FHWA-AZ-EIS-14-01-F

South Mountain Freeway (Loop 202)

Interstate 10 (Papago Freeway) to Interstate 10 (Maricopa Freeway)

Record of Decision

Volume I: Main Text

March 2015

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

ADOT Project Number: 202L MA 054 H5764 01L

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Decision

The Federal Highway Administration (FHWA) has decided to identify the Preferred Alternative analyzed in the *South Mountain Freeway (Loop 202) Final Environmental Impact Statement and Section 4(f) Evaluation* (FEIS) as the Selected Alternative for the South Mountain Freeway project in Maricopa County, Arizona. The Selected Alternative (a combination of the W59 and E1 Alternatives), shown in Figures 15 and 16, discussed in this record of decision (ROD) is the environmentally preferable alternative. The Selected Alternative will meet the project needs as well as or better than the other alternatives. The Section 4(f) evaluation demonstrated that no feasible and prudent avoidance alternatives to use of the South Mountains' Section 4(f) resources are available. Direct use of the resource is the same regardless of the combination of action alternatives in the Western and Eastern Sections (representing a range of reasonable alternatives). Relative to other action alternatives considered, the Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will cause less construction disruption overall to Interstate 10; will include measures to reduce impacts and minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will allow regulatory permitting requirements to be met.

This decision is based on an evaluation of information presented in the FEIS and errata, the project's purpose and need, input from the public, and interagency and tribal coordination. Approximately 250 comments were received on the FEIS and errata during the review period. The Notice of Availability of the FEIS and errata appeared in the *Federal Register* on September 26, 2014, and December 5, 2014, respectively. The public comments and FHWA and Arizona Department of Transportation responses to public comments are included in this ROD. Additional rationale for the decision to proceed with the Selected Alternative are presented in this ROD.

Karla S. Petty
Arizona Division Administrator
Federal Highway Administration

Karla S Petty March 5, 2015

Date of Approval

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GLOSSARY

American Indian and Alaskan Native A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.

Arizona Department of Environmental Quality (ADEQ) The State agency responsible for ensuring that the quality of Arizona's air, land, and water resources meets healthful, regulatory standards.

Arizona Department of Transportation (ADOT) The State agency responsible, among other things, for state roads and highways.

arterial A through-road or street.

Asian American A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

at-grade roadway A roadway element that is approximately level with the immediate surrounding terrain.

barrier A solid wall or earth berm located on a direct line between the roadway and noise receiver location that reduces the noise level at the receiver. Some material that blocks or is intended to block passage, or a natural formation or structure that prevents or hinders movement or action.

Black/African American A person having origins in any of the black racial groups of Africa.

blasting The controlled use of explosives to excavate or remove rock.

buffer An area designed to separate a resource from an undesired effect.

capacity The maximum number of vehicles that a given section of road or traffic lane can accommodate.

carbon monoxide (CO) An odorless, colorless gas that is a product of the combustion of hydrocarbons; it interferes with the body's organs and tissues.

citizens advisory team A group of volunteers that meets regularly and acts as a sounding board to help the project team understand issues and concerns of their respective communities and to help find a consensus solution for the project.

community character A set of parameters that creates a "sense of place" within a community. Factors contributing to community character are physical size, compatible land uses within the community, internal circulation, distinct but common architecture, and cultural activities.

community cohesion The dynamic within a community that promotes internal neighborhood circulation to and from residences and community facilities, quasi-public facilities, and regularly required activities such as food shopping at local grocery stores.

congestion Traffic volume on a road at sufficient densities to become detrimental to its performance; undesirable traffic conditions that exist when traffic on a freeway or street is moving at an average speed of 45 miles per hour or less, and/or the traffic flow is often stop and go.

cooperating agency Another agency—federal, state, or local—that has jurisdiction by law or special expertise over portions of the project area and that must make a decision on the proposed project.

critical habitat Critical habitat is defined in Section 3(5)(A) of the Endangered Species Act. Critical habitat consists of specific geographic areas that contain features essential to the conservation of a species and that may require special management or protection.

design year The future year used to determine the probable traffic volume for which a highway and noise abatement are designed.

Eastern Section The portion of the Study Area located east of the common point, which is a line perpendicular to the Gila River Indian Community boundary through a point located near Elliot Road and 59th Avenue (see Figure 13).

elderly Those persons age 60 and older.

elevated roadway A roadway constructed above the immediate surrounding terrain, either on an embankment or a structure.

emission A substance discharged into the air, for the purposes of this document, particularly by an internal combustion engine.

endangered species Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range.

environmental impact statement (EIS) The project documentation prepared in accordance with the National Environmental Policy Act when a project is anticipated to have a significant impact on the environment.

Federal Highway Administration (FHWA) The branch of the U.S. Department of Transportation responsible for administering the Federal-aid Highway Program and the Federal Lands Highway Program. The programs provide financial resources and technical assistance for constructing, preserving, and improving the National Highway System along with other urban and rural roads.

fill Earth used to create embankments or to raise low-lying areas to bring them to grade.

floodplain The portion of a stream valley, adjacent to the channel, that is covered with water when the stream overflows its banks at flood stage.

geotechnical Referring to the use of scientific methods and engineering principles to acquire, interpret, and apply knowledge of earth materials for solving engineering problems.

groundwater Water that collects or flows beneath the Earth's surface, filling the porous soil, sediment, and rocks.

habitat Place where an animal or plant normally lives, often characterized by a dominant plant form or physical characteristic.

Hispanic/Latino Of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

household A social unit consisting of those living together in the same dwelling.

impact A direct or indirect consequence of the construction or operation of a proposed alternative, including the No-Action Alternative, on the environment in the Study Area; can be negative, positive, or neutral.

independent utility The ability of the proposed action to function as proposed, independent of other planned transportation-related projects in the region.

jurisdiction Refers to the territory over which authority is exercised.

level of service (LOS) The operating performance of an intersection or roadway segment can be described using the term *level of service*. Level of service is a qualitative description of operation based on the degree of delay and maneuverability.

listed species Any species of fish, wildlife, or plant that has been determined to be endangered or threatened under Section 4 of the Endangered Species Act.

logical termini Rational end points for a transportation project and for a review of environmental impacts.

low-income Populations in households with an income at or below the U.S. Department of Health and Human Services poverty guidelines.

minority populations In the United States, people who identify themselves as Hispanic, Latino, Black, African American, American Indian, Alaskan Native, Asian American, another race other than Caucasian, or more than one race.

mitigation An action taken to reduce or eliminate an adverse impact stemming from construction, operation, or maintenance of a proposed action alternative. Mitigation could reduce the magnitude and extent of an impact from a level of significance to a level of insignificance. Mitigation includes:

Avoiding the impact altogether by not taking a certain action or parts of an action.

Minimizing impacts by limiting the degree of magnitude of the action and its implementation.

Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

Compensating for the impact by replacing or providing substitute resources or environments.

National Ambient Air Quality Standards (NAAQS) Standards set by the U.S. Environmental Protection Agency to protect public health and welfare. These standards are set for pollutant concentrations that states, cities, and towns must meet by specified deadlines.

National Environmental Policy Act (NEPA) of 1969 The federal law, enacted in 1970, that established a national policy for the environment and requires federal agencies to become aware of the environmental ramifications of their proposed actions, to fully disclose to the public proposed federal actions, to provide a mechanism for public input to federal decision making, and to prepare environmental impact statements for every major action that would significantly affect the quality of the human environment.

National Historic Preservation Act of 1966 (NHPA) The primary federal law pertaining to the protection of historic and prehistoric resources.

National Register of Historic Places (NRHP) The nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register of Historic Places is part of a program to coordinate and support public and private efforts to identify, evaluate, and protect historic and prehistoric resources. Properties listed in the National Register of Historic Places include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

native An indigenous person, plant, or animal.

overpass A grade separation, usually a bridge, where the freeway passes over the cross street or rail line.

ozone (O_3) A molecule consisting of three atoms of oxygen. It is a criteria pollutant that can develop when oxides of nitrogen, volatile organic compounds, and sunlight interact in the lower atmosphere. Ozone is a powerful oxidizing agent that damages tissues in living organisms.

particulate matter (PM_{10}) Particulate matter of 10 microns or less in diameter.

population All the organisms living in a given area; a group of individuals.

prime farmland Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

prior rights As used in this document, prior rights refer to a situation involving a utility company that has facilities located on private easements that are later acquired or encompassed by the State's right-of-way. In this situation, the utility is given a choice of relocating its conflicting facilities onto a public right-of-way or of acquiring a new easement and relocating onto it. Either would be at the Arizona Department of Transportation's expense.

project sponsor An individual, agency, or group who lends support to the project by advocacy and/or financial means.

prudent and feasible This concept is essential to the Section 4(f) of the Department of Transportation Act of 1966 process. It refers to how practical an alternative is in its attempt to avoid the use of a Section 4(f) resource. The term *feasible* refers to whether a project can be built using current construction methods, technologies, and practices. The term *prudent* refers to how reasonable and responsible the alternative is. The Arizona Department of Transportation is obligated to choose an avoidance alternative only if it is prudent and feasible.

reasonable alternatives Feasible options for a proposed action.

receiver The location at which noise levels are measured, modeled, and analyzed. Receivers of interest are typically residences, schools, parks, or other noise-sensitive land uses.

right-of-way (R/W) Publicly owned land used or intended to be used for transportation and other purposes.

rolling profile A roadway that follows the land contour and is not flat. Slight crests and sags in the roadway help avoid concentrated stormwater drainage and assist in making travel interesting for drivers, thus improving safety. Such a road profile helps to cost-effectively balance the import and export of fill material and to minimize the amount of land that must be acquired.

