South Mountain Freeway (Loop 202)
Interstate 10 (Papago Freeway) to Interstate 10 (Maricopa Freeway)

Final Environmental Impact Statement and Section 4(f) Evaluation
Volume I: Main Text


September 2014
If you are reading this document as a printed copy, a compact disc of the Volume II and Volume III appendices is included inside the back cover.
Abstract

The proposed action is the construction and operation of a new multilane freeway in the metropolitan Phoenix area extending approximately 22 to 24 miles from Interstate 10 west of Phoenix to Interstate 10 southeast of Phoenix. The facility would be the final extension of State Route 202L, an element of the Maricopa Association of Governments’ adopted Regional Freeway and Highway System, as outlined in its Regional Transportation Plan.

The proposed action is considered necessary in response to existing and projected demands on the region’s transportation system. The Final Environmental Impact Statement discusses three distinct action alternatives in the western portion of the Study Area (Western Section), one distinct action alternative in the eastern portion of the Study Area (Eastern Section), and a no-action alternative for the entire project length. When combined, the action alternatives in the Western and Eastern Sections represent a full range of reasonable alternatives. The action alternatives consist of four travel lanes in each direction (three general purpose lanes and one high-occupancy vehicle lane), with traffic interchanges generally located at major cross streets. Other alternatives were considered but eliminated from further study. These alternatives included using alternative travel modes, improving major streets, and managing traffic through such methods as transportation system management and transportation demand management.

The Final Environmental Impact Statement analyzes potential impacts of the proposed action on the natural and human-made environment, including, but not limited to, mountain preserve land, residential and commercial development, cultural resources, wildlife, waters of the United States, air quality, noise levels, and hazardous waste.

A Final State-level Environmental Assessment was completed for the South Mountain Corridor in 1988. At that time, a recommended alternative was adopted by the State Transportation Board. The proposed action represents a version of that project. Because of elapsed time and conditions that have changed since completion of the 1988 document, new studies are required.

A combination of the W59 Alternative in the Western Section and the E1 Alternative in the Eastern Section is identified as the Preferred Alternative.
South Mountain Freeway (Loop 202)
Final Environmental Impact Statement and Section 4(f) Evaluation

Fact Sheet

Project Title
South Mountain Freeway

State Route Designation
SR 202L

Federal-aid Project Number
NH-202-D(ADY)

ADOT Project Number
202L MA 054 H5764 01L

NEPA Federal Lead Agency
Federal Highway Administration

Project Sponsor
Arizona Department of Transportation

Cooperating Agencies
U.S. Army Corps of Engineers
Arizona/Nevada Area Office
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Phoenix, AZ 85012

U.S. Bureau of Indian Affairs
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Sacaton, AZ 85247

Western Area Power Administration
Desert Southwest Regional Office
615 South 43rd Avenue
P.O. Box 6457
Phoenix, AZ 85044

FEIS/Section 4(f) Evaluation Review
A review period will begin on the date a notice is published in the Federal Register. Notice will take place on September 26, 2014. The period during which the FEIS can be reviewed and comments can be made will end on November 25, 2014.

Comments can be sent to:
South Mountain Freeway Project Team
Arizona Department of Transportation
1655 West Jackson Street, MD 126F
Phoenix, AZ 85007

Comments can also be sent by e-mail to:
projects@azdot.gov

Printed copies of the FEIS and related documents are available for purchase from ADOT upon request by calling (602) 712-7767. Prices for printed copies are:
FEIS/Section 4(f) Evaluation $125
Appendix volume $50
Technical reports $9 to $550
Compact discs are available at no charge and can be obtained by request by calling (602) 712-7767.

Printing of all or parts of the FEIS is also available at:
FedEx Office Print & Ship Center
4940 East Ray Road
Phoenix, AZ 85044

Document Availability
The document is available online at <az.gov/southmountainfreeway> and for review only and at no charge at the following locations:

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(list of document repositories continues on next page)
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15747 North Shegoi Road
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Call for hours of operation.

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Gila River Indian Community
Communications and Public Affairs Office
525 West Gu U Ki Road
Sacaton, AZ 85147
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I. Technical reports, predecisional reports, and memorandums

Responses to comments received on the DEIS may be found in Appendix 7, Volume III, Public Comments on the South Mountain Freeway Draft Environmental Impact Statement and Section 4(f) Evaluation.

