects list approach identified in CEQA Guideline 15130 (b)(1). The proposed project, in combination with the projects identified in Table 2-2 and numerous other projects, require the use of gasoline and diesel fuel for construction and for vehicles associated with operation.

¹⁵ LADWP's overall service area includes parts of the Owens Valley, but because of the limited developable land and slow rates of growth, energy forecasts are not considered in the *2012 Power Integrated Resource Plan* (LADWP 2012:A-2).

Direct diesel and gasoline consumption would result from the use of construction vehicles and equipment as well as from employee and maintenance trips during operation. Indirect fuel consumption would result from redistribution of trips that would occur from capacity changes along the proposed alignment. All alternatives except for Alternative 4 would result in increased fuel use compared to the No-Build Alternative. The proposed project, in combination with regional population growth, and more people traveling by motor vehicles, additional gasoline and diesel fuel infrastructure may be required to meet motor vehicle fuel demands in the future. Such increases may be at least partially offset by increasing fuel economy standards for vehicles, but new supply and delivery infrastructure facilities could be required to meet increased regional demand, the construction of which could result in impacts to the environment. However, the project's contribution to such impacts would not be substantial, as the project's gasoline and diesel fuel requirements would be small and could be met by the extensive network of fueling stations found throughout Los Angeles County. Therefore, impacts related to gasoline and diesel fuel would not be cumulatively considerable.

Natural Gas

For the purposes of natural gas consumption, this cumulative impact uses the list of past, present, and reasonably foreseeable projects list approach identified in CEQA Guideline 15130 (b)(1). The proposed project, in combination with the projects identified in Table 2-2 and numerous other projects, require the use of natural gas, primarily for building operation, but also for some construction equipment and vehicles.

Natural gas would be consumed by Metro buses during and following construction and may be consumed by some construction equipment and during operation of the MSF. Net increases in natural gas consumption would occur under the TSM Alternative and Alternatives 1 and 2. The proposed project, in combination with increasing demand for natural gas due to projected regional population growth, may require new or expanded natural gas infrastructure. Such increases in demand may be at least partially offset by increased energy efficiency of buses, buildings, and other users of natural gas, but new supply and delivery infrastructure facilities could be required to meet increased regional demand, the construction of which could result in impacts to the environment. The project's contribution to such impacts would not be substantial, as the project's natural gas requirements would be small and could be met by existing natural gas resources. Therefore, impacts related to natural gas would not be cumulatively considerable.

Mitigation Measures

Construction Mitigation Measures

No mitigation measures would be necessary.

Operational Mitigation Measures

No mitigation measures would be necessary.

Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse under NEPA.

CEQA Determination

Impacts would be less than significant under CEQA.

4.11.3.3 BRT Alternatives (Alternatives 1 and 2)

Alternative 1 – Curb-Running BRT

Construction Impacts

Under Alternative 1, modifications to roadways, sidewalks, and bus stops would be required. As shown in Appendix A of the Energy Technical Report (see Appendix R) and Table 4.11-3, approximately 18,000 MMBTU would be consumed during the construction of Alternative 1, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 127,000 gallons of fuel would be consumed by construction vehicles and equipment, the

Table 4.11-3: Alternative 1 – Construction Energy Consumption

Alternative	Construction (MMBTU)
Curb-Running BRT Alternative	17,618

Source: ICF, 2015.

fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, it's anticipated that no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 1 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 1 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

Operational Impacts

Alternative 1 would introduce BRT service in the curb lanes of existing corridor roadways. With improved bus travel times and headways, approximately 3,000 additional boardings per day are expected (KOA 2015). In order to maintain the desired peak period headways of 6 minutes for the 761X line and 8 minutes for the 233X line, 10 additional buses would be required. The use of additional buses on the 233X and 761X lines would increase the amount of CNG consumed by approximately 27,000 MMBTU (or 687,000 GGE), which is a 44% increase compared with existing baseline conditions for 233 and 761 bus line operations. Given Metro's overall annual use of more than 40 million GGE of CNG, such increases would not adversely affect overall regional supplies or demand and no additional energy infrastructure is expected to be required due to implementation of Alternative 1.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 1 would result in less delay and more efficient

operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the increase in energy consumption from enhanced and increased bus service.