Section 106 of the National Historic Preservation Act of 1966 (NHPA) Under Section 106 of the National Historic Preservation Act of 1966, federal agencies are required to identify and evaluate historic and prehistoric resources and consider the impact of undertakings they fund, license, permit, or assist on historic and prehistoric properties eligible for inclusion in the National Register of Historic Places. The federal agencies must allow the State Historic Preservation Office and the Advisory Council on Historic Preservation the opportunity to comment on these undertakings.

Section 4(f) of the Department of Transportation Act of 1966 A later amendment to the Department of Transportation Act of 1966 stipulating that the Federal Highway Administration and other departments of transportation using federal funds cannot approve the use of land from a significant publicly owned public park, recreation area, wildlife or waterfowl refuge, or any significant cultural resource unless there is no prudent and feasible alternative to the use of that land and unless the action includes all possible planning to minimize harm to the property resulting from its use.

service traffic interchange A traffic interchange connecting a freeway facility and a cross street—it typically features traffic signals to regulate traffic flow.

socioeconomic Of, relating to, or involving a combination of social and economic factors.

State Historic Preservation Office/Officer (SHPO) The State Historic Preservation Officer is appointed by the governor to head the State Historic Preservation Office. The agency provides project review and oversees compliance with Section 106 of the National Historic Preservation Act of 1966. The U.S. Department of Transportation generally uses the Section 106 process as a method for determining National Register of Historic Places eligibility and for determining a cultural resource's significance for a federal undertaking under Section 4(f).

State Implementation Plan The document prepared by the Arizona Department of Environmental Quality detailing for the U.S. Environmental Protection Agency the actions the State of Arizona will take to attain compliance with the National Ambient Air Quality Standards.

Study Area Boundary of area evaluated for the South Mountain Freeway Environmental Impact Statement and Section 4(f) Evaluation.

suitable habitat For any given species, defined as habitat that contains the components (i.e., food, cover, and nesting/breeding sites) required for the survival and reproduction of a species.

system traffic interchange A traffic interchange connecting two or more freeway facilities and allowing for uninterrupted traffic flow as motorists move from one facility to another.

threatened species Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

transportation demand management (TDM) A general term for strategies that encourage more efficient use of existing transportation resources.

transportation system management (TSM) Fundamental traffic engineering actions taken to improve the operation of the highway system to help reduce congestion.

unique farmland Land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, fruits, and vegetables.

U.S. Department of Transportation The agency responsible for transportation issues in the federal government. It consists of many agencies providing transportation services to the public, including the Federal Highway Administration and the Federal Aviation Administration.

use A "use" of a Section 4(f) resource, as defined in 23 Code of Federal Regulations § 774.17, occurs 1) when land is permanently incorporated into a transportation facility, 2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purpose, or 3) when there is a constructive use of land. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from the Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that afford a resource protection under Section 4(f) are substantially impaired.

utility An entity that transmits or distributes communication, cable television, electricity, light, heat, gas, petroleum products, water, sewer, waste, or any other similar commodity that directly or indirectly serves the public. For this document, a railroad is considered a utility.

Western Section The portion of the Study Area located west of the common point, which is a line perpendicular to the Gila River Indian Community boundary through a point located near Elliot Road and 59th Avenue (see Figure 13).

ABBREVIATIONS AND ACRONYMS

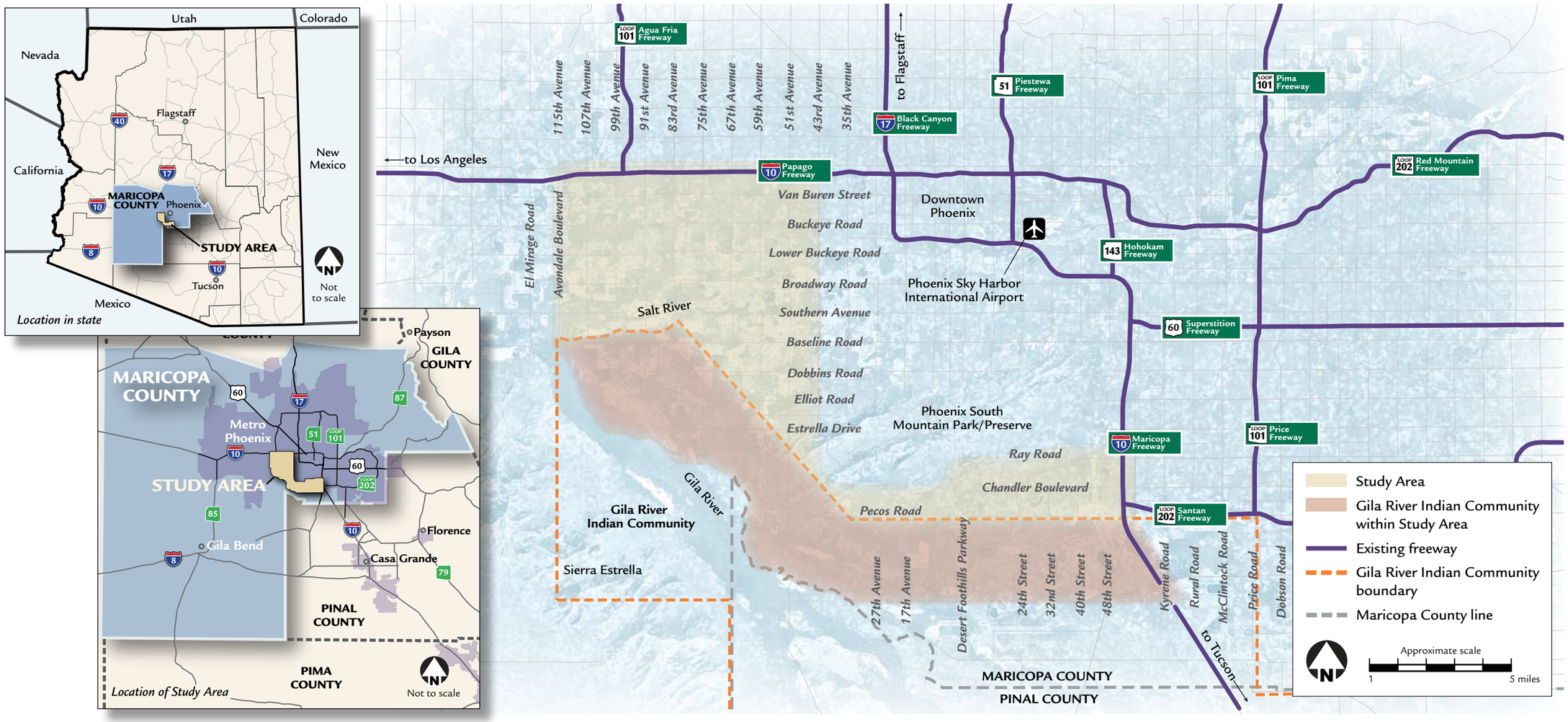
101L	Loop 101
202L	Loop 202
303L	Loop 303
A.A.C.	Arizona Administrative Code
AASHTO	American Association of State and Highway Transportation Officials
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
ASLD	Arizona State Land Department
ASM	Arizona State Museum
AZ	Arizona
AZPDES	Arizona Pollutant Discharge Elimination System
BIA	U.S. Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CO	carbon monoxide
Community	Gila River Indian Community
CPAO	Communications and Public Affairs Office
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
Department	U.S. Department of the Interior
E1	El Alternative
EIS	environmental impact statement
EMP	Environmental Management Plan
EPA	U.S. Environmental Protection Agency
EPG	Environmental Planning Group
ESA	Endangered Species Act
FCDMC	Flood Control District of Maricopa County
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
HOV	high-occupancy vehicle
HPT	Historic Preservation Team
HUD	U.S. Department of Housing and Urban Development
I-8	Interstate 8
I-10	Interstate 10
I-17	Interstate 17
IGA	intergovernmental agreement
LOS	level of service
LWCF	Land and Water Conservation Fund
LWCFA	Land and Water Conservation Fund Act
MAG	Maricopa Association of Governments
MSATs	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OHWM	ordinary high water mark
PA	programmatic agreement
$PM_{2.5}$	particulate matter of 2.5 microns or less in diameter
PM_{10}	particulate matter of 10 microns or less in diameter
ROD	record of decision
RTP	*Regional Transportation Plan*
R/W	right-of-way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHPO	State Historic Preservation Office/Officer
SMPP	Phoenix South Mountain Park/Preserve
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
TCP	traditional cultural property
TDM	transportation demand management
THPO	Tribal Historic Preservation Office/Officer
Title VI	Title VI of the Civil Rights Act of 1964
TSM	traffic system management
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
UPRR	Union Pacific Railroad
U.S.	United States
US 60	U.S. Route 60
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
W101	W101 Alternative
W55	W55 Alternative
W59	W59 Alternative
W71	W71 Alternative
Western	Western Area Power Administration

1. INTRODUCTION

The Arizona Department of Transportation (ADOT) is the sponsor of the construction and operation of the South Mountain Freeway in Maricopa County, Arizona. The freeway will constitute a section of the Regional Freeway and Highway System, the Loop 202 (referred to as State Route [SR] 202L in this document). The project is in the southwestern portion of the Phoenix metropolitan area in Maricopa County, Arizona (Figure 1). The approximately 22-mile-long freeway will be constructed as an eight-lane divided, access-controlled facility, with four travel lanes in each direction. Three lanes will be for general purpose use and one lane will be dedicated to high-occupancy vehicle (HOV) use. The freeway will constitute a section of SR 202L. The Red Mountain, Santan, and South Mountain freeway corridors are the component parts of the ultimate SR 202L (Figure 2). The freeway will begin at a connection to Interstate 10 (I-10) (Papago Freeway) near 59th Avenue and end at the existing system traffic interchange connecting SR 202L (Santan Freeway) to I-10 (Maricopa Freeway) (Figure 1).

