

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

Submitted pursuant to
42 U.S.C. § 4332(2)(c), 49 U.S.C. § 303, and 33 U.S.C. § 1251
by the

Federal Highway Administration
and
Arizona Department of Transportation

in cooperation with the
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
Western Area Power Administration



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.

South Mountain Freeway (Loop 202)

Final Environmental Impact Statement and Section 4(f) Evaluation

Submitted pursuant to 42 U.S.C. § 4332(2)(c), 49 U.S.C. § 303, and 33 U.S.C. § 1251

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.

by the
FEDERAL HIGHWAY ADMINISTRATION
and
ARIZONA DEPARTMENT OF TRANSPORTATION
with
U.S. ARMY CORPS OF ENGINEERS
 (Cooperating Agency)
and
U.S. BUREAU OF INDIAN AFFAIRS
 (Cooperating Agency)
and
WESTERN AREA POWER ADMINISTRATION
 (Cooperating Agency)

Americans with Disabilities Act Information

Individuals requiring reasonable accommodation of any type may contact Terry Gruver, HDR Engineering, Inc., 3200 East Camelback Road, Suite 350, Phoenix, AZ 85018; phone: (602) 522-7700; fax: (602) 522-7707; e-mail: <ADOT@hdrinc.com>.

Title VI of the Civil Rights Act

The Arizona Department of Transportation ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination based on race, color, national origin, and sex in the provision of benefits and services. For language interpretation services, please contact Eddie Edison at (602) 712-7761.

For information about the Department's Title VI Program, please contact Eddie Edison, Civil Rights Administrator, ADOT, 206 S. 17th Avenue, MD 154A, Phoenix, AZ 85007; phone: (602) 712-7761; fax: (602) 712-8429; e-mail: <eedison@azdot.gov>.

John Halikowski, Director
 Arizona Department of Transportation

Karla S. Petty, Administrator
 Arizona Division
 Federal Highway Administration

John Halikowski 9/18/14 *Karla S Petty 9-18-14*

 Date of Approval Date of Approval



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

4000 North Central Avenue, Suite 1500

Phoenix, AZ 85012

Project Sponsor

Arizona Department of Transportation

205 South 17th Avenue

Phoenix, AZ 85007

Cooperating Agencies

U.S. Army Corps of Engineers

Arizona/Nevada Area Office

3636 North Central Avenue, Suite 900

Phoenix, AZ 85012

U.S. Bureau of Indian Affairs

104 North Main Street

P.O. Box 8

Sacaton, AZ 85247

Western Area Power Administration

Desert Southwest Regional Office

615 South 43rd Avenue

P.O. Box 6457

Phoenix, AZ 85005

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 <azdot.gov/southmountainfreeway> and for review only and at no charge at the following locations:

Phoenix Public Library – Cesar Chavez

3635 West Baseline Road

Laveen, AZ 85339

(602) 262-4636

Hours of operation:

Monday, Saturday: 9 a.m. – 5 p.m.

Tuesday – Thursday: 10 a.m. – 8 p.m.

Sunday: 1 p.m. – 5 p.m.

Closed Fridays

Phoenix Public Library – Ironwood Branch

4333 East Chandler Boulevard

Phoenix, AZ 85048

(602) 262-4636

Hours of operation:

Monday, Saturday: 9 a.m. – 5 p.m.

Tuesday – Thursday: 10 a.m. – 8 p.m.

Sunday: 1 p.m. – 5 p.m.

Closed Fridays

Phoenix Public Library – Burton Barr

Central Library

1221 North Central Avenue

Phoenix, AZ 85004

(602) 262-4636

Hours of operation:

Monday, Friday, Saturday: 9 a.m. – 5 p.m.

Tuesday – Thursday: 9 a.m. – 9 p.m.

Sunday: 1 p.m. – 5 p.m.

Phoenix Public Library – Desert Sage Branch

7602 West Encanto Boulevard

Phoenix, AZ 85035

(602) 262-4636

Hours of operation:

Tuesday – Thursday: 11 a.m. – 7 p.m.

Friday – Saturday: 9 a.m. – 5 p.m.

Closed Sundays and Mondays

Sam Garcia Western Avenue Library

495 East Western Avenue

Avondale, AZ 85323

(623) 333-2665

Hours of operation:

Monday – Thursday: 10 a.m. – 9 p.m.

Friday – Sunday: 1 p.m. – 5 p.m.

Chandler Sunset Library

4930 West Ray Road

Chandler, AZ 85226

(480) 782-2800

Hours of operation:

Monday – Thursday: 10 a.m. – 8 p.m.

Friday – Saturday: 10 a.m. – 6 p.m.

Sunday: 1 p.m. – 5 p.m.

Tempe Public Library

3500 South Rural Road

Tempe, AZ 85282

(480) 350-5500

Hours of operation:

Monday – Wednesday: 9 a.m. – 8 p.m.

Thursday – Saturday: 9 a.m. – 5 p.m.

Sunday: 12 p.m. – 5 p.m.