Electricity consumption due to Alternative 1 would be associated with proposed lighting and other electrical facilities (e.g., electronic signage or ticketing machines) at new bus stops. No new MSF would be required, as the Division 15 MSF would accommodate the increased number of buses, and no other large structures that would consume electricity would be developed under this alternative. The electricity consumed by bus stop infrastructure would be minimal and would not require new energy supplies or infrastructure.

No buildings or structures subject to energy standards required by Title 24 of the California Code of Regulations, CALGreen Building Code, or internal Metro policies related to LEED Silver accreditation would be constructed under Alternative 1.

Although net increases in overall operational energy consumption associated with the 2012 Alternative 1 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use that could occur under the 2012 Alternative 1 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, although Alternative 1 would reduce regional VMT by 36,000 miles annually, the less efficient speeds at which vehicles would operate due to increased roadway congestion would result in a net increase in fuel consumption of approximately 36,000 MMBTU, an increase of 0.005% compared to the future (2040) baseline conditions (see Table 4.11-4 and the Energy Technical Report Appendix R). Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption, operation of Alternative 1 would not substantially affect the regional supply of and demand for gasoline or require substantial new energy infrastructure.

Table 4.11-4: Alternative 1 – Operational Energy Consumption

Comparison to Future (2040) Baseline Conditions	Operational (Annual MMBTU)	Percent Change
Net Traffic Energy	36,378	0.005%
Net Bus Propulsion Energy (233 X and 761X Bus Lines)	26,816	44.33%
Net Total	63,193	0.01%

Source: ICF, 2016.

Compliance Requirements and Design Features

In order to minimize energy consumption, the construction contractor would implement energy conserving best management practices (BMPs), as feasible, in accordance with Metro’s Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material

delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, this alternative would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

Mitigation Measures

Construction Mitigation Measures

No mitigation measures would be necessary.

Operational Mitigation Measures

No mitigation measures would be necessary.

Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse under NEPA.

CEQA Determination

Impacts would be less than significant under CEQA.

Alternative 2 – Median-Running BRT

Construction Impacts

Under Alternative 2, modifications to roadways and sidewalks would be required in order to construct the dedicated median guideway and new median at-grade stations necessary for median-running BRT service along Van Nuys Boulevard, as well as infrastructure needed to operate in mixed-flow along San Fernando Road. As shown in the Energy Technical Report (see Appendix R) and Table 4.11-5, approximately 30,000 MMBTU would be consumed during the construction of Alternative 2, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 215,000 gallons of fuel would be consumed by construction vehicles and equipment, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure are expected to be required to meet the energy demands due to Alternative 2 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 2 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

Table 4.11-5: Alternative 2 – Construction Energy Consumption

Alternative	Construction (MMBTU)
Median-Running BRT Alternative	29,816
Source: ICF, 2015.	

Operational Impacts

Alternative 2 would provide BRT service in the median of existing corridor roadways. With improved bus travel times and headways, approximately 3,000 additional boardings per day are expected (KOA 2015). In order to maintain the desired peak period headways of 6 minutes for the 761X line and 8 minutes for the 233 line, 10 additional buses would be required. The use of additional buses on the 233X and 761X lines would increase the amount of CNG used by approximately 27,000 MMBTU (or 687,000 GGE), which is 44% greater than existing baseline conditions for 233 and 761 bus line operations. Given Metro’s overall annual use of more than 40 million GGE of CNG, such increases would not substantially affect regional supplies or demand and no additional energy infrastructure is expected to be required due to implementation of Alternative 2.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 2 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the increase in energy consumption from enhanced and more frequent bus service. Although net increases in overall operational energy consumption associated with the 2012 Alternative 2 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use to the 2012 Alternative 2 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, although implementation of Alternative 2 would reduce regional VMT by 36,000 miles annually, the less efficient speeds at which vehicles would operate due to increased roadway congestion would result in a net increase in fuel consumption of approximately 2,000 MMBTU per year, an increase of 0.0003% compared to the future (2040) baseline conditions (see Table 4.11-6 and the Energy Technical Report in Appendix R). Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption, operation of Alternative 2 would not substantially affect regional supply of, and demand for, gasoline or require substantial new energy infrastructure.