The South Mountain Freeway has been included in the proposed 232-mile Maricopa Association of

Figure 1 Study Area



Governments (MAG) Regional Freeway System (now called the Regional Freeway and Highway System) as planned since 1985 (Figure 2). At that time, it was designed as a high-speed, access-controlled freeway and was added into the State Highway System by the State Transportation Board. When completed, it will be part of the National Highway System. Upon its inclusion in the Regional Freeway and Highway System in the mid-1980s, the South Mountain Freeway also became an element of long-range planning efforts of local jurisdictions throughout the Study Area.

Since 1985, ADOT and MAG have sequenced construction of the Regional Freeway and Highway System to meet the most pressing regional transportation needs as funds became available. As other freeway segments were analyzed, designed, and constructed, further studies were prepared to examine alternatives for the South Mountain Freeway. Versions of the freeway have continued to be included in updates to MAG's transportation planning documents, including the *Regional Transportation Plan* (RTP) (MAG 2003) (Figure 2). As described in the RTP, the freeway is integral to the region's adopted multimodal transportation plan as a key element of the plan's freeway system component.

The RTP, most recently updated in 2014 as the 2035 RTP, is a comprehensive regional plan addressing needs for all transportation modes and for planned transportation improvements in the MAG region (see text box on page 1-5 of the Final Environmental Impact Statement [FEIS] for more information regarding the RTP).

ADOT has opted to seek federal highway funds to assist in completing the freeway. For this reason, the Federal Highway Administration (FHWA) is required to ensure that the freeway complies with provisions of the National Environmental Policy Act of 1969 (NEPA) and other federal laws, such as the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. Study of the freeway in the FEIS was based on logical termini, sufficient length, independent utility, construction priorities associated with the Regional Freeway and Highway System, and projected transportation needs.

Consideration of alternatives and project impacts was comprehensive and extended outside Study Area limits when appropriate. While the Gila River Indian Community (Community) is included in the Study Area, no alternatives were studied in detail on Community land (Figure 1). The Community elected to not grant permission to study alternatives in detail on Community land. FHWA and ADOT, therefore, have determined that an alternative alignment on Community land is not reasonable, and such an alternative was eliminated from further consideration. In addition, the Section 4(f) evaluation determined that such an alternative was not a prudent and feasible avoidance alternative for avoiding the South Mountains.

This record of decision (ROD) has been prepared in accordance with:

- NEPA [42 United States Code (U.S.C.) § 4332(2)(c)]
- Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. § 303, as amended)

2. PURPOSE AND NEED

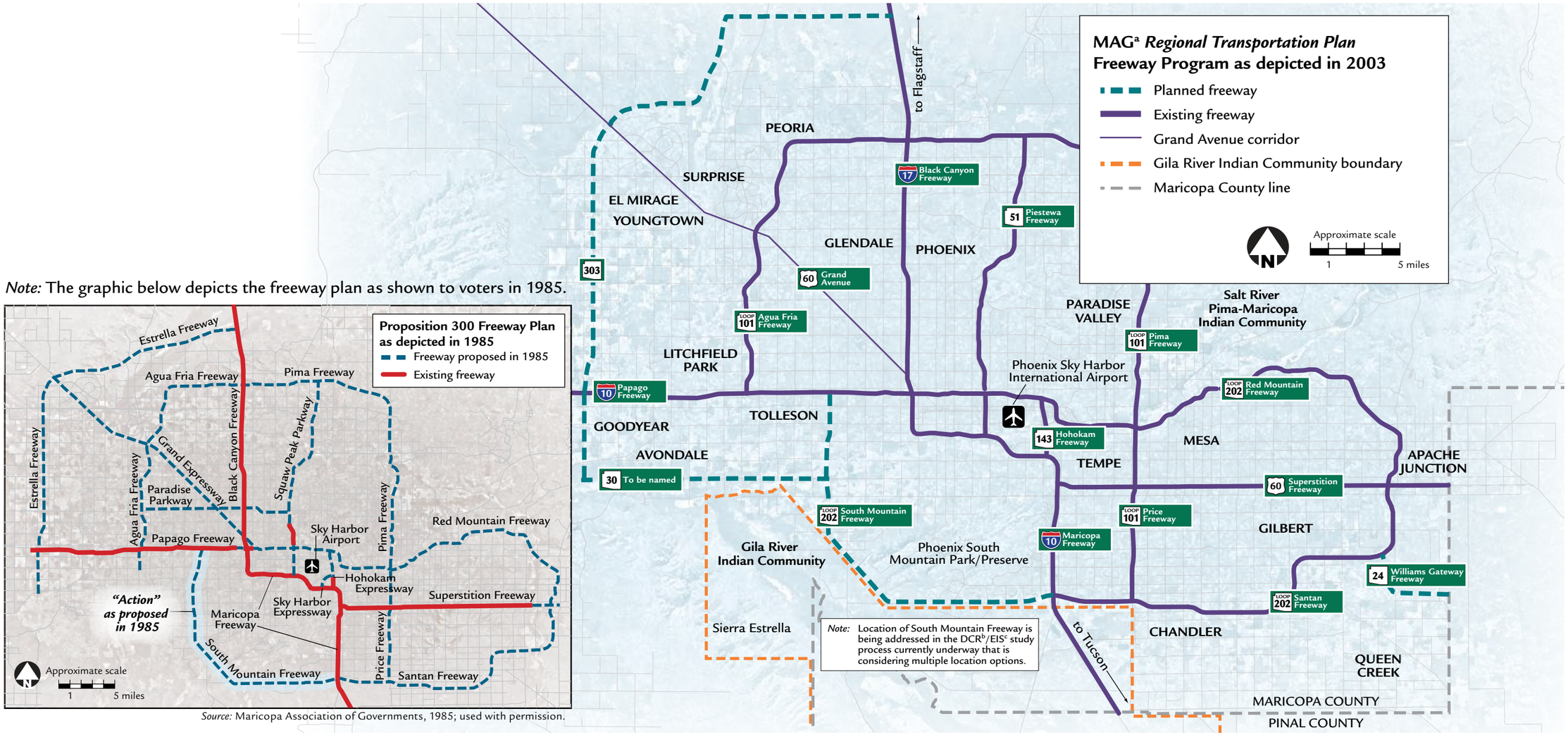
The South Mountain Freeway has been included in the region's adopted transportation planning documents since 1985 and remains in the current RTP. Using state-of-the-practice methods and tools, the analysis conducted for the FEIS revealed that a major transportation facility is needed to address the following socioeconomic factors:

- Population, housing, and employment are projected to increase by approximately 50 percent between 2010 and 2035, increasing travel demand.
- Growth in vehicle miles traveled is projected to meet or exceed these socioeconomic factors and to further burden the already overtaxed regional transportation system.
- Almost 50 percent of projected increases in population, housing, and employment from 2010 to 2035 for the entire MAG region are expected to occur in the southwestern and southeastern portions of the Phoenix metropolitan area, which the South Mountain Freeway will serve (see Figure 3).
- Although the economic downturn that began in late 2007 slowed growth, historic and projected long-term growth rates indicate the condition was temporary.

Repeated assessment of regional transportation demand and existing and projected transportation system capacity deficiencies revealed that a major transportation facility is needed to address:

- **Transportation demand** – Average daily traffic volumes on freeways and arterial streets are projected to increase substantially in and adjacent to the Study Area between 2012 and 2035.
- **Quality of traffic operations** – Level of service (LOS) is a measure of traffic congestion, with LOS A representing the least congested traffic conditions and LOS F representing the most congested. During peak commuting periods, the LOS on regional transportation facilities operating in the Study Area and its surroundings is poor, with much of the network congested for multiple hours. Even with planned improvements from implementation of the RTP (except the South Mountain Freeway), travel conditions are projected to get worse.
- **Transportation capacity** – The 2012 road network can serve only 84 percent of the total demand while operating at LOS D. Even with implementation of planned RTP improvements (except the South Mountain Freeway), the 2035 road network will be able to serve only 69 percent of the total demand while operating at LOS D.
- **Travel time** – Delays experienced daily by hundreds of thousands of drivers will continue to worsen over the course of the next 20-plus years, resulting in substantial lost time and related costs.

