

DEPARTMENT OF TRANSPORTATION

M e m o r a n d u m

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Office of Environmental Analysis



Subject: Energy Analysis For Miner Slough Bridge

The Office of Environmental Analysis has reviewed the Miner Slough Bridge Replacement Project for possible energy impacts. The anticipated level of document is a Initial Study/Environmental Assessment.

The build alternative is to build a replacement at a new alignment and demolish the existing bridge. The existing bridge, no. 23-0035 on State Route 84 in Solano County about 30 miles southwest of Sacramento, CA at PM 12.1/12.2, is a swing bridge with nonstandard geometry and very low AADT (336 in 2011) connecting Ryer Island in the Sacramento River delta to the mainland over Miner Slough.

The California Environmental Quality Act Guidelines, Appendix F, Energy Conservation, require environmental documents to include a discussion of the potential energy impacts of proposed projects, with a particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. The National Environmental Policy Act (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

Transportation-related activities account for a substantial portion of the petroleum fuels used in California. We expect that transportation-related activities will continue to account for a substantial portion of the petroleum fuels used in California for many more years until there is a major transition to motor vehicles using other technologies and fuels. Until this future time,

petroleum fuels must be used efficiently and conservatively because of the environmental impacts of their conversion to propel motor vehicles, construct transportation facilities, and operate and maintain transportation facilities and motor vehicles. There are also important political and environmental costs associated with extracting and refining petroleum fuels.

It is currently difficult to quantify future direct energy expenditures because: we are in a period in which many types of fuel are being tried for motor vehicle propulsion; the mix of vehicles (passenger cars, SUVs, crossover vehicles, light trucks, heavy trucks) on the roads may fluctuate substantially according to future economic and political trends; and motor vehicle fuel economy standards and efficiency have become stagnant, particularly for American made vehicles, but could begin to increase again. Indirect energy expenditures are also difficult to quantify at this time because construction methodology and equipment are evolving from the methodologies and equipment that were predominant in the 1960s and 1970s; consequently, our construction energy factors for quantifying construction energy expenditures need to be updated.

The proposed project is unlikely to increased motor vehicle travel and direct energy/petroleum fuel expenditures as it is non capacity increasing.

The Build alternative will likely result in less direct or similar energy expenditures in comparison to the No-Build alternative. The energy savings would result from possible improved traffic operations (levels of service, speeds, flow conditions) of the Build alternative in comparison to the No-Build alternative.

Assuming that there are financial reasons to use energy efficiently or conservatively for the construction, operation, and maintenance of the proposed facilities, and the manufacture of motor vehicles that will use the proposed facilities, the Build alternatives are unlikely to result in wasteful indirect energy expenditures.

For these reasons, the proposed project is not expected to have a substantial or significant energy impacts.