The FEIS communicates a preferred alternative, updated information on the affected environment, changes in the assessment of impacts, the selection of mitigation measures, wetland and floodplain findings, the results of coordination, comments received on the DEIS and responses to these comments, and corrections to the DEIS. No modifications to the Preferred Alternative have occurred since the DEIS was published. Because the corrections and updated information incorporated in the FEIS did not reveal any significant adverse environmental impacts not previously considered in the DEIS, aSupplemental DEIS is not needed. FHWA concluded that none of the conditions in 40 C.F.R. § 1502.9(c) were met and that the purposes of NEPA would not be furthered by preparing a Supplemental DEIS. Therefore, the project’s environmental review is proceeding with an FEIS.

SUMMARY OF UPDATED INFORMATION

Chapter 1, Purpose and Need

In June 2013, the Maricopa Association of Governments (MAG) approved new socioeconomic projections for Maricopa County. This chapter of the DEIS was updated to reflect the new population, employment, and housing projections and corresponding projections related to regional traffic.

The purpose and need for the project was reevaluated using the new socioeconomic and traffic projections. The conclusions reached in the DEIS were reconfirmed in the FEIS [see Traffic Overview; refer to the text box on this page for information on obtaining technical reports]. A major transportation facility is needed to serve projected growth in population and accompanying transportation demand and to correct existing and projected transportation system deficiencies.

Chapter 2, Gila River Indian Community Coordination

No substantive changes were made to this chapter.

Chapter 3, Alternatives

After reviewing input from the public, including new alternatives, the project team determined that the three identified action alternatives in the Western Section (W59, W71, and W101), one action alternative in the Eastern Section (E1), and the No-Action Alternative represented a range of reasonable alternatives that were the subject of detailed study in the DEIS and subsequent FEIS.

The new MAG socioeconomic and traffic projections for Maricopa County were used to determine whether the proposed freeway was still the type and mode of transportation improvement that would best meet the purpose and need criteria for the proposed action. The modeling analysis conducted for the DEIS was updated using 2013 MAG projections for 2035. Traffic volumes, traffic conditions, travel distribution, capacity deficiencies, and travel time were reanalyzed to evaluate the alternatives considered in terms of responsiveness to purpose and need criteria (see Validation of the Alternative Screening Process at the FEIS Stage memorandum [2014]). The new socioeconomic and traffic projections, while generally lower than what was previously predicted, validated the overall conclusions of the DEIS in terms of purpose and need, evaluation of lane and alignment changes, responsiveness of the proposed freeway to purpose and need, and traffic conditions with the action and No-Action alternatives. The Gila River Indian Community suggested an additional alignment as a comment on the DEIS. The suggested alignment began at the U.S. Route 60
(Superstition Freeway) and Interstate 10 (Maricopa Freeway) system traffic interchange and extended west between Baseline Road and Southern Avenue until it turned north at approximately 99th Avenue and followed the W59 Alternative alignment north to a connection with Interstate 10 (Papago Freeway). This alternative was investigated in the Validation of the Alternatives Screening Process at the FEIS Stage memorandum. This alternative had the same disadvantages as other alternatives considered north of the South Mountains. These disadvantages included substantial adverse traffic performance impacts on Interstate 10 (Maricopa Freeway) between State Route (SR) 202L (Santan Freeway) and U.S. Route 60; increased undesirable congestion on U.S. Route 60 and SR 101L (Price Freeway); unintended underuse of SR 202L (Santan Freeway); substantial impacts on existing residences and businesses, including thousands of residential displacements and over 100 business displacements; substantial disruption to community character and cohesion by splitting South Mountain Village and constructing a barrier between schools, parks, and residences; and inconsistency with local and regional planning, which includes a freeway alternative that completes the loop system as part of SR 202L. For these reasons, this alternative was eliminated from further study and was found not to be prudent and feasible. The W59 Alternative in combination with the E1 Alternative was identified as the Preferred Alternative. The analyses and conclusions are reflected in the FEIS.

Chapter 4, Affected Environment, Environmental Consequences, and Mitigation

No substantive changes were made to the following sections of this chapter: Topography, Geology, and Soil; Material Sources and Waste Material; Inevitable and Irreversible Commitment of Resources; Relationship between Short-Term Uses of the Environment and Long-Term Productivity; and Secondary and Cumulative Impacts. Sections of this chapter that had substantive changes are discussed in the following paragraphs.

