3.16 Energy

This section presents a qualitative analysis of the direct energy effects associated with the ongoing Jepson Parkway Project operations under all five alternative scenarios. When analyzing a transportation system's use of energy, direct energy use refers to the energy consumed in the actual propulsion of a vehicle using the facility and can be measured by the thermal value of fuel, the cost of fuel or the quantity used in the engine or motor. Direct energy required for ongoing operations in the case of Jepson Parkway include the use of petroleum-based fuels and alternative fuels for motor vehicle travel within the project area. Indirect energy use is defined as all the remaining energy consumed to run a transportation system, including construction energy, maintenance energy, and any substantial impacts to energy consumption related to project induced land use changes and mode shifts, and any substantial changes in energy associated with vehicle operation, manufacturing or maintenance due to increased automobile use.

According to Caltrans, energy requirements associated with operation (direct) of the project are usually greater and of more importance than the indirect energy used. As a result, a separate energy study was not prepared, as the construction of Jepson Parkway Project is not anticipated to have substantial indirect impacts on energy consumption (FHWA Technical Advisory 6640.8A). When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

3.16.1 Regulatory Setting

The CEQA Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

3.16.2 Impacts (including Permanent, Temporary, Direct, Indirect, and Cumulative)

Summary of Energy Impacts

This section provides a summary and comparison of energy impacts resulting from the alternatives. As described in detail below, each of the build alternatives would be considered to have beneficial impacts related to more efficient use of energy. Alternative A, however, would continue the current inefficient use of energy related to traffic congestion.

Impact EN-1: Would the Alternatives Affect Energy Use?

Alternative A. Under Alternative A, no roadway or intersection improvements would be performed. The majority of the study intersections in the corridor (13 of 24)[1] would operate at below LOS standards in 2030 in the AM peak hour, the PM peak hour, or both peak hours. This represents an increase in intersections operating below local LOS from the 2010 projections. Without capacity improvements to the roadways, congested traffic conditions would prevail in the traffic study area, and would contribute to inefficient energy consumption as vehicles use extra fuel while idling in stop-and-go traffic or moving a slow speeds on a congested roadway.

Alternatives B, C, D, and E. All of the build alternatives would increase capacity and improve roadway operations. Average travel time, vehicle delay, and duration of congestion along arterial roads would decrease considerably with all build alternatives. Most intersections currently operating below local level of service standards would be improved and would operate at or above local level of service standards. Peak hour delays would be greatly reduced as a result of the build alternatives and the implementation of Mitigation Measure TRA-1. Additionally, all build alternatives include the operation of two new bus routes to provide future transit service along the corridor, encouraging the use of transit. Build alternatives would eliminate all intersections operating below local level of service standards by 2030 by allowing Jepson Parkway to carry more of the total peak-hour travel demand when compared to the no build alternative. Implementation of any of the build alternatives would also result in improved bicycle and pedestrian circulation in the corridor resulting in a decrease in direct energy consumed. Due to all the above-mentioned advantages, the long-term impacts of the each of the build alternatives on transportation and vehicular traffic energy use would generally be beneficial.

3.16.3 Avoidance, Minimization, and/or Mitigation Measures

Since the build alternatives would have generally beneficial energy effects, avoidance, minimization and mitigation measures would be unnecessary.

[1] The Walters Road/Cement Hill intersection would not be built under Alternative A.