(list of document repositories continues on next page)

Document Availability (continued)

Tolleson Public Library

9555 West Van Buren Street

Tolleson, AZ 85353

(623) 936-2746

Hours of operation:

Monday–Wednesday: 9 a.m.–7 p.m.

Thursday–Friday: 9 a.m.–5 p.m.

Saturday: 9 a.m.–1 p.m.

Closed Sundays

ADOT Environmental Planning Group

1611 West Jackson Street

Phoenix, AZ 85007

Call for appointment, (602) 712-7767

Gila River Indian Community District 1

Service Center

15747 North Shegoi Road

Coolidge, AZ 85128

(520) 215-2110

Call for hours of operation.

Gila River Indian Community District 2

Service Center

9239 West Sacaton Flats Road

Sacaton, AZ 85147

(520) 562-3450/(520) 562-3358/(520) 562-1807

Call for hours of operation.

Gila River Indian Community District 3

Service Center

31 North Church Street

Sacaton, AZ 85147

(520) 562-2700

Call for hours of operation.

Gila River Indian Community District 4

Service Center

1510 West Santan Street

Sacaton, AZ 85147

(520) 418-3661/(520) 418-3228

Call for hours of operation.

Gila River Indian Community District 5

Service Center

3456 West Casa Blanca Road

Bapchule, AZ 85121

(520) 315-3441/(520) 315-3445

Call for hours of operation.

Gila River Indian Community District 6

Service Center

5230 West St. Johns Road

Laveen, AZ 85339

(520) 550-3805/(520) 550-3806/(520) 550-3557

Call for hours of operation.

Gila River Indian Community District 7

Service Center

8201 West Baseline Road

Laveen, AZ 85339

(520) 430-4780

Call for hours of operation.

Ira Hayes Library

94 North Church Street

Sacaton, AZ 85147

(520) 562-3225

Hours of operation:

Monday–Friday: 9 a.m.–6 p.m.

**Gila River Indian Community
Communications and Public Affairs Office**

525 West Gu U Ki Road

Sacaton, AZ 85147

Call for hours of operation.

This page intentionally left blank.

CONTENTS

Volume I: Main Text

Title Page i

Fact Sheet ii

Prologue to the Final Environmental Impact Statement xi

Summary

Background Information	S-1
Contents of the FEIS	S-2
Comments about the Environmental Impact Statement Process	S-2
Description of the Proposed Action	S-4
Historical Context	S-4
Purpose and Need	S-5
Alternatives	S-6
Impacts	S-10
Measures to Mitigate Adverse Effects	S-18
Identification of a Preferred Alternative	S-35
Status of Gila River Indian Community Alternatives – At the FEIS Stage	S-38
Treatment of Resources Afforded Protection under Section 4(f) – At the FEIS Stage	S-38
Other Government Actions	S-40
Permits and Permissions Required	S-40
Areas of Concern	S-40
Communications and Coordination – Involving the Public and Agencies in the EIS Process	S-43
Independent Evaluation of the FEIS	S-44

Chapter 1 – Purpose and Need

Purpose of the Document	1-1
Purpose of the Chapter	1-1
Context of Purpose and Need in the EIS Process	1-1
Project Location, Description, and Current Status	1-4
Historical Context of the Proposed Action	1-5
Context of the Proposed Action in Current Regional Transportation Planning	1-9
Need and Purpose for the Proposed Action	1-11
Need Based on Socioeconomic Factors	1-11
Need Based on Regional Transportation Demand and Existing and Projected Transportation System	1-13
Capacity Deficiencies	1-13
Conclusions	1-21

Chapter 2 – Gila River Indian Community Coordination

Coordination Efforts and Gila River Indian Community Interaction Pertaining to the Proposed Action	2-1
--	-----

Background Information	2-2
Executive Branch	2-3
Gila River Indian Community Council and Special Committees	2-3
Districts	2-3
Departments	2-3
Bureau of Indian Affairs	2-3
Gila River Indian Community Coordination	2-4
Gila River Indian Community Council and Special Committees	2-7
Governor and Lieutenant Governor	2-7
Districts	2-8
Governmental Departments	2-8
I-10/Pecos Road Landowners Association	2-9
South Mountain Citizens Advisory Team	2-9
Bureau of Indian Affairs	2-9
Other Gila River Indian Community Coordination	2-9
Content and Status of Coordination and Activities	2-10
Status of Gila River Indian Community Alignments at Time of FEIS Issuance	2-10
Treatment of Impacts on Gila River Indian Community Land	2-10
Summary of Comments Received	2-10
Future Coordination	2-10
Context of Coordination in Relation to Environmental Justice Executive Order	2-11
Conclusions	2-11

Chapter 3 – Alternatives

Background and Alternatives Development and Screening	3-1
Purpose of the Chapter	3-1
Context of Alternatives in the EIS Process	3-1
Alternatives Development and Screening	3-1
Alternatives Studied in Detail	3-40
No-Action Alternative	3-40
Action Alternatives	3-40
Traffic Analysis	3-60
Identification of a Preferred Alternative	3-62
Conclusions	3-70