Figure 2 The Maricopa Association of Governments Regional Freeway and Highway System, 1985 and 2003

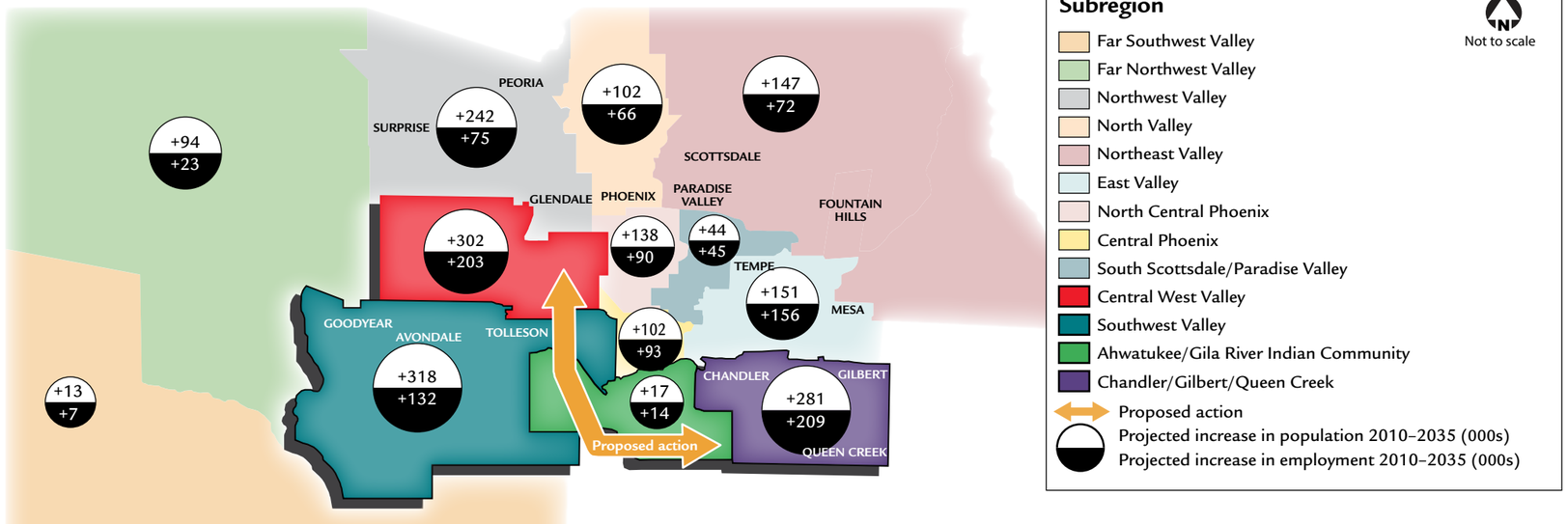


Source: Maricopa Association of Governments, 1985; used with permission.

Source: Maricopa Association of Governments, 2003; extrapolated analysis

[a] Maricopa Association of Governments [b] design concept report [c] environmental impact statement

Figure 3 Growth Distribution



Activity Area	Population (000s)			Employment (000s)		
	2010	2035	Projected Increase	2010	2035	Projected Increase
Central West Valley	578	880	302	136	339	203
Southwest Valley	203	521	318	58	190	132
Ahwatukee/Gila River Indian Community	80	97	17	27	41	14
Chandler/Gilbert/Queen Creek	645	926	281	288	497	209
Total for the proposed action activity area	1,506	2,424	918	509	1,067	558
Total Maricopa County	3,824	5,776	1,952	1,707	2,892	1,185
Percentage contribution – proposed action corridor activity area	**39%**	**42%**	**47%**	**30%**	**37%**	**47%**

Source: Maricopa Association of Governments, 2013; extrapolated analysis

When considering the historical need for a major transportation facility, socioeconomic factors, existing and projected transportation capacity and demand, quality of traffic operational performance, and travel time, the South Mountain Freeway is a needed element of the MAG region's transportation network. Therefore, a need was identified for a major transportation facility. The purpose of such a facility is to fulfill the multiple dimensions of this need.

3. ALTERNATIVES

Alternatives Development and Screening Process Described

Federal regulations stipulate that an environmental impact statement (EIS) shall "rigorously explore and objectively evaluate all reasonable alternatives" (40 Code of Federal Regulations [C.F.R.] § 1502.14). In 1983, the Council on Environmental Quality (CEQ) issued guidance stating "reasonable alternatives include those that are practical or feasible from a technical and economic standpoint" and "us[e] common sense." When a large number of alternatives may exist, "only a reasonable number ... covering the full spectrum of alternatives, must be analyzed and compared in the EIS" (*Federal Register* 46:18026 [1981]). The following text summarizes the decision process ADOT and FHWA used to identify, develop, and screen action alternatives, concluding with identification of the range of reasonable action alternatives (and including the No-Action Alternative) that were studied in detail in the Draft Environmental Impact Statement (DEIS) and were again presented in the FEIS.

Figure 4 illustrates the sequential refinement process used to develop and screen alternatives. The process represented a systematic, interdisciplinary approach to ensure the integrated and balanced consideration of a diverse set of factors including ability to meet the need for the project, design and operational parameters, impacts on the natural and human environments, conceptual-level cost comparisons, and public and political acceptability. The team that conducted the screening process also represented a diverse set of interests to promote consistency in the application of screening criteria. The screening process and results are described in more detail in Chapter 3, *Alternatives*, of the FEIS.

The criteria, or values (ability to meet the need for the project, design and operational parameters, impacts on the natural and human environments, conceptual-level cost comparisons, etc.), were important factors in the screening process. The comparative importance of the criteria was adjusted depending on the iterative step in the screening process, but all were accounted for in each step. In making choices during the screening process, FHWA and ADOT balanced their mandates to provide safe and efficient transportation in the context of other federal requirements (including consideration of both negative and beneficial impacts of the proposed action).

As a first step in the process, a "universe" of alternatives was compiled from previous studies, project team input, and input from other agencies and the public. As a starting point, alternatives to be considered in

the screening process were past freeway proposals (dating back to the mid-1980s) as well as transportation system management (TSM)/transportation demand management (TDM), transit (e.g., commuter rail, light rail, expanded bus service), arterial street network improvements, land use controls, new freeway locations, and a No-Action Alternative. Beginning in 2002, this comprehensive set of alternatives was subjected to a logical and tiered screening process guided by the application of specific multidisciplinary criteria (Figure 4). Through each step of the process, some alternatives were eliminated from further study, while others were carried forward to the next step in the screening process until, eventually, the remaining alternatives represented a range of reasonable alternatives to be carried forward into detailed study in the DEIS.

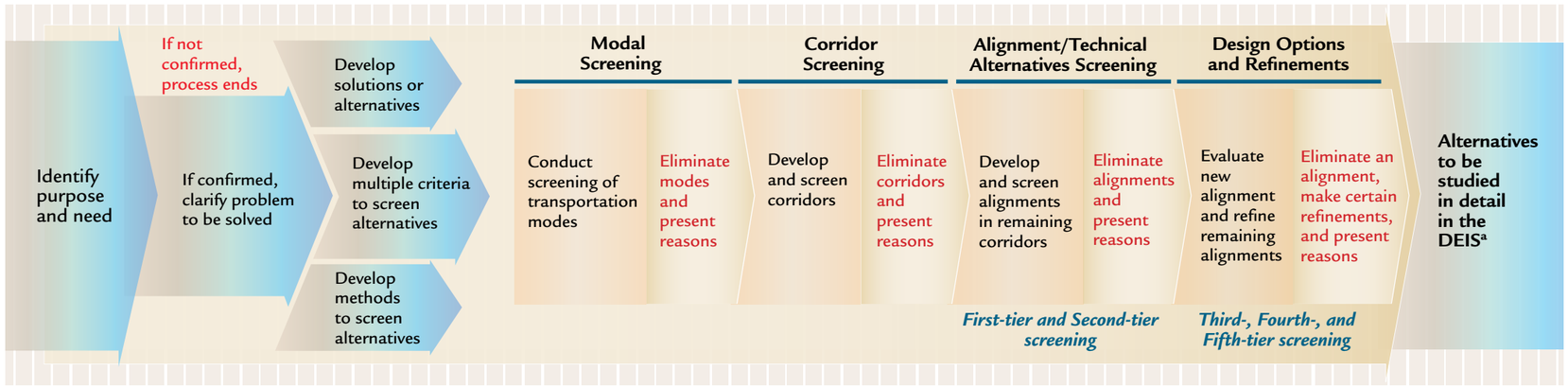
The text immediately below summarizes the screening process undertaken as well as the alternatives and design features that were eliminated from further study. The following section presents those alternatives representing a range of reasonable alternatives selected for detailed study in the DEIS and presented again in the FEIS.

