

Energy Impact Evaluation

1. Construction Energy Requirements

Energy consumption related to highway construction includes energy required by raw materials and equipment to build or maintain the highway. The proposed interchange improvements would require more construction energy than the No Build alternative.

In general, approximately 17.1 billion Btu (British thermal unit) are required to construct one mile of highway. Approximately 130 billion Btu are required to construct 1.6 kilometers (1 mile) of highway bridge structure. Because the relocated frontage roads would be on new alignment, more construction energy is used for excavating, filling, hauling, pavement construction, and material manufacturing to construct the new roadbed than an alternative that would use the existing alignment.

2. Operational Energy Requirements

Operational energy is the direct consumption of fuel by vehicles using the roadway. Fuel usage is affected by vehicle type, roadway grade, speed, congestion, and queuing caused by intersection stop conditions. Operational energy consumption would likely decrease under the recommended alternatives because the project corridor interchanges would operate more efficiently, reducing fuel consumption.