



South Mountain Transportation Corridor Study

Citizens Advisory Team
Draft Technical Report Summary

Energy

Why study energy consumption in the Environmental Impact Statement (EIS)?

International energy demands are steadily increasing each year. This increasing demand demonstrates the need to make wise decisions when considering current and future energy consumption in our country. Considering our population continues to grow rapidly in the West, demand for energy (for heating, cooling, travel and manufacturing) will also continue to grow in the region.

A project like the proposed South Mountain Freeway is a major transportation investment. It is important to consider whether such an investment would produce prolonged energy savings or whether the No-Action Alternative would provide better energy savings.

Primary energy use during operation of the proposed freeway would be fossil fuel used by vehicles traveling along the freeway. Fuel consumed in periodic roadway maintenance would be negligible in comparison. Construction of any of the action alternatives would mean similar fuel consumption. While the No-Action Alternative would consume no fuel for construction because the proposed project would not be built, other roadway projects and improvements would be developed in the general Study Area to address increasing travel demand. The study team assumed that total needed for construction under the No-Action Alternative would not differ considerably from the total fuel consumed for construction of any of the action alternatives.

For the purposes of the EIS, the study team estimated the energy needed to construct and operate the proposed South Mountain Freeway and compared this projected consumption against the No-Action Alternative over a 20-year period.

How is energy consumption calculated?

In estimating energy consumption over a 20-year period, the study team considered such factors as:

- The predicted total vehicle miles traveled over that course of time
- The predicted total vehicle hours spent in travel over that course of time
- The anticipated vehicle mix (i.e., cars, light trucks, heavy trucks and motorcycles) that would use the facility if constructed as well as the fuel mix (regular, diesel and alternative).
- Anticipated fuel economy (in miles per gallon) of the vehicle types as provided by the U.S. Department of Transportation Bureau of Transportation Statistics

What were the results of the analysis?

The No-Action Alternative would have the least vehicle miles traveled of any of the alternatives. However, this alternative would also have the highest vehicle hours traveled of any of the alternatives because of increased congestion on the remainder of the regional freeway system and local arterial street network. Because fuel efficiency decreases at slower speeds (i.e., fuel consumption increases approximately 30 percent when speeds drop from 30 mph to 20 mph; a drop from 30 mph to 10 mph results in a doubling of fuel consumption), the No-Action Alternative was projected to consume the most energy of any of the alternatives.



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The No-Action Alternative was estimated to consume approximately 733 million gallons of fuel per year; the action alternatives (any one of the Western alternatives plus the Eastern (E1) Alternative) were estimated to consume between 541 million to 562 million gallons of fuel per year.

Are the conclusions presented in this summary final?

Quantitative findings relative to impacts could change. Potential changes would be based on the following and would be presented to the public during the Draft EIS, Final EIS and, if an action alternative were selected, in the final design process:

- Refinement in design features through the design process
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area
- Ongoing communications with the City of Phoenix regarding measures to minimize harm to Phoenix South Mountain Park/Preserve
- Ongoing communications with the Gila River Indian Community (Community) regarding granting permission to study action alternatives on Community land
- Ongoing consideration of public comments
- Potential updates to traffic forecasts as regularly revised by the Maricopa Association of Governments
- Potential changes regarding updated census data
- Regularly updated cost estimates for construction, right-of-way acquisition, relocation and mitigation

Even with these factors possibly affecting findings, the study team anticipates effects would be equal among the alternatives and, consequently, impacts would be roughly comparable. This assumption would be confirmed if, and when, such changes were to occur.

As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder at 602-712-6836 or Mark Hollowell at 602-712-6819.