Alternatives and Design Options Eliminated from Further Study during the Screening Process

Nonfreeway and Modal Alternative Screening

As a first step of the screening process, the project need as described in Chapter 1, *Purpose and Need*, of the FEIS was validated. The process of validating past conclusions was a critical action throughout the EIS process because it ensured that later conclusions in the process also remained valid. The process of screening alternatives then began. As an initial screening, analysis was performed to determine whether nonfreeway alternatives and/or single modes of transportation would satisfactorily address the need for the project. TSM/TDM, transit, arterial street improvements, land use controls, and new freeways (individually and in combination) were evaluated. The RTP includes substantial funding for TSM/TDM, transit, and arterial street improvements. The analyses revealed that even when combining the funded improvements in the RTP with better-than-expected performance of the nonfreeway improvements, substantial unmet demand in the region's transportation network would remain (for example, the average daily ridership for the light rail system connecting downtown Phoenix and the Arizona State University campus was approximately 44,000 in 2014—only approximately 25 percent of the total daily vehicles on an eight-lane freeway in the region) (see Figure 3-3 in the FEIS). Based on the initial screening, the freeway mode was identified as the appropriate facility type to address the purpose and need because it did more than any mode and nonfreeway solution to address the unmet demand. While the project team eliminated other modal choices and nonfreeway alternatives as a stand-alone alternative (reasons are summarized in Table 1), it concluded that nonfreeway elements could be used in combination with the freeway mode and could be implemented in the future.

Figure 4 Alternatives Development and Screening Process



[a] Draft Environmental Impact Statement

Corridor Screening

Once the freeway mode was determined to best address the need for the project, locations for a freeway alignment were identified using information from past studies, project team input, and input from other agencies and the public. Freeway locations with common traits were grouped into eight broad corridors. The corridors facilitated a screening process that would answer the question of how a freeway alignment in one corridor might fare against a freeway location in another corridor in terms of satisfying purpose and need for the project. In this manner, corridors could potentially be screened out and, by default, freeway locations within the screened-out corridors could be eliminated. Using ability to meet purpose and need and potential environmental impacts, two of the eight corridors were eliminated from further study in the EIS process (see Table 1).

Alignment Alternative Screening – First- and Second-tier Alignment Screening (Identification of a Range of Reasonable Alternatives for Detailed Consideration)

Upon completion of the corridor screening, the freeway location alignments identified as noted above were grouped together based on having similar characteristics. At this point in the screening process, examination of the remaining alignments revealed that a common point was shared among the alignments in the Study Area: east of 59th Avenue and south of Elliot Road. The Study Area was broken into two geographic sections: a Western Section and an Eastern Section. The common point between the Western and Eastern Sections permitted combining alignments in the Western Section with alignments in the Eastern Section to best satisfy the purpose and need of the proposed action and to

Table 1 Alternatives and Design Options Eliminated from Further Study during the Screening Process

Alternative/Option	Stage of Process	FEIS[a] Page Reference	Decision	Basis of Decision	Section 4(f) Considerations
TSM[b]/TDM[c], transit, arterial street network expansion, existing freeway expansion, land use, new freeway	Modal Screening	3-3	Nonfreeway alternatives were eliminated from further study. A new freeway was determined to be the suitable transportation mode. Nonfreeway elements could be used in combination with the freeway mode and could be implemented in the future.	Nonfreeway alternatives would have limited effectiveness in reducing overall traffic congestion in the Study Area and, therefore, would not meet the purpose and need criteria; specifically, they would not adequately address the MAG[d] region's projected capacity and mobility needs.	For these same reasons, nonfreeway alternatives were determined to not be prudent and feasible avoidance alternatives for avoiding the South Mountains.
Corridors A, B, C, D, E, F, G, and H (see Figure 5)	Corridor Screening	3-6	Corridors A and H were eliminated from further study. Corridor A was eliminated because freeway alignments within Corridor A would have lower traffic volumes near I-10[e] (Papago Freeway) than any other corridor and thus would provide limited transportation benefit.	Corridor H was eliminated because the Community[f] has not granted permission to study alternatives on Community land in detail.	Not applicable

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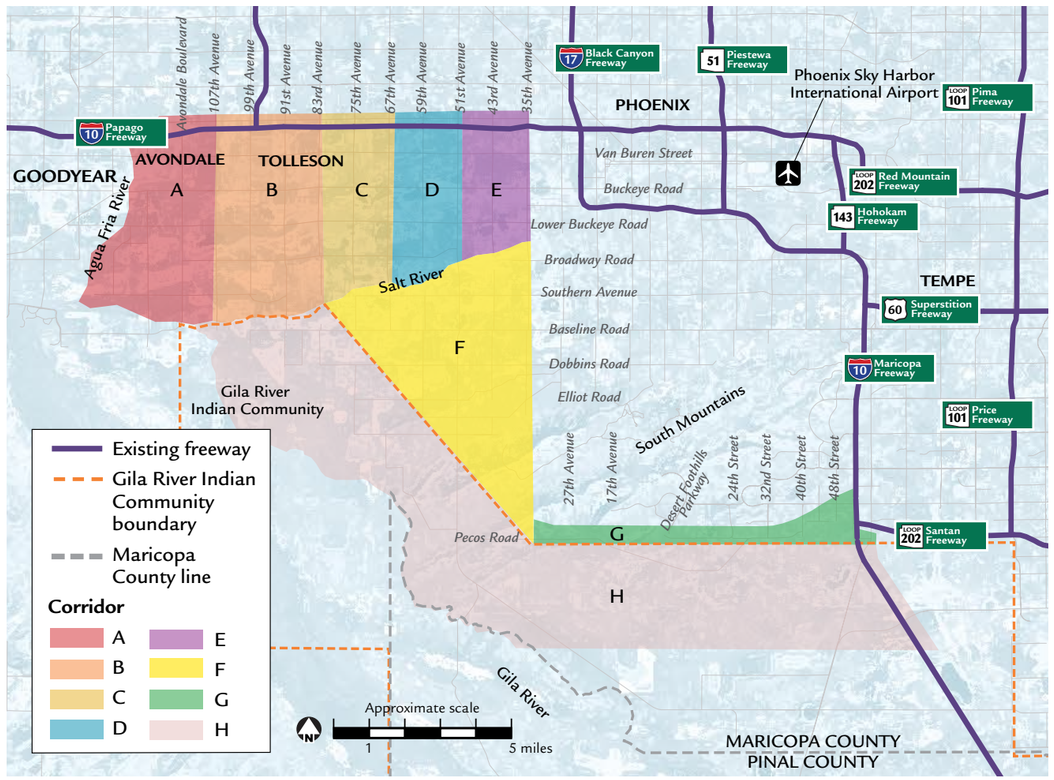
Figure 5 Corridor Locations, Alternatives Development and Screening Process



allow for more specific comparative impact analyses among the alternatives.

The exercise resulted in the identification of nine alignment alternatives in the Western Section and eight alignment alternatives in the Eastern Section of the Study Area. These alignments were comparatively screened against performance criteria associated with purpose and need, environmental impacts, design and operational characteristics, conceptual costs, and political and public concerns. The analyses led to the elimination of six of the nine alignment alternatives in the Western Section and seven of the eight alignment alternatives in the Eastern Section. Table 1 presents reasons for the elimination of the alignment alternatives.

During this screening step, some proposed freeway locations located outside of the identified corridors and even outside of the Study Area were evaluated to ensure that all possibilities were explored. In each instance, these alternatives were eliminated from further study primarily for the inability to meet the purpose and need for the proposed action, as summarized in Table 1.

Upon completion of the First- and Second-tier screening, FHWA and ADOT concluded that three action alternatives (one with options) in the Western Section (W55 Alternative, W71 Alternative, and W101 Alternative and Options) and the one action alternative in the Eastern Section (E1 Alternative) would be carried forward for detailed study in the DEIS. Further, the agencies concluded that combining any of the three action alternatives in the Western Section with the one action alternative in the Eastern Section would represent a range of reasonable alternatives from project terminus to project terminus. Further, these action alternatives represented a range of reasonable alternatives to allow for meaningful comparative analysis in the EIS process.

Alignment Alternative Screening – Third-, Fourth-, and Fifth-tier Alignment Screening (Design and Alignment Refinements of Alternatives Studied in Detail)

The Third-, Fourth-, and Fifth-tier screening focused on design options and refinements, such as evaluating options for vertical profile, locations and types of traffic interchanges, and options for handling off-site drainage. As environmental technical studies progressed, design adjustments were made to try to avoid substantial

Table 1 Alternatives and Design Options Eliminated from Further Study during the Screening Process (continued)

Alternative/Option	Stage of Process	FEIS[a] Page Reference	Decision	Basis of Decision	Section 4(f) Considerations
Riggs Road Alternative (see Figure 6)	Alignment Alternatives Screening (First Tier)	3-9	The Riggs Road Alternative was eliminated from further study.	The Riggs Road Alternative was eliminated because it would not meet the purpose and need for the project and was located on Community land; the Community has not granted permission to study alternatives on Community land in detail.	For these same reasons, the Riggs Road Alternative was determined to not be a prudent and feasible avoidance alternative for avoiding the South Mountains.
SR 85[g]/I-8[h] Alternative (see Figure 7)	Alignment Alternatives Screening (First Tier)	3-9	The SR 85/I-8 Alternative was eliminated from further study.	This route will continue to function as a truck bypass and will be available for interstate and interregional travel, but it does not meet the project's purpose and need based on regional transportation demand and existing and projected transportation system capacity deficiencies.	For these same reasons, the SR 85/I-8 Alternative was determined to not be a prudent and feasible avoidance alternative for avoiding the South Mountains.