Chapter 4 – Affected Environment, Environmental Consequences, and Mitigation

Background Information	4-1
Land Use	4-3
Affected Environment	4-3
Environmental Consequences	4-9
Mitigation	4-19
Conclusions	4-19

Social Conditions	4-20	Mitigation	4-118
Affected Environment	4-20	Conclusions	4-120
Environmental Consequences	4-21	Topography, Geology, and Soils	4-121
Mitigation	4-23	Affected Environment	4-121
Conclusions	4-28	Environmental Consequences	4-123
Environmental Justice and Title VI	4-29	Mitigation	4-124
Environmental Justice	4-29	Conclusions	4-124
Title VI of the Civil Rights Act of 1964	4-42	Biological Resources	4-125
Displacements and Relocations	4-46	Affected Environment	4-125
Affected Environment	4-46	Environmental Consequences	4-136
Environmental Consequences	4-46	Mitigation	4-138
Mitigation	4-51	Conclusions	4-139
Conclusions	4-54	Cultural Resources	4-140
Economic Impacts	4-56	Affected Environment	4-140
Existing Conditions	4-56	Environmental Consequences	4-142
Environmental Consequences	4-57	Mitigation	4-158
Mitigation	4-67	SHPO Concurrence	4-160
Conclusions	4-67	Conclusions	4-160
Air Quality	4-68	Prime and Unique Farmlands	4-161
Regulatory Overview	4-68	Affected Environment	4-161
Criteria Pollutants	4-69	Environmental Consequences	4-161
Mobile Source Air Toxics	4-72	Mitigation	4-162
Environmental Consequences	4-74	Conclusions	4-162
Conclusions	4-87	Hazardous Materials	4-164
Noise	4-88	Affected Environment	4-164
Noise Criteria	4-88	Environmental Consequences	4-164
Existing Noise Levels	4-88	Mitigation	4-165
Environmental Consequences	4-89	Conclusions	4-166
Mitigation	4-91	Visual Resources	4-167
Other Possible Mitigation Strategies	4-99	Affected Environment	4-167
Conclusions	4-100	Environmental Consequences	4-167
Water Resources	4-101	Mitigation	4-170
Affected Environment	4-101	Conclusions	4-170
Environmental Consequences	4-105	Energy	4-172
Mitigation	4-106	Affected Environment	4-172
Conclusions	4-109	Environmental Consequences	4-172
Floodplains	4-110	Mitigation	4-172
Affected Environment	4-110	Conclusions	4-172
Environmental Consequences	4-112	Temporary Construction Impacts	4-173
Mitigation	4-114	Environmental Consequences and Mitigation	4-173
Conclusions	4-115	Conclusions	4-175
Waters of the United States	4-116	Material Sources and Waste Material	4-176
Affected Environment	4-116	Environmental Consequences	4-176
Environmental Consequences	4-117	Mitigation	4-176
		Conclusions	4-176

Irreversible and Irretrievable Commitment of Resources 4-177
 Relationship Between Short-Term Uses of the Environment and Long-Term Productivity 4-178
 Secondary and Cumulative Impacts 4-179
 Overview of Historic, Existing, and Future Conditions 4-179
 Secondary Impacts 4-179
 Cumulative Impacts 4-183
 No-Action Alternative 4-188
 Mitigation 4-188
 Conclusions 4-189
 Conclusions 4-190

Chapter 5 – Section 4(f) Evaluation

Procedures for Protecting Section 6(f) and Section 4(f) Resources 5-1
 Section 6(f) 5-1
 Section 4(f) 5-1
 Presentation of Section 4(f) Resources, Impacts, and Measures to Minimize Harm 5-5
 Public Parkland Resources (SMPP) Associated with the South Mountains 5-14
 NRHP-Eligible Historic Resources (SMPP) Associated with the South Mountains 5-25
 The South Mountains (Muhadagi Doag) as a Traditional Cultural Property 5-26
 AZ T:12:112 (ASM) as a Traditional Cultural Property 5-28
 Other Traditional Cultural Properties 5-28
 Coordination 5-29
 Conclusions 5-31

Chapter 6 – Comments and Coordination

Past Coordination and Project Actions 6-1
 Summary of Past Agency and Public Involvement, Pre-EIS Process 6-1
 Agency Coordination 6-2
 Public Involvement 6-6
 Future Coordination and Project Actions 6-26
 EIS Process 6-26
 Design Phase 6-27
 Construction 6-27
 Postconstruction 6-27
 Context-Sensitive Solutions as Applied to the Proposed Action 6-28
 Conclusions 6-32

Preparers PRE-1
Abbreviations and Acronyms ACR-1
Glossary G-1
Bibliography and References REF-1
Index IND-1