Land Use

While updating existing land use information and development plans for the Study Area, an error was noted in the DEIS table of existing land uses. An area of agricultural land was miscoded as single-family residential. This error affected results for City of Phoenix and the W101 Alternative analysis by reporting a greater area of single-family residential land and less agricultural land than was actually present at the time. No substantive changes to the conclusions of the section resulted from this correction.

Social Conditions

Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and social conditions was not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations. It reflects the determination from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations. These updates resulted in no substantive changes to the conclusions of the section.

Environmental Justice and Title VI

In 2012, prior to release of the DEIS, the Title VI and Environmental Justice Report was updated to reflect Census 2010 data, which remains the most current information available (see sidebar on the previous page for information on how to review the report). Based on comments received on the DEIS, the FEIS was modified to discuss environmental justice and Title VI of the Civil Rights Act of 1964 (Title VI) separately and to clarify how the conclusions in the Environmental Justice and Title VI section were reached. The clarification supports the determination that there would be no disproportionately high and adverse impact on environmental justice populations or disparate impacts on minority groups protected by Title VI. These updates resulted in no substantive changes to the conclusions of the section.

However, even if one were to reach a contrary conclusion and determine that disproportionately high and adverse effects to environmental justice populations or disparate impacts on minority groups protected by Title VI would occur as a result of the proposed freeway, there is substantial justification for the proposed freeway. It is needed to serve projected growth in population and accompanying transportation demand and to correct existing and projected transportation system deficiencies (see Chapter 1, Purpose and Need). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, Section 4(f) Evaluation.

Displacements and Relocations

Updated (2012) aerial photography of the Study Area necessitated minor changes to the numbers of displaced properties. No substantive changes to the conclusions of the section resulted from this update.

Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and displacements and relocations was not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations. It reflects the determination from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations.

Economic Impacts

This section of the FEIS was updated with 2013 valuation rates, land uses, and value of time. Between 2009 and 2013, the average agricultural, vacant, and residential property valuation decreased by
Prologue

PM performed in the DEIS was updated to a quantitative
In addition, the qualitative PM
air quality analyses.
Those updated traffic projections were used to update
develop new traffic projections for the proposed freeway.
June 2013. Those revised projections were used to
information updates resulted in a decrease (more than
half) in property tax impacts for the Cities of Phoenix
Avondale. Property tax impacts to the City of
Tolleson are similar to those reported for 2009. The
value of time measure (the cost to the traveling public
for time spent in congestion) increased by 4 percent
between 2009 and 2013. This had an equal impact on
all alternatives. These updates resulted in no substantive
to the conclusions of the section.
Comments received on the DEIS stated that the
relationship between minority, low-income, and/or
indigenous populations and economic impacts were
not clearly described in this section of the DEIS. The relationship
could be identified only by referencing demographic
information in the Environmental Justice and Title VI
section. Accordingly, in this section the
FEIS clarifies potential impacts on minority, low-income, and/or
indigenous populations. It reflects the determination from the Environmental Justice and Title VI
section that, following the proposed mitigation
measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or
indigenous populations.