(continued on next page)

impacts as well as to enhance operational characteristics of each action alternative. Examples include:

- Early in this step, options were evaluated to avoid resources afforded protection under Section 4(f) of the Department of Transportation Act of 1966, such as historic homes and the South Mountains.
- In response to the economic downturn, the ultimate freeway lane configuration of ten lanes was reexamined, which led to a decision to modify the design to an eight-lane freeway and to reduce the project's right-of-way (R/W) footprint, with the goal of reducing costs and environmental impacts.
- The connection to I-10 (Papago Freeway) for the W55 Alternative was shifted from 55th Avenue to 59th Avenue (and thus the name was changed to the W59 Alternative) to enhance operations on I-10 near the interchange and to reduce overall project costs.
- Throughout the alternatives development and screening process, ADOT and FHWA engaged with the Community in an attempt to allow detailed study of an alternative on Community land. After extensive outreach and coordination with the Community, a Community-coordinated referendum occurred in February 2012, and Community members voted in favor of the no-build option.

Figure 6 Riggs Road Alternative

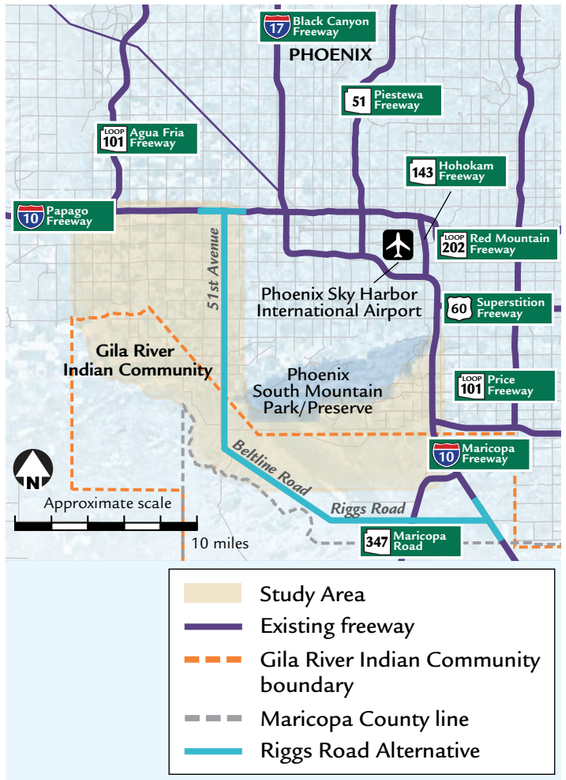


Figure 7 SR 85/I-8 Alternative

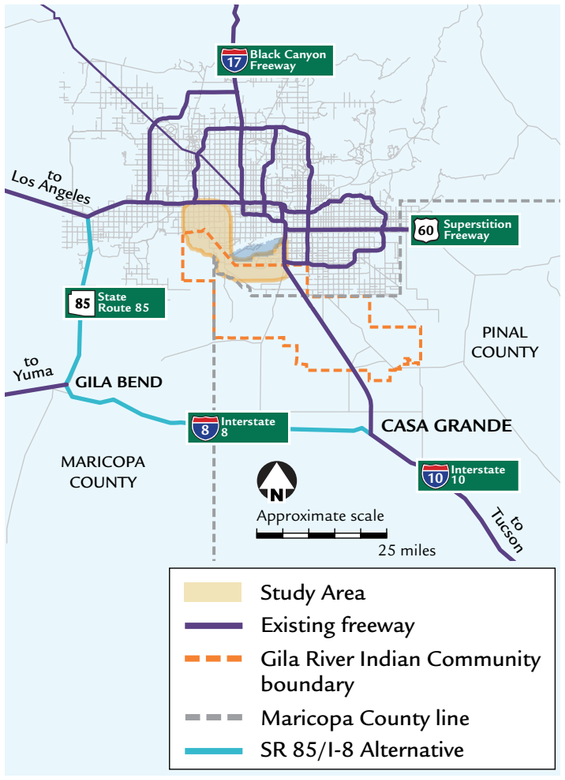
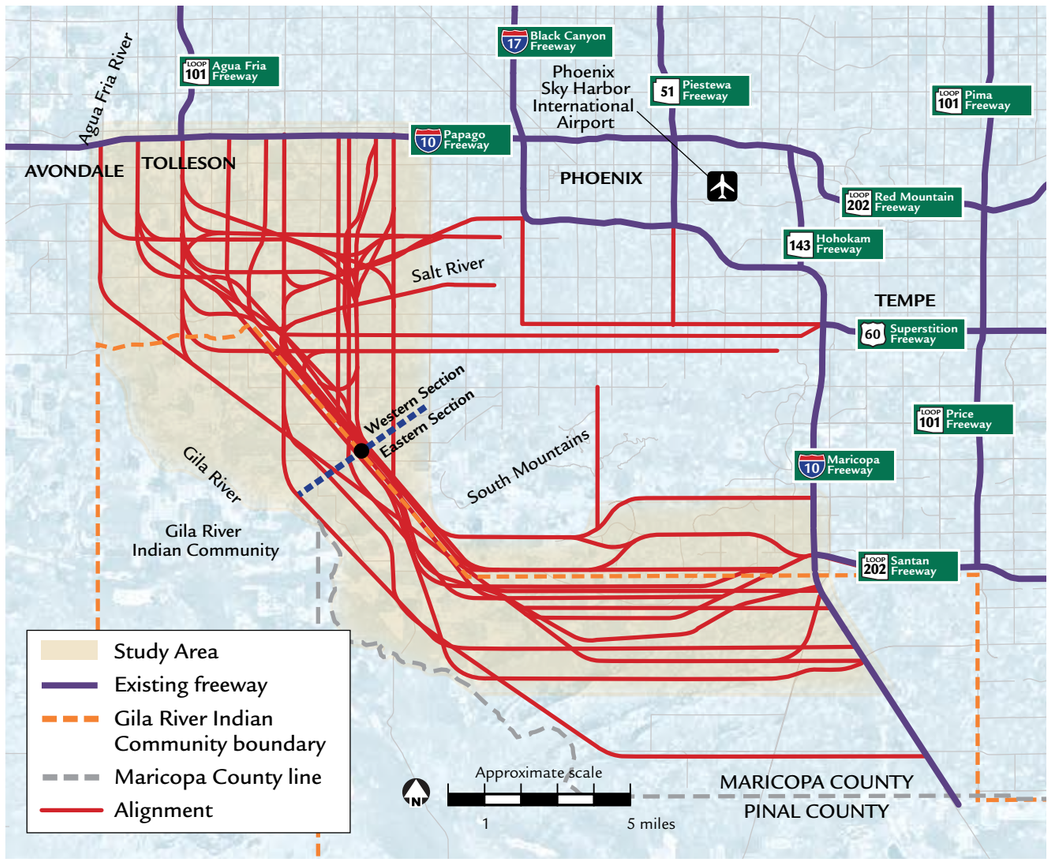


Table 1 Alternatives and Design Options Eliminated from Further Study during the Screening Process (continued)

Alternative/Option	Stage of Process	FEIS[a] Page Reference	Decision	Basis of Decision	Section 4(f) Considerations
Numerous alignments based on public preferences for freeway alignments (see Figure 8)	Alignment Alternatives Screening (First Tier)	3-7	The early alignments were refined into nine Western Section alternatives and eight Eastern Section alternatives (see Figure 9).	The decisions reached in this stage of the process were based primarily on environmental constraints, design criteria, and engineering feasibility.	Not applicable

(continued on page 10)

Figure 8 Early Alignment Siting Efforts, Alternatives Development and Screening Process



Screening Process Results, Conclusions, and Validation Prior to the FEIS

At the conclusion of the alternatives development and screening process in the DEIS, the remaining action alternatives were the W59 Alternative, W71 Alternative, W101 Alternative and Options, and the E1 Alternative. The screening process for the project was initially outlined in the *Alternatives Development and Screening Process* memorandum, dated October 2002. While most of the screening process was completed in the early 2000s, refinements—such as those summarized in the previous section—occurred at many stages over a 13-year period. Over that time, some socioeconomic and environmental elements changed in the Study Area and its surroundings. For example, after the DEIS was released, MAG approved new regional socioeconomic and traffic projections. To document the evaluation of the alternatives development and screening process presented in the FEIS, a technical memorandum, *Validation of the Alternatives Screening Process at FEIS Stage* (dated September 2014), and an FHWA memorandum, *FHWA Validation of Alternatives Screening Process for the South Mountain Freeway* (dated September 2014, see Appendix D), were prepared.