Tables

Table S-1 Final Environmental Impact Statement/Section 4(f) Evaluation Content Summary S-2
 Table S-2 Implementation of the Proposed Freeway as the Appropriate Modal Alternative to Satisfy Purpose and Need Criteria, 2035 S-9
 Table S-3 Environmental Impact Summary Matrix, Proposed Action S-10
 Table S-4 Mitigation Measures, Arizona Department of Transportation, Action Alternatives S-18
 Table S-5 Major Permits and Permissions S-41
 Table 1-1 Purpose and Need Content Summary, Chapter 1 1-2
 Table 1-2 *Regional Transportation Plan* Highlights 1-10
 Table 1-3 Traffic Analysis Tools 1-13
 Table 2-1 Meetings to Engage the Community, 2001–2009 2-4
 Table 2-2 Meetings Focused on the Proposed On-Community Alignment, 2010–2012 2-6
 Table 3-1 Alternatives Content Summary, Chapter 3 3-2
 Table 3-2 Nonfreeway Alternatives Considered and Reasons for their Elimination from Further Study 3-5
 Table 3-3 Western Section Alternatives Eliminated from Further Study, Second-tier Screening, Alternatives Development and Screening Process 3-11
 Table 3-4 Renaming of Action Alternatives, Western Section 3-11
 Table 3-5 Eastern Section Alternatives Eliminated from Further Study, Second-tier Screening, Alternatives Development and Screening Process 3-12
 Table 3-6 Comparison of Displacements, W55 and W59 Alternatives 3-24
 Table 3-7 Traffic Analysis Tools Used to Assess a Freeway’s Effect on Identified Needs 3-27
 Table 3-8 Regional Travel Times, 2035 3-34
 Table 3-9 Implementation of the Proposed Freeway as the Appropriate Modal Alternative to Satisfy Purpose and Need Criteria, 2035 3-38
 Table 3-10 Horizontal Alignments, W101 Alternative and Options, Western Section 3-41
 Table 3-11 Alignment Features, Action Alternatives 3-48
 Table 3-12 Acreage Needed, Action Alternatives, Western and Eastern Sections 3-52
 Table 4-1 Affected Environment, Environmental Consequences, and Mitigation Content Summary, Chapter 4 4-2
 Table 4-2 Existing Land Use, by Study Area Jurisdiction 4-3
 Table 4-3 State and Federal Land Ownership, Study Area 4-7
 Table 4-4 Zoning, by Study Area Jurisdiction 4-7
 Table 4-5 Status of Affected Jurisdictions’ General Plans and Plan Updates 4-9
 Table 4-6 Existing Land Uses within Proposed Right-of-way, Action Alternatives 4-11
 Table 4-7 Land Use Conversion Acreage 4-14
 Table 4-8 Planned Developments Potentially Affected by Action Alternatives 4-17
 Table 4-9 Impacts on Community Character and Cohesion, Action Alternatives 4-24
 Table 4-10 Environmental Justice Population Percentages, Affected Study Area Jurisdictions 4-30
 Table 4-11 Environmental Justice Populations Affected by Action Alternatives 4-36
 Table 4-12 Combined Discussion of Effects on Environmental Justice Populations 4-39
 Table 4-13 Potential Displacements, Action Alternatives 4-46
 Table 4-14 Summary of Business Displacements, Action Alternatives 4-49
 Table 4-15 Summary of Businesses within 300 Feet of Action Alternatives 4-51
 Table 4-16 Acreage of Taxable Land Uses by Jurisdiction, Action Alternatives 4-56