Air Quality
MAG approved new socioeconomic projections in
June 2013. Those revised projections were used to
develop new traffic projections for the proposed freeway.
Those updated traffic projections were used to update
the air quality analyses.
In addition, the qualitative PM$_{10}$ (particulate matter
of 10 microns or less in diameter) hot-spot analysis
performed in the DEIS was updated to a quantitative
PM$_{10}$ analysis to ensure that a state-of-the-art analysis
was completed for the proposed action. Also, the
quantitative mobile source air toxic (MSAT) inventory
analysis and the carbon monoxide (CO) evaluation
presented in the DEIS were updated to reflect
U.S. Environmental Protection Agency updates in
modeling methodology.
The Clean Air Act requires that transportation plans,
programs, and projects that are developed, funded,
or approved by departments of transportation and
metropolitan planning organizations will not cause new
or worsen existing violations of certain transportation-
related National Ambient Air Quality Standards
and will not delay timely attainment of any National
Ambient Air Quality Standards or any required interim
emissions reductions or milestones. The project would
comply with transportation conformity regulations at
40 C.F.R. Part 93 and with conformity provisions of
Section 176(c) of the Clean Air Act.
The proposed action is included in the Regional
Transportation Plan (RTP) for 2035, which was found to
conform to the State’s air quality implementation
plan by FHWA on February 12, 2014, and in the Fiscal
Year 2014–2018 Transportation Improvement Program
(TIP). The design concept and scope of the project as
modeled in the hot-spot analyses are consistent with
those used in the regional emissions analysis for the RTP
and TIP conformity determinations.
The regional emissions modeling demonstrated that
future-year MSAT emissions in the regional area
(assuming build-out of the Preferred Alternative) would
be lower than the 2012 emission estimates, even with
a 47 percent increase in regional vehicle miles traveled in
2035.
The MSAT emissions analysis for the Study Area
found little difference in total annual emissions of
MSAT emissions between the Preferred and No-Action
Alternatives (less than a 1 percent difference) in 2025
and 2035. With the Preferred Alternative in 2035,
modeled mobile source air toxics emissions would
decrease by 57 percent to more than 90 percent,
depending on the pollutant, despite a 47 percent increase
in vehicle miles traveled in the Study Area compared
with 2012 conditions.
Comments received on the DEIS requested that FHWA
and ADOT perform a health risk assessment and an
assessment of the effects on the health of children from
the proposed freeway. New text boxes have been added
to this section to explain the relationships of these issues
to the proposed freeway within the context of NEPA.
Comments received on the DEIS stated that the
relationship between minority, low-income, and/or
indigenous populations and air quality was not clearly
described in this section of the DEIS. The relationship
could be identified only by referencing demographic
information in the Environmental Justice and Title VI
section. Accordingly, in this section the FEIS clarifies
potential impacts on minority, low-income, and/or
indigenous populations. It reflects the determination from the Environmental Justice and Title VI
section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or
indigenous populations.

Noise
For the FEIS, the noise analysis was updated to reflect
the revised 2011 ADOT Noise Abatement Policy and
changes in FHWA regulations. This resulted in an
evaluation of noise levels on undeveloped land,
which was not performed for the DEIS. In addition, the noise
modeling used 2013 MAG traffic projections for 2035.
As a result of the revised analysis, two new noise barriers
were evaluated along Interstate 10 (Papago Freeway)
for the W101 Alternative. These updates resulted in no
substantive changes to the conclusions of the section.
Comments received on the DEIS stated that the
relationship between minority, low-income, and/or
indigenous populations and noise were not clearly
described in this section of the DEIS. The relationship
could be identified only by referencing demographic
information in the Environmental Justice and Title VI
section. Accordingly, in this section the FEIS clarifies
potential impacts on minority, low-income, and/or
indigenous populations. It reflects the determination
from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations.

Water Resources
The FEIS was updated to reflect 2013 Arizona Department of Water Resources well locations. The number of affected wells changed for all action alternatives; however, these changes were not substantive and did not affect the conclusions of the section.

Based on information provided through comments on the DEIS, the text box on page 4-108 of the FEIS, Process to Find Replacement Water, was modified to explain that City of Phoenix wastewater effluent is no longer available as a replacement water source for the Foothills Community Association irrigation well. The conclusion that replacement water would be provided, however, is still applicable. A discussion was added noting that, depending on whether an action alternative were to become the Selected Alternative, it may be possible to keep certain wells in their current location while moving the well controls and associated piping outside of the proposed freeway’s right-of-way. Such an analysis would be performed later in the design process.

Floodplains
This section was updated to reflect revised Flood Rate Insurance Maps and Letters of Map Revision issued by the Federal Emergency Management Agency since the DEIS was prepared. No substantive changes to the conclusions of the section resulted.

Waters of the United States
A field delineation of jurisdictional waters for the Preferred Alternative (E1 and W59) was conducted in the summer of 2013 to identify jurisdictional waters and to define the jurisdictional limits for the Clean Water Act (CWA) Section 404 permitting. A preliminary jurisdictional determination was submitted to the U.S. Army Corps of Engineers (USACE) in January 2014 in accordance with USACE and ADOT guidelines. USACE issued a preliminary jurisdictional determination in March 2014.

After the determination was completed, effects on jurisdictional waters under the Preferred Alternative (E1 and W59) were assessed. In the Western Section, the W59 Alternative is anticipated to affect less than 0.5 acre of jurisdictional waters (the Salt River) and would be permitted under a nationwide permit. In the Eastern Section, the E1 Alternative would cross several jurisdictional waters. The E1 Alternative may affect more than 0.5 acre at individual ephemeral wash crossings; CWA permitting would be determined during the project design phase.