Table 4.11-6: Alternative 2 – Operational Energy Consumption

Comparison to Future (2040) Baseline Conditions	Operational (Annual MMBTU)	Percent Change
Net Traffic Energy	2,121	0.0003%
Net Bus Propulsion Energy (233X and 761X Bus Lines)	26,816	44.33%
Net Total	28,937	0.004%

Source: ICF, 2016.

Compliance Requirements and Design Features

See Compliance Requirements and Design Features described under Alternative 1.

Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

Mitigation Measures

Construction Mitigation Measures

No mitigation measures would be necessary.

Operational Mitigation Measures

No mitigation measures would be necessary.

Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse under NEPA.

CEQA Determination

Impacts would be less than significant under CEQA.

4.11.3.4 Rail Alternatives (Alternatives 3 and 4)

Alternative 3 – Low-Floor LRT/Tram

Construction Impacts

Construction of Alternative 3 would provide a dedicated fixed guideway in the Van Nuys Boulevard median and a mixed-flow lane along San Fernando Road for Low-Floor LRT/Tram service. An MSF, new at-grade stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units would also be constructed. Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the

construction period. In total, the four-year construction period would result in the consumption of approximately 55,000 MMBTU (see Table 4.11-7 and Appendix R). Although an estimated 400,000 gallons of fuel would be consumed, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 3 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers’ specifications so equipment performance would not be compromised. Therefore, Alternative 3 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non- adverse under NEPA.

Table 4.11-7: Alternative 3 – Construction Energy Consumption

Alternative	Construction (MMBTU)
Median-Running Low-Floor LRT/Tram Alternative	55,366
Source: ICF, 2015.	

Operational Impacts

Under Alternative 3, Low-Floor LRT/Tram vehicles would operate within the median of an existing transportation right-of-way on Van Nuys Boulevard and in mixed-flow traffic on San Fernando Road. With improved transit travel times and headways, approximately 8,500 additional boardings per day are expected (KOA 2015).

As shown in Table 4.11-8, under the 2012 Alternative 3 scenario, there would be reductions in energy consumption from motor vehicle operating in the project vicinity (by approximately 10,000 MMBTU, or 0.001%) from mobile sources as well as from reduced bus service, which would shift to increases in energy consumption over time due to projected increases in congestion. Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption under the 2040 scenario, operation of Alternative 3 would not substantially affect regional supply of and demand for gasoline or require substantial new energy infrastructure.

The MSF would result in the consumption of both fuels and electricity. Approximately 11,000 MMBTU would be consumed annually due to the fuels consumed by employee, supplier, and maintenance motor vehicle trips to and from the MSF. Annual MSF electricity consumption would total approximately 3,000 MMBTU. Operation of the MSF would also result in natural gas consumption. The total amount of energy consumed by the MSF is presented in Table 4.11-8 above. Although the MSF would result in the consumption of energy, it should be noted that proposed MSF buildings would be designed and constructed in compliance with mandatory Title 24 and the CALGreen Building Code requirements and would achieve a minimum of LEED Silver rating, as specified in the Metro Sustainability Implementation Plan.

Table 4.11-8: Alternative 3 – Operational Energy Consumption (2012)

Component	Operational (Annual MMBTU)	Percent Change
2012 Net Traffic Energy	(9,789)	(0.001%)
Net Bus Propulsion Energy (233S and 761S Bus Lines)	(24,107)	(39.86%)
MSF Energy	14,925	N/A
Low-Floor LRT/Tram/Station Energy	68,645	N/A
Net Total	49,674	0.005%

Source: ICF, 2016.

Other components of Alternative 3 that would require energy in the form of electricity consumption include the Low-Floor LRT/Tram propulsion systems, and lighting and accessory equipment at station platforms. The electricity consumed by these facilities is included in Table 4.11-8 (see Appendix A of the Energy Technical Report for additional details).

Although Alternative 3 would introduce a new consumer of electricity in the LADWP service area, the 70,000 MMBTU (20 million kWh) represents a infinitesimally small portion of the 85.3 million MMBTU (25,000 GWh) of electricity that LADWP projects selling to customers in the year 2030 (LADWP 2014). As specified in Metro’s June 2012 Climate Action and Adaptation Plan, Metro has investigated on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

A letter was sent to LADWP on September 30, 2015 identifying the projected energy consumption required for Alternative 3 and requesting confirmation that there would be sufficient energy available to meet the proposed project’s demands. Although a response was not received, Metro will continue to follow up with LADWP, and details of the correspondence will be included in the FEIR-FEIS. Although new electricity consumption for vehicle propulsion and station operation along a fixed guideway would be required, the increase in energy would be negligible and would not require new electricity infrastructure beyond that which is existing or has been previously planned.