Table 4-17	Land Valuation Assumptions Used to Estimate Property Tax Impacts Resulting from Right-of-way Acquisition	4-57	Table 4-49	Hazardous Materials Impacts, Action Alternatives	4-164
Table 4-18	Reductions in Local Annual Property Tax Revenues Resulting from Right-of-way Acquisition, Existing Land Uses, Action Alternatives	4-58	Table 4-50	Visual Impacts, Action Alternatives	4-169
Table 4-19	Assumptions Used to Estimate Retail Sales Tax Impacts Resulting from Right-of-way Acquisition	4-59	Table 4-51	Annual Regional Energy Consumption, 2035	4-172
Table 4-20	Reductions in Annual Retail Sales Tax Revenues Resulting from Right-of-way Acquisition, Existing Land Uses, Action Alternatives	4-60	Table 4-52	Potential Major Utility Impacts, Action Alternatives	4-175
Table 4-21	Estimated Acreage of Future Study Area Land Uses, Action Alternatives	4-61	Table 4-53	Earthwork Quantities, Action Alternatives	4-176
Table 4-22	Acreage of Future Taxable Land Uses, Action Alternatives	4-62	Table 4-54	Resources Not Considered for Secondary Impact Analysis	4-180
Table 4-23	Reductions in Local Annual Property Tax Revenues Resulting from Right-of-way Acquisition, Future Land Uses, Action Alternatives	4-63	Table 4-55	Secondary Impacts, Action Alternatives	4-181
Table 4-24	Reductions in Annual Sales Tax Revenues Resulting from Right-of-way Acquisition, Future Land Uses, Action Alternatives	4-64	Table 4-56	Resources Not Considered for Cumulative Impact Analysis	4-184
Table 4-25	Estimates of Total Tax Revenue Impacts, Property and Sales Tax Combined, Dollars per Year, Action Alternatives	4-65	Table 4-57	Representative Project-specific Mitigation Measures	4-189
Table 4-26	Estimated Value of Motorists' Travel Time	4-66	Table 5-1	Section 4(f) Evaluation Content Summary, Chapter 5	5-2
Table 4-27	Economic Benefit of Reduced Regional Traffic Congestion, Action Alternatives	4-67	Table 5-2	Documented Coordination Associated with Section 4(f) Resources	5-29
Table 4-28	National Ambient Air Quality Standards	4-69	Table 5-3	Direct Use of Section 4(f) Resources	5-31
Table 4-29	Priority Mobile Source Air Toxics Emissions, Maricopa County, 2002	4-74	Table 6-1	Public Involvement Tools	6-8
Table 4-30	Annual Priority Mobile Source Air Toxics Concentrations, South Phoenix	4-75	Table 6-2	Public Comment Summary, Phase 3	6-13
Table 4-31	Priority Mobile Source Air Toxics Emissions, South Phoenix	4-75	Table 6-3	Questions and Comments Received during November 2005 Public Meeting Presentations, Phase 4	6-16
Table 4-32	Highest Modeled Carbon Monoxide Concentrations at the Interstate 10, Broadway Road, and 40th Street Interchanges	4-76	Table 6-4	Summary of Public Comments, Phase 4	6-17
Table 4-33	Modeled PM ₁₀ Design Values	4-77	Table 6-5	Additional Phase 4 Comments Received during and after the February 2010 Public Meeting	6-22
Table 4-34	Modeled Mobile Source Air Toxics Emissions, Preferred Alternative (W59/E1), Western Subarea	4-80	Table 6-6	Additional Phase 4 Comments Received during and after the February 2011 Public Meeting	6-22
Table 4-35	Modeled Mobile Source Air Toxics Emissions, Preferred Alternative (W59/E1), Eastern Subarea	4-80	Table 6-7	Public Awareness Campaign Components, Phase 5	6-23
Table 4-36	Modeled Mobile Source Air Toxics Emissions, Preferred Alternative (W59/E1), Project Study Area	4-81	Table 6-8	Online Public Hearing Participation, Phase 5	6-24
Table 4-37	Statewide and Project Greenhouse Gas Emissions Potential, Relative to Global Totals	4-86	Table 6-9	Application of Context-Sensitive Solutions in the EIS Process	6-29
Table 4-38	Federal Highway Administration Noise Abatement Criteria	4-88			
Table 4-39	Ambient Noise Monitoring Results, Western and Eastern Sections	4-92	<i>Figures</i>		
Table 4-40	Noise Analysis Results, Western and Eastern Sections	4-93	Figure S-1	Location of the Study Area, Maricopa County	S-1
Table 4-41	Potentially Affected Wells, Action Alternatives	4-106	Figure S-2	Location, Phoenix Metropolitan Area	S-2
Table 4-42	Estimated Acreage of Floodplain Impacts, Western Section, Action Alternatives	4-113	Figure S-3	Environmental Impact Statement Process	S-3
Table 4-43	Wildlife of Special Concern in Arizona and Species of Greatest Conservation Need and Their Potential to Occur within the Project Limits	4-129	Figure S-4	The Maricopa Association of Governments Regional Freeway and Highway System, 1985 and 2003	S-4
Table 4-44	Threatened and Endangered Species Potentially Occurring in Maricopa County	4-134	Figure S-5	Historical and Projected Growth	S-5
Table 4-45	Archaeological Resources Affected, Action Alternatives	4-143	Figure S-6	Growth Distribution	S-6
Table 4-46	NRHP-eligible Historical Sites (non-TCP), Action Alternatives	4-144	Figure S-7	Alternatives Development and Screening Process	S-7
Table 4-47	Record of Section 106 Consultation	4-145	Figure S-8	Action Alternatives	S-8
Table 4-48	Farmland Conversion Impact Rating, Prime and Unique Farmlands, Western and Eastern Sections	4-162	Figure S-9	Typical Eight-lane Freeway Section	S-10
			Figure S-10	Comparative Analysis, Action Alternatives, Western Section	S-37
			Figure S-11	Sovereign Nation and Section 4(f) Constraints, Action Alternatives	S-39
			Figure 1-1	Study Area	1-3
			Figure 1-2	Maricopa Association of Governments Regional Freeway and Highway System, 1985 and 2003	1-6
			Figure 1-3	Westward Ho Hotel, 1939	1-7
			Figure 1-4	Growth Rates, 1950–2010	1-7
			Figure 1-5	Historic and Projected Population Distribution, 1955–2030, Phoenix Metropolitan Area	1-9
			Figure 1-6	Projected Growth Rates, 2010–2035	1-11