Biological Resources
This section was changed to include Arizona wildlife species of greatest conservation need. A description of riparian habitat type has also been added that was omitted from the DEIS. Updated information on the nesting bald eagle in the Study Area was also provided; however, there would still be no “take” of the eagle.

This section was updated to describe results of the Biological Evaluation informal consultation with the U.S. Fish and Wildlife Service, Arizona Game and Fish Department, and the Gila River Indian Community’s Department of Environmental Quality. Based on comments received from the Gila River Indian Community, a new section was added to the FEIS (page 4-127) entitled Culturally Sensitive Species. Consultation resulted in “no effect” findings for all listed and candidate species except for the Tucson shovel-nosed snake, which received a “may affect, but not likely to adversely affect” finding. Mitigation measures to conduct preconstruction surveys for the Tucson shovel-nosed snake and the Sonoran desert tortoise, where appropriate and after consultation with the Arizona Game and Fish Department, were added to the FEIS.

Cultural Resources
Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and cultural resources were not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations. It reflects the determination from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations.

Prime and Unique Farmlands
Updated (2012) aerial photography of the Study Area was reviewed and changes to the acreage of agricultural land that would be converted to other uses were made. The Farmland Conversion Impact Rating for Corridor Type Projects form (NRCS-CPA-106) was resubmitted to the Natural Resources Conservation Service for scoring. The updated scores resulted in some action alternatives falling below the threshold for consideration of protection of farmland. Thus, the conclusions of the section did not change.

Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and prime and unique farmlands was not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations.

Hazardous Materials
Updated information on hazardous materials sites was obtained and reviewed for a smaller, more defined
footprint of the Preferred Alternative (W59 and E1). As a result, the sites of concern identified were fewer than those reported in the DEIS. The reasons behind several sites being described as no concern to the proposed freeway in the DEIS were clarified in the FEIS. These updates resulted in no substantive changes to the conclusions of the section.

**Visual Resources**

Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and visual resources was not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations. It reflects the determination from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations.

**Energy**

The information in this section of the FEIS was updated using 2011 fuel consumption data and 2013 vehicle fuel economies, which were applied to 2013 MAG traffic projections for 2035. As a result, energy use for all alternatives changed; however, these changes were not substantive and did not affect the conclusions of the section.

**Temporary Construction Impacts**

Additional construction mitigation measures were added to this section.

Comments received on the DEIS stated that the relationship between minority, low-income, and/or indigenous populations and temporary construction impacts was not clearly described in this section of the DEIS. The relationship could be identified only by referencing demographic information in the Environmental Justice and Title VI section. Accordingly, in this section the FEIS clarifies potential impacts on minority, low-income, and/or indigenous populations. It reflects the determination from the Environmental Justice and Title VI section that, following the proposed mitigation measures, there would be no disproportionately high and adverse impact on minority, low-income, and/or indigenous populations.

**Chapter 5, Section 4(f) Evaluation**

Based on comments received on the DEIS, updates to trail information were made and a discussion regarding a park planned by the City of Phoenix was added. City of Phoenix data were used to update the recreational trails system and public parkland figures in the FEIS. The action alternatives would not result in direct or proximity impacts to the planned park. Although the E1 Alternative would be located adjacent to the new trail, it would not result in a direct use and the potential proximity impacts would not be substantial enough to constitute constructive use of the resource.

These updates resulted in no substantive changes to the conclusions of the chapter.

In March 2014, ADOT was notified that the private owner of the Ong Farm elected to demolish the farm; therefore, the Ong Farm is no longer eligible for protection under Section 4(f).

**Chapter 6, Comments and Coordination**

Updates were made to describe events leading to release of the DEIS for public comment and the public hearing process for the DEIS. These updates included a discussion of final meetings of the South Mountain Citizens Advisory Team, the awareness campaign conducted prior to release of the DEIS, the public hearing, the online public hearing, community forums, and a summary of comments received on the DEIS. The process of distributing the FEIS for review is described, along with methods of submitting comments on the FEIS.

**SUMMARY OF CHANGES BETWEEN THE DEIS AND FEIS**

As described previously, the chapters of the FEIS were updated with new and corrected information. The FEIS includes a new appendix, Appendix 7, Volume III, Public Comments on the South Mountain Freeway Draft Environmental Impact Statement and Section 4(f) Evaluation. Those who submitted comments on the DEIS will find their comments and the responses to those comments in Appendix 7, Volume III.
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