MSF, tram vehicle propulsion, and station operation would result in net increases in energy consumption relative to the 2012 No Build Alternative, but overall energy consumption under the 2012 Alternative 3 scenario would increase by less than 0.01%. Therefore, impacts under the 2012 Alternative 3 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 Alternative 3 scenario would reduce regional VMT by approximately 9,000 miles annually. However, traffic operations would be constrained by the frequency of Low-Floor LRT/Tram vehicles along the alignment and the decreased speeds at which automobile traffic would operate due to decreased roadway capacity, which would result in a net increase in fuel consumption of approximately 567,000 MMBTU per year, an increase of 0.07% compared to

future (2040) baseline conditions (see Table 4.11-9 and the Energy Technical Report in Appendix R). This increase in fuel consumption from vehicle operation would not occur immediately, however.

Compliance Requirements and Design Features

Per the Metro Sustainability Implementation Plan, the MSF under Alternative 3 would be required to meet LEED Silver requirements at a minimum. Also, as specified in the 2012 Metro Climate Action and Adaptation Plan, regenerative braking on all fixed guideway vehicles would be implemented by 2020 in order to achieve energy and GHG reduction goals.

Table 4.11-9: Alternative 3 – Operational Energy Consumption (2040)

Component	Operational (Annual MMBTU)	Percent Change
2040 Net Traffic Energy	567,721	0.072%
Net Bus Propulsion Energy (233S and 761S Bus Lines)	(24,107)	(39.86%)
MSF Energy	14,925	N/A
Low-Floor LRT/Tram/Station Energy	68,645	N/A
Net Total	626,734	0.080%

Source: ICF, 2016.

In addition, in order to minimize energy consumption, the construction contractor would implement energy conserving BMPs, as feasible, in accordance with Metro’s Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, the build alternatives would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

Mitigation Measures

Construction Mitigation Measures

No mitigation measures would be necessary.

Operational Mitigation Measures

No mitigation measures would be necessary.

Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse under NEPA.

CEQA Determination

Impacts would be less than significant under CEQA.

Alternative 4 – LRT

Construction Impacts

Alternative 4 would involve the construction of a LRT system within a 9.2-mile corridor along Van Nuys Boulevard and San Fernando Road/MetroLink railroad right-of-way. The LRT alignment along Van Nuys Boulevard would include an underground segment 2.5 miles in length. Alternative 4 would also involve construction of an MSF, new stations, a pedestrian bridge to the Sylmar MetroLink station, modifications to sidewalks and roadways, and the installation of approximately 10 TPSS units. For the purposes of estimating construction-related energy consumption, the plan for MSF Site 1 was assumed, as it would have the largest square footage and greatest demolition requirements. Also, the cut-and-cover construction method for the tunnel was assumed, as this would be the most energy-intensive construction method. If less energy-intensive options are carried forward, construction-related energy consumption for Alternative 4 would be less than what is identified below.

Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the construction period. In total, the five-year construction period would result in the consumption of approximately 274,000 MMBTU (see Table 4.11-10 and the Energy Technical Report in Appendix R). Although fuel would be consumed by construction vehicles and equipment, the estimated consumption would be limited to the construction period. An estimated 1.975 million gallons of fuel would be consumed, but the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 4 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 4 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

Table 4.11-10: Alternative 4 – Construction Energy Consumption

Alternative	Construction (MMBTU)
Median-Running Low-Floor LRT/Tram Alternative	273,600

Source: ICF, 2015.

Operational Impacts

Alternative 4 would introduce LRT service within and beneath an existing transportation right-of-way along Van Nuys Boulevard and along San Fernando Road/Metrolink railroad right-of-way. With improved transit travel times and headways, approximately 8,600 additional transit vehicle boardings per day are expected (KOA 2015).