Figure 1-7	Geographic Distribution of Projected Growth by Subregion, 2010–2035	1-12	Figure 3-27	System Traffic Interchange Configuration, Action Alternative, Eastern Section	3-50
Figure 1-8	Average Daily Traffic Volumes on Freeways and Arterial Streets (without the Proposed Action), 2012 and 2035	1-15	Figure 3-28	Proposed Service Traffic Interchanges, Action Alternatives, Western and Eastern Sections	3-51
Figure 1-9	Duration of Level of Service E or F, Morning Commute on Freeways, 2012 and 2035	1-17	Figure 3-29	Local Access Modifications, Service Traffic Interchanges, W59 Alternative, Western Section	3-53
Figure 1-10	Duration of Level of Service E or F, Evening Commute on Freeways, 2012 and 2035	1-18	Figure 3-30	Local Access Modifications, Service Traffic Interchanges, W71 Alternative, Western Section	3-54
Figure 1-11	Cut-line Analysis, 2012 and 2035	1-19	Figure 3-31	Local Access Modifications, W101 Alternative, Service Traffic Interchanges, Partial and Full Reconstruction Options, Western Section	3-55
Figure 1-12	Met and Unmet Demand, 2012 and 2035	1-20	Figure 3-32	Local Street Realignment, W59 Alternative (Preferred Alternative), Western Section	3-56
Figure 1-13	Modeled Travel Times without the Proposed Action, 2012 and 2035	1-20	Figure 3-33	Local Street Realignment, E1 Alternative (Preferred Alternative), Eastern Section	3-57
Figure 2-1	Gila River Indian Community and its Governing Districts	2-2	Figure 3-34	Typical Eight-lane Freeway Section	3-58
Figure 3-1	Regional Context, Proposed Action	3-3	Figure 3-35	Earthwork Quantities, Action Alternatives, Western and Eastern Sections	3-59
Figure 3-2	Alternatives Development and Screening Process	3-4	Figure 3-36	Planning-level Cost Estimates, Action Alternatives, Western and Eastern Sections	3-59
Figure 3-3	Met and Unmet Demand with and without Modal Improvements, 2035	3-4	Figure 3-37	Projected Traffic Volumes, Freeways and Arterial Streets, 2035	3-61
Figure 3-4	Corridor Locations, Alternatives Development and Screening Process	3-7	Figure 3-38	Projected Traffic Volumes, Action Alternatives, 2035	3-63
Figure 3-5	Early Alignment Siting Efforts, Alternatives Development and Screening Process	3-7	Figure 3-39	Modeled Level of Service, Action Alternatives, 2035	3-65
Figure 3-6	Western and Eastern Section Alternatives, First-tier Screening, Alternatives Development and Screening Process	3-10	Figure 3-40	Modeled Level of Service, Interstate 10, Western Section, 2035	3-66
Figure 3-7	Alignment Adjustments, Third- and Fourth-tier Screening, Western Section, Alternatives Development and Screening Process	3-14	Figure 3-41	Comparative Analysis, Action Alternatives, Western Section	3-67
Figure 3-8	Design Adjustments, Third- and Fourth-tier Screening, Eastern Section, Alternatives Development and Screening Process	3-15	Figure 4-1	Jurisdictions	4-4
Figure 3-9	Duration of Level of Service E or F on Eight-lane and Ten-lane Freeways, Morning Commute, 2035	3-21	Figure 4-2	Land Ownership	4-5
Figure 3-10	Duration of Level of Service E or F on Eight-lane and Ten-lane Freeways, Evening Commute, 2035	3-22	Figure 4-3	Existing Land Uses	4-6
Figure 3-11	Alignment and Design Adjustments, Fifth-tier Screening, Alternatives Development and Screening Process	3-25	Figure 4-4	Planned Developments, 2013	4-8
Figure 3-12	Projected Average Daily Traffic Volumes on Freeways and Arterial Streets with and without the Proposed Freeway, 2035	3-29	Figure 4-5	General Plan Land Use Designations	4-10
Figure 3-13	Cut-line Analysis with and without the Proposed Freeway, 2035	3-30	Figure 4-6	Land Leased for Rio Salado Oeste Restoration Project from Bureau of Land Management	4-14
Figure 3-14	Met and Unmet Demand with and without the Proposed Freeway, 2035	3-31	Figure 4-7	State Trust Land, Eastern Section	4-15
Figure 3-15	Duration of Level of Service E or F with and without the Proposed Freeway, Morning Commute on Freeways, 2035	3-32	Figure 4-8	Distinct Communities	4-22
Figure 3-16	Duration Level of Service E or F with and without the Proposed Freeway, Evening Commute on Freeways, 2035	3-33	Figure 4-9	Public Facilities and Services	4-23
Figure 3-17	Representative Travel Times with and without the Proposed Freeway, 2035	3-34	Figure 4-10	Minority Populations Distribution	4-31
Figure 3-18	Select Link Analysis, Origins and Destinations within and outside the Region, 2035	3-36	Figure 4-11	Low-income Populations Distribution	4-32
Figure 3-19	Summary of Action Alternatives Considered and Eliminated	3-39	Figure 4-12	Elderly Populations Distribution	4-33
Figure 3-20	Horizontal and Vertical Alignments, W59 Alternative, Western Section	3-42	Figure 4-13	Disabled Populations Distribution	4-34
Figure 3-21	Horizontal and Vertical Alignments, W71 Alternative, Western Section	3-43	Figure 4-14	Female Head-of-household Populations Distribution	4-35
Figure 3-22	Horizontal and Vertical Alignments, W101 Alternative Western Option, Western Section	3-44	Figure 4-15	Potential Business Relocations, W101 Alternative and Options	4-48
Figure 3-23	Horizontal and Vertical Alignments, W101 Alternative Central Option, Western Section	3-45	Figure 4-16	Potential Business Relocations, W71 Alternative	4-48
Figure 3-24	Horizontal and Vertical Alignments, W101 Alternative Eastern Option, Western Section	3-46	Figure 4-17	Potential Business Relocations, W59 Alternative	4-48
Figure 3-25	Horizontal and Vertical Alignments, E1 Alternative, Eastern Section	3-47	Figure 4-18	Comparison of National Economic and Demographic Growth Indicators and Air Emissions, 1970–2005	4-68
Figure 3-26	System Traffic Interchange Configurations, Action Alternatives, Western Section	3-49	Figure 4-19	Annual Second High 8-hour Carbon Monoxide Concentrations, Phoenix, 1980–2009	4-70
			Figure 4-20	Nonattainment and Maintenance Areas for Particulate Matter, Carbon Monoxide, and Ozone, Maricopa County	4-71
			Figure 4-21	Exceedances of Maximum 8-hour Ozone Concentrations, Phoenix, 1990–2009	4-71
			Figure 4-22	Regional PM ₁₀ Emissions Sources, Phoenix, 2012	4-72
			Figure 4-23	Priority Mobile Source Air Toxics Emissions, Maricopa County	4-74
			Figure 4-24	National Mobile Source Air Toxics Emission Trends, 1999–2050	4-78
			Figure 4-25	Modeled Assessment Areas, Mobile Source Air Toxics, Maricopa County	4-79