As stated on page 3-1 of the FEIS, "The first step in the alternatives development and screening process was to reconfirm the purpose and need for the proposed action, as presented in Chapter 1. In June 2013, the Maricopa Association of Governments (MAG) approved new socioeconomic projections for Maricopa County. The purpose and need analysis was updated and reevaluated using these new population, employment, and housing projections and corresponding projections related to regional traffic. The conclusions reached in the DEIS were reconfirmed in the FEIS." The new MAG socioeconomic and traffic projections for Maricopa County were used to update the analyses in the FEIS. The 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. The new socioeconomic and traffic projections were generally lower than what was previously predicted; nevertheless, FHWA and ADOT concluded that the data still supported the overall study conclusions related to 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. Based on the reevaluation, FHWA and ADOT concluded that the three action alternatives in the Western Section of the Study Area and the one action alternative in the Eastern Section (when combined) and the No-Action Alternative represented a range of reasonable alternatives for further study in the FEIS.

Figure 9 Western and Eastern Section Alternatives, Alternatives Development and Screening Process

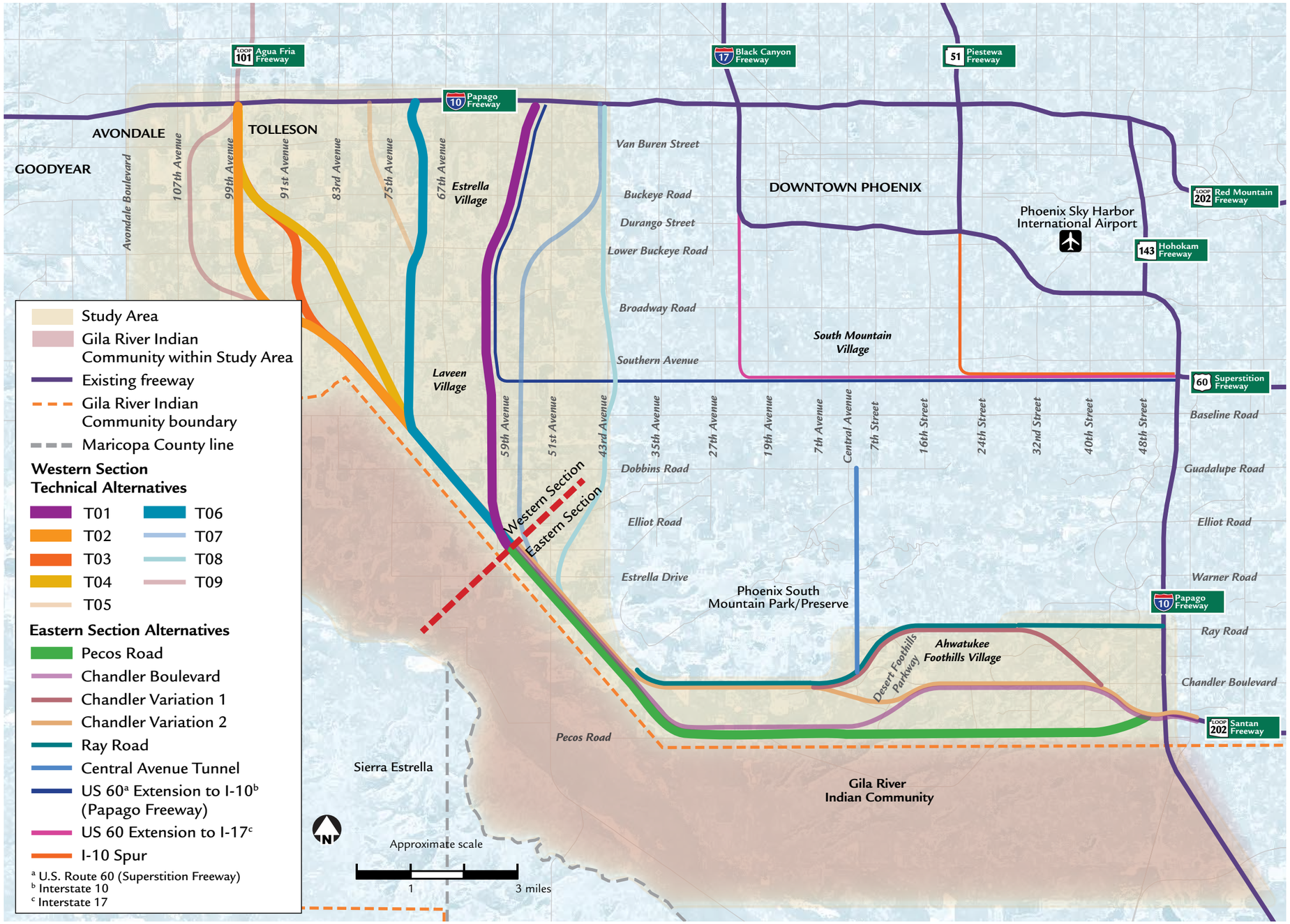


Table 1 Alternatives and Design Options Eliminated from Further Study during the Screening Process (continued)

Alternative/Option	Stage of Process	FEIS[a] Page Reference	Decision	Basis of Decision	Section 4(f) Considerations
Western Section: Technical Alternatives T01, T02, T03, T04, T05, T06, T07, T08, and T09 (see Figure 10)	Technical Alternatives Screening (Second Tier)	3-9	The analysis resulted in agreement to carry forward the W55 Alternative (T01), W71 Alternative (T06), and W101 Alternative and Options (T02, T03, and T04). Technical Alternatives T05, T07, T08, and T09 were eliminated.	Technical Alternatives T05, T07, and T08 were eliminated because they would cause traffic operational failure on I-10 (Papago Freeway) between 83rd Avenue and State Route 101L because of two system traffic interchanges located within 3 miles of each other. Technical Alternative T09 was eliminated because it included undesirable geometry near I-10 (Papago Freeway) and substantial impacts on existing and planned residential and commercial developments in Tolleson and Avondale.	Not applicable
Eastern Section: Pecos Road, Chandler Boulevard and variations, Ray Road, Central Avenue Extension Tunnel, US 60[i] Extension to I-17[j], I-10 Spur (see Figure 11)	Technical Alternatives Screening (Second Tier)	3-12	The analysis resulted in agreement to carry forward the E1 Alternative (Pecos Road). All other Eastern Section alternatives were eliminated.	The Ray Road and Chandler Boulevard alternatives were eliminated because they would result in a substantially more residential displacements and impacts on community character than the Pecos Road alternative. The Central Avenue Extension Tunnel was eliminated because it would not meet purpose and need criteria and was cost-prohibitive. The US 60 Extension and I-10 Spur alternatives would cause undesirable congestion on I-10 and US 60 and would result in over 1,000 residential displacements and severe community character impacts.	Not applicable
Profile and construction options through the South Mountains (Bridge Alternative, Tunnel Alternative, Open Cut Option)	Design Options and Refinements (Third Tier)	3-13	The assessment of options to construct the freeway through the South Mountains resulted in the agreement to carry forward the Open Cut Option. The Bridge and Tunnel Alternatives were eliminated from further study.	Alternatives to build a bridge over the South Mountains were eliminated from further study because of incident management, constructibility, and maintenance issues; future expansion limitations; substantially higher estimated construction costs; and undesirable intrusion-related impacts. Alternatives to build a tunnel under the South Mountains were eliminated based on safety and constructibility issues, undesirable intrusion-related impacts, maintenance issues, and construction cost.	For these same reasons, the Bridge and Tunnel Alternatives were determined to not be prudent and feasible avoidance alternatives for avoiding the South Mountains.
System traffic interchange options for the connection to I-10 (Papago Freeway)	Design Options and Refinements (Third Tier)	3-14	The traffic operational analysis resulted in the agreement to carry forward a single configuration for the W59 and W71 Alternatives and a full and partial reconstruction option for the W101 Alternative (see Figures 3-29, 3-30, and 3-31 in the FEIS).	The assessment of design options included vertical profiles, horizontal alignments, and existing service traffic interchange ramp configurations. The decision was to select the option that resulted in the best traffic operational performance.	Not applicable
W101 Alternative Options (Western, Central, Eastern, and Western 99th Avenue)	Design Options and Refinements (Third Tier)	3-15	The assessment of alignment options for the W101 Alternative resulted in agreement to eliminate the Western 99th Avenue Option. The other three alignment options, Western, Central, and Eastern, were carried forward.	The Western 99th Avenue Option was eliminated because it would result in substantially more business displacements than the other options. These business impacts would also result in higher R/W[k] costs and greater economic impacts on the City of Tolleson.	Not applicable
E1 Alternative, Depressed Freeway Option	Design Options and Refinements (Third Tier)	3-15	The assessment of profile options for the E1 Alternative in the Pecos Road section resulted in agreement to eliminate the depressed profile option and to carry forward the at-grade/elevated profile option.	The depressed profile option was eliminated because it would require additional land for drainage basins, resulting in substantially more residential displacements; would require pump stations, increasing the risk of flooding for the freeway; and would cost substantially more than the at-grade/elevated profile options.	Not applicable
E1 Alternative, Utility Easement Option	Design Options and Refinements (Third Tier)	3-18	The assessment of using an utility easement for the E1 Alternative in the Pecos Road section resulted in agreement to eliminate the option.	The use of the utility easement was eliminated because the power lines could not be relocated underground, thereby eliminating the intended benefit of reducing impacts on Ahwatukee Foothills Village.	Not applicable

