



# Addendum

Re	Addendum to the Energy Report		
Project	Environmental Impact Statement: South Mountain Transportation Corridor in Maricopa County, Arizona		
Project numbers	Federal-aid Project Number: NH-202-D(ADY) ADOT Project Number: 202L MA 054 H5764 01L	Date	June 2014

Since publication of the Draft Environmental Impact Statement (DEIS), all technical reports supporting the DEIS have been updated to reflect current conditions. Changes to the Energy Report are underlined and presented below.

The information from the DEIS was updated with 2011 fuel consumption data, 2013 vehicle fuel economies, and applied these to 2013 Maricopa Association of Governments traffic projections for 2035. As a result, the energy used for all alternatives changed; however, these changes were not substantive and did not affect the conclusions of the section.

## 1. Project Description and Purpose and Need

Page 1-3, paragraph 4:

- From 1980 to 2010, the Maricopa County population more than doubled, from 1.5 million to 3.8 million.
- Phoenix is now the sixth-largest city in the country, and the region ranks as the 13th-largest metropolitan area in the country.

Page 1-3, paragraph 5:

- MAG projections (conducted in collaboration with the Arizona Department of Economic Security) indicate Maricopa County's population will increase from 3.8 million in 2010 to 5.8 million in 2035 (MAG 2013a). It is projected that in the next 25 years, daily vehicle miles traveled will increase from 91 million to 149 million.

Page 1-4, paragraph 1:

- Even with anticipated improvements in light rail service, bus service, trip-reduction programs, and existing roads and freeways, vehicle traffic volumes are expected to exceed the capacity of Phoenix metropolitan area streets and highways by as much as 18 percent in 2035.
- A freeway within the SMTC would accommodate approximately 11 percentage points of the 18 percent of the unmet travel demand and would be part of an overall traffic solution.

## 2. Affected Environment

Page 2-1, paragraph 3:

- The average fuel economy of a passenger car in the United States in 1991 was 21.1 mpg; 20 years later, in 2011, it was 23.1 mpg (Energy Information Administration 2013).

Page 2-1, paragraph 4:

- Total fuel consumption in the United States has consistently risen through 2007.
- Since 2007, fuel consumption has remained flat at around 170 billion gallons per year.
- In 2011, the state of Arizona consumed 3.4 billion gallons per year, or 2 percent of the national total (Bureau of Transportation Statistics 2013).
- The 2012 Annual Urban Mobility Report (Texas Transportation Institute 2012) reported that vehicles in the Phoenix urban area consumed approximately 46 million gallons of excess fuel in 2011 because of congestion.

## 3. Environmental Consequences

### ***Direct Impacts Associated with the Action and No-Action Alternatives***

Page 3-1, paragraph 3:

- The analysis included light-duty cars, light-duty trucks, and heavy-duty trucks and buses, which have average fuel economies of 23.1 mpg, 17.1 mpg, and 6.3 mpg, respectively (Energy Information Administration 2013). The source of the traffic projections for 2035 was the MAG regional travel demand model (MAG 2013b).

Page 3-1, Table 2:

**Table 2. Projected Daily Travel in the MAG Region, by Alternative, in 2035**

Alternative	Vehicle Miles Traveled	Vehicle Hours Traveled	Average Speed <sup>a</sup> (miles per hour)
No Action	<u>147,437,827</u>	<u>4,098,640</u>	<u>36.0</u>
W59/E1	<u>149,226,895</u>	<u>4,060,239</u>	<u>36.8</u>
W71/E1	<u>149,224,690</u>	<u>4,067,547</u>	<u>36.7</u>
W101/E1	<u>149,224,691</u>	<u>4,062,692</u>	<u>36.7</u>

Source: data extrapolated from Maricopa Association of Governments travel demand model (2013b)

<sup>a</sup> average speed = vehicle miles traveled divided by vehicle hours traveled (VMT/VHT)

Page 3-2, Table 3:

**Table 3. Projected Fuel Efficiency, by Vehicle Type and Alternative, in 2035**

Alternative	Average Speed (miles per hour)	Fuel Efficiency <sup>a</sup> (miles per gallon)		
		Passenger Cars	Light-duty Trucks	Heavy-duty Trucks and Buses
No Action	<u>36.0</u>	<u>20.8</u>	<u>15.4</u>	<u>5.7</u>
W59/E1	<u>36.8</u>	<u>21.2</u>	<u>15.7</u>	<u>5.8</u>
W71/E1	<u>36.7</u>	<u>21.2</u>	<u>15.7</u>	<u>5.8</u>
W101/E1	<u>36.7</u>	<u>21.2</u>	<u>15.7</u>	<u>5.8</u>

<sup>a</sup> fuel efficiency = average speed (in mph) multiplied by the base fuel economy/40 (mph)

Page 3-2, paragraph 1:

- The vehicle mix used in the analysis was 72.7 percent passenger cars, 18.4 percent light-duty trucks, and 8.8 percent heavy-duty trucks and buses (MAG 2013b).

Page 3-2, Table 4:

**Table 4. Annual Regional Energy Consumption in 2035**

Alternative	Vehicle Miles Traveled per year (millions)	Operational Energy Use <sup>a</sup> (gallons per year, millions)			
		Passenger Cars	Light-duty Trucks	Heavy-duty Trucks and Buses	Total
No Action	<u>46,001</u>	<u>1,610</u>	<u>550</u>	<u>714</u>	<u>2,874</u>
W59/E1	<u>46,559</u>	<u>1,595</u>	<u>545</u>	<u>708</u>	<u>2,848</u>
W71/E1	<u>46,558</u>	<u>1,598</u>	<u>546</u>	<u>709</u>	<u>2,853</u>
W101/E1	<u>46,558</u>	<u>1,596</u>	<u>546</u>	<u>708</u>	<u>2,850</u>

<sup>a</sup> Energy use = vehicle mix multiplied by yearly vehicle miles traveled/fuel efficiency.

Page 3-2, paragraph 3:

- Implementing the W59, W71, or W101 Alternative with the E1 Alternative would reduce fuel consumption regionwide by approximately 30 million gallons per year when compared with the No-Action Alternative.

#### 4. Mitigation

No change.

#### 5. Conclusions

Page 5-1, paragraph 1:

- It would consume approximately 30 million gallons of fuel per year more than any of the action alternatives in 2035.

## **6. Bibliography/References**

Energy Information Administration. 2013. *Monthly Energy Review*. October. Washington, D.C.

Maricopa Area Governments (MAG). 2013a. *Socioeconomic Projections: Population, Housing, and Employment by Municipal Planning Area and Regional Analysis Zone*. Phoenix.

Maricopa Association of Governments (MAG). 2013b. *Regional Travel Demand Model, TransCAD*. Phoenix.

Texas Transportation Institute. 2012. *2012 Urban Mobility Report*. College Station, Texas.

U.S. Department of Transportation. 2013. *State Transportation Statistics*. Washington, D.C.