Figure 4-26	Noise Receiver and Potential Barrier Locations, W101 Alternative and Options	4-90
Figure 4-27	Noise Receiver and Potential Barrier Locations, W71 Alternative	4-90
Figure 4-28	Noise Receiver and Potential Barrier Locations, W59 Alternative	4-90
Figure 4-29	Noise Receiver and Potential Barrier Locations, Eastern Section	4-91
Figure 4-30	Noise Barrier Process	4-100
Figure 4-31	Major Surface Water Resources	4-102
Figure 4-32	Watersheds in the Region	4-103
Figure 4-33	Study Area Active Groundwater Wells	4-104
Figure 4-34	Irrigation Canals	4-107
Figure 4-35	100-year Floodplains	4-111
Figure 4-36	Surface Water Features, Western Section	4-116
Figure 4-37	Typical Ephemeral Washes, Eastern Section	4-117
Figure 4-38	Plant Communities and Movement Areas Adjacent to Action Alternative Alignments	4-126
Figure 5-1	Section 4(f) in the EIS Process as Applied to the Proposed Action	5-3
Figure 5-2	Alignment Adjustments, Action Alternatives, Western and Eastern Sections	5-4
Figure 5-3	Section 4(f) Resources in the Study Area	5-5
Figure 5-4	Properties Eligible for the National Register of Historic Places (Not Associated with the South Mountains or Traditional Cultural Properties)	5-6
Figure 5-5	Recreational Trails System	5-8
Figure 5-6	Public School Recreational Facilities	5-10
Figure 5-7	Public Parkland	5-12
Figure 5-8	Public Parkland Resources (Phoenix South Mountain Park/Preserve) Associated with the South Mountains	5-15
Figure 5-9	Photo Simulations, Proposed Roadway Cuts through Ridges of the South Mountains	5-16
Figure 5-10	Cross Sections, Proposed Roadway Cuts through Ridges of the South Mountains	5-17
Figure 5-11	Profile, Tunnel Alternatives	5-19
Figure 5-12	Profile, Medium Bridge Alternatives	5-21
Figure 5-13	Profile, High Bridge Alternatives	5-22
Figure 5-14	Comparison, 1988 South Mountain Freeway Alignment and Proposed Freeway Alignment	5-23
Figure 6-1	Public Involvement, South Mountain Freeway History	6-1
Figure 6-2	Public Involvement, Phase 2	6-12
Figure 6-3	Public Involvement, Phase 3	6-14
Figure 6-4	Public Involvement, Phase 4	6-14
Figure 6-5	Public Involvement, Phase 5	6-25
Figure 6-6	Comments Submitted, Phase 5	6-25