It is anticipated that there would be a reduction in CNG fuel use by Metro buses, as Alternative 4 would involve the maintenance of service along the existing 233 line, and the 761 line would be modified to serve only areas south of the project limits. Relative to the existing baseline operations of the 233 and 761 bus lines, there would be a 1,600 MMBTU reduction in CNG consumption for bus propulsion resulting from the reduced service on the 761S bus line, which represents a 3% reduction.

The MSF would result in the consumption of both fuels and electricity. Approximately 11,000 MMBTU would be consumed annually due to the fuels consumed by employee, supplier, and maintenance vehicle trips to and from the MSF. Annual MSF electricity consumption would total approximately 3,000 MBTU. Operation of the MSF would also result in natural gas consumption. The total amount consumed by the MSF is presented in Table 4.11-11. Although the MSF would result in the consumption of energy, it should be noted that proposed MSF buildings would be designed and constructed in compliance with mandatory Title 24 and the CALGreen Building Code requirements and would achieve a minimum of LEED Silver rating, as specified in the Metro Sustainability Implementation Plan.

Table 4.11-11: Alternative 4 – Operational Energy Consumption

Component	Operational (Annual MMBTU)	Percent Change
Net Traffic Energy	(373,696)	(0.048%)
Net Bus Propulsion Energy (233 and 761S)	(1,625)	(2.69%)
MSF Energy	14,925	N/A
LRT/Station Energy	68,645	N/A
Net Total	(291,752)	(0.037%)

Source: ICF, 2016.

Other components of Alternative 4 that would require energy in the form of electricity consumption include the LRT propulsion systems, and lighting and accessory equipment at station platforms. The electricity consumed by these facilities is included in Table 4.11-11 (see Appendix R for additional details).

Energy use for vehicle propulsion and station operation is based on the average per-mile 2014 energy consumption for existing Metro LRT lines applied to the proposed project. Approximately 70,000 MMBTU would be required annually to operate the 9.2-mile line. Although the LRT system under Alternative 4 would increase the consumption of electricity in the LADWP service area, the 70,000

MMBTU (20 million kWh) represents an infinitesimally small portion of the 85.3 million MMBTU (25,000 GWh) of electricity that LADWP projects selling to customers in the year 2030 (LADWP 2014). As specified in the June 2012 Climate Action and Adaptation Plan, Metro plans to include on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

A letter has been sent to LADWP identifying the projected energy consumption required for Alternative 4 and requesting confirmation that there would be sufficient energy available to meet the proposed project's demands. Although increased electricity consumption for vehicle propulsion and station operation along a fixed guideway would be required, it is anticipated that the increase in energy would be negligible and would not require new electricity infrastructure beyond that which is existing or has been previously planned.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 4 would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic and bus service in the project vicinity would at least partially offset the increase in energy consumption from the operation of the new MSF, LRT vehicle propulsion, and stations.

Although net increases in overall operational energy consumption associated with the 2012 Alternative 3 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use to the 2012 Alternative 4 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 Alternative 4 scenario would reduce regional VMT by approximately 70,000 annually, which would result in fuel consumption reductions of approximately 374,000 MMBTU per year, a decrease of 0.05% compared to the future (2040) baseline condition under the No-Build Alternative (see Table 4.11-11 and the Energy Technical Report in Appendix R). Given the projected reduction in fuel consumption, Alternative 4 would not adversely affect the regional supply of, and demand for, gasoline.

As indicated in the table above, total annual operational energy consumption under the 2040 Alternative 4 scenario would be approximately 292,000 MMBTU less than the 2040 baseline conditions, much of which would be attributable to energy savings associated with the reduction of fuel use by private vehicles.

Compliance Requirements and Design Features

Per the Metro Sustainability Implementation Plan, the MSF under Alternative 4 would be required to meet LEED Silver requirements at a minimum. Also, as specified in the 2012 Metro Climate Action and Adaptation Plan, regenerative braking on all fixed guideway vehicles would be implemented by 2020 in order to achieve energy and GHG reduction goals.

In addition, in order to minimize energy consumption, the construction contractor would implement energy conserving BMPs, as feasible, in accordance with Metro's Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, the build alternatives would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

Mitigation Measures

Construction Mitigation Measures

No significant impacts would occur and mitigation measures would not be necessary.

Operational Mitigation Measures

No significant impacts would occur and mitigation measures would not be necessary.

Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse under NEPA.

CEQA Determination

Impacts would be less than significant under CEQA.