Appendices

Volume II: Appendices for Chapters 1, 2, 3, 4, 5, and 6

Chapter 1	Purpose and Need	
Appendix 1-1	Agency Letters and Communication	A1

Chapter 2	Gila River Indian Community Coordination	
Appendix 2-1	Section 106 Consultation	A250
Chapter 3	Alternatives	
Appendix 3-1	Pecos Road Local Traffic Circulation	A514
Chapter 4	Affected Environment, Environmental Consequences, and Mitigation	
Appendix 4-1	ADOT Relocation Assistance Program Policy	A517
Appendix 4-2	Five Percent Plan for Attainment of the 24-hour PM-10 Standard	A557
Appendix 4-3	2014 MAG Conformity Analysis	A562
Appendix 4-4	Dust Control Permit	A640
Appendix 4-5	Memorandum of Agreement	A662
Appendix 4-6	Programmatic Agreement	A674
Appendix 4-7	Farmland Conversion	A692
Appendix 4-8	Supplemental Biological Resources Information	A695
Chapter 5	Section 4(f) Evaluation	
Appendix 5-1	Properties Excluded from Section 4(f) Consideration	A702
Appendix 5-2	Section 4(f) Correspondence and Documents	A709
Chapter 6	Comments and Coordination	
Appendix 6-1	Notice of Intent	A741
Appendix 6-2	Newsletters and Advertisements	A742
Appendix 6-3	South Mountain Citizens Advisory Team	A773
Appendix 6-4	Summary Report: Public Involvement for the Draft Environmental Impact Statement	A795
Appendix 6-5	Outreach to Gila River Indian Community Members for the Draft Environmental Impact Statement	A917
Appendix 6-6	Outreach to Gila River Indian Community Members for the Final Environmental Impact Statement	A946
Volume III: Comment Response Appendix		
Federal Agency Comments and Responses		B3
Tribal Entity Comments and Responses		B37
State Agency and Elected Officials Comments and Responses		B63
Local Agency and Elected Officials Comments and Responses		B97
Special Interest Group Comments and Responses		B127
Responses to Frequently Submitted Public Comments		B733
Business Comments and Responses		B740
Form Letter Comments and Responses		B760
Petition Comments and Responses		B872
Citizen Comments and Responses		B902
Citizen Comments Received after Comment Deadline		B3819

PROLOGUE TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT

INTRODUCTION

The Final Environmental Impact Statement (FEIS) was prepared in accordance with requirements of the National Environmental Policy Act (NEPA; 40 Code of Federal Regulations [C.F.R.] §§ 1500–1508 and 23 C.F.R. § 771) for the South Mountain Freeway. It incorporates analysis and conclusions presented in the Draft Environmental Impact Statement (DEIS) for the proposed action, public comments and responses on the DEIS, and new information that became available after public release of the DEIS.

The Arizona Department of Transportation (ADOT), the project sponsor, working in close consultation with the Federal Highway Administration (FHWA), the lead federal agency for the proposed action, signed the cover sheet of the DEIS on April 16, 2013. A notice of its availability was published in the *Federal Register* on April 26, 2013, which established the public comment period for the document.

The public comment period concluded on July 24, 2013. A public hearing was held during the public comment period on May 21, 2013, at the Phoenix Convention Center in Phoenix, Arizona. Court reporters were present to accept verbal comments on the DEIS at the hearing. In addition to the public hearing, six community forums were held throughout the metropolitan Phoenix area. An online public hearing was available on the ADOT project Web site (azdot.gov/southmountainfreeway). All of the materials presented at the public hearing—including the study video, display banners, aerial maps, an interactive electronic version of the DEIS, and an online comment form—were available at the public forums. Written comments (e-mails, letters, and comment forms) were accepted throughout the public comment period. All comments on the DEIS have been responded to in the FEIS. More information on the public involvement process for the DEIS may be found in Chapter 6, *Comments and Coordination*.

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, a Supplemental 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 Alternatives 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

Review of technical reports, predecisional reports, and memorandums

Technical reports—with the exception of the cultural resources and Section 4(f) technical reports (because of the sensitive information they contain)—are available on the project Web site at azdot.gov/southmountainfreeway. If reviewing a hard copy, the technical reports are also included on the compact disc placed in the envelope on the back cover of Volume I. Technical reports, predecisional reports, and memorandums can be made available for review by appointment at ADOT Environmental Planning Group, 1611 W. Jackson St., Phoenix, AZ 85007 [(602) 712-7767]. Special requests for portions of the cultural resources and Section 4(f) reports will be considered by ADOT on a case-by-case basis. These reports examine existing conditions and assess potential impacts on existing conditions.

(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 59th 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 to not 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 Soils; Material Sources and Waste Material; Irreversible and Irretrievable 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

approximately 80 to 90 percent. Commercial property tax valuation increased slightly (approximately 5 to 10 percent), while industrial property values fell by approximately half. Property tax rates (combined primary and secondary) for the municipalities have increased in the same period. The tax revenue changes may result from increasing demand for fiscal resources, increasing budgetary requirements, and decreasing property valuations. The land use and property tax information updates resulted in a decrease (more than half) in property tax impacts for the Cities of Phoenix and 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 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 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 PM₁₀ (particulate matter of 10 microns or less in diameter) hot-spot analysis performed in the DEIS was updated to a quantitative PM₁₀ 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. 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.

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.

This page intentionally left blank.