(continued on page 12)

Figure 10 Western Section Alternatives Eliminated from Further Study, Alternatives Development and Screening Process

Figure 11 Eastern Section Alternatives Eliminated from Further Study, Alternatives Development and Screening Process

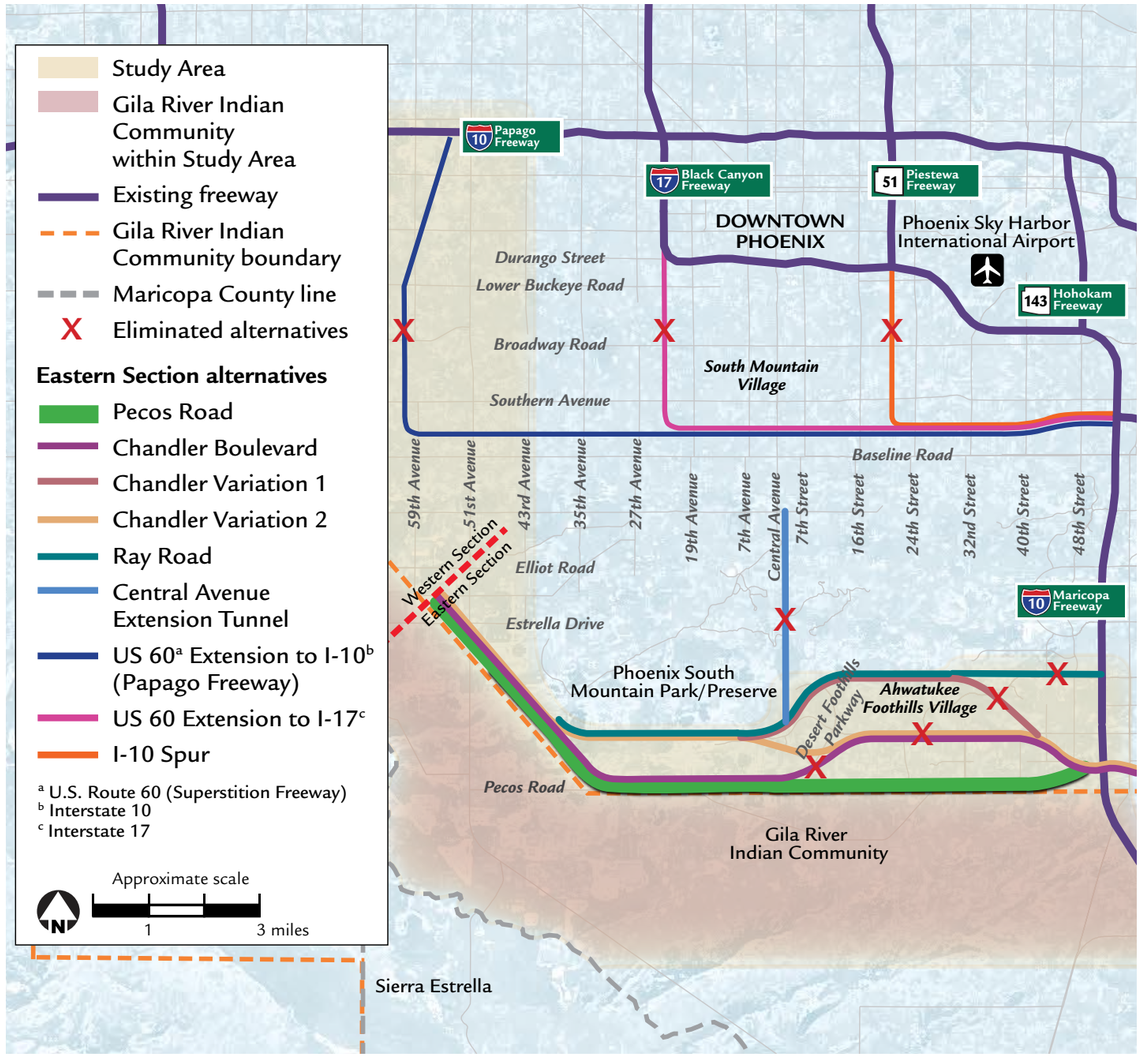
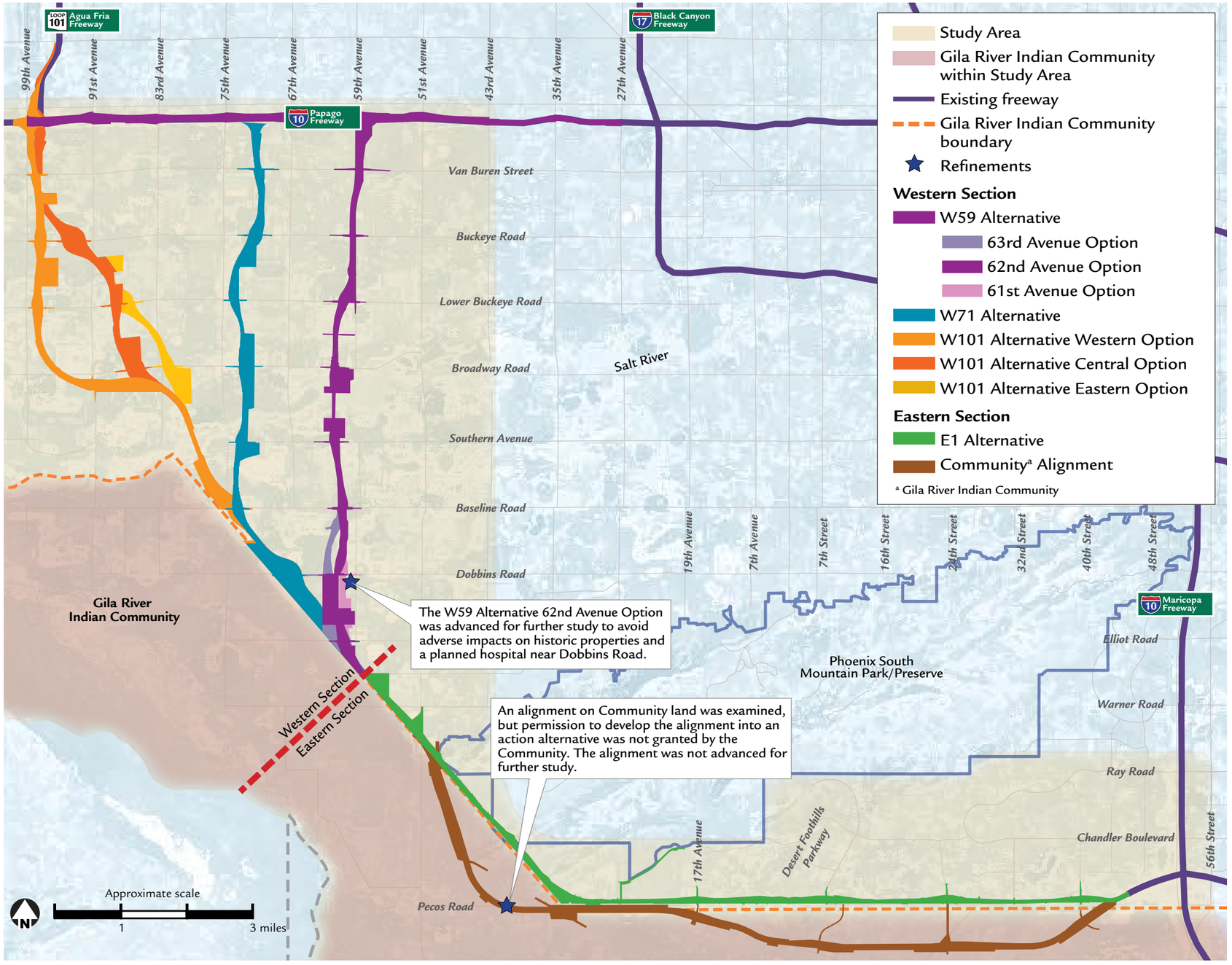


Table 1 Alternatives and Design Options Eliminated from Further Study during the Screening Process (continued)

Alternative/Option	Stage of Process	FEIS[a] Page Reference	Decision	Basis of Decision	Section 4(f) Considerations
Arizona Parkway Option	Design Adjustments (Fourth Tier)	3-19	The assessment of changing the facility from a freeway to a parkway resulted in agreement to eliminate the parkway option.	In the best-case scenario, the capacity of a parkway would be approximately 105,000 vehicles per day, well below the traffic levels projected on the freeway, which would range from 117,000 to 190,000 vehicles per day. As a result, the Arizona Parkway would lack sufficient capacity to meet projected travel demand. It would not adequately address the projected transportation system capacity deficiency and would not remove a sufficient amount of traffic from the arterial street network; therefore, it would not meet the project's stated purpose and need.	Not applicable
Constrained R/W: eight-lane and ten-lane freeway	Design Adjustments (Fourth Tier)	3-19	The assessment of changing the ultimate number of lanes on the freeway from ten to eight resulted in agreement to carry forward the eight-lane freeway and eliminate the ten-lane freeway.	The evaluation of alternatives, including detailed traffic analysis, determined that the eight-lane freeway would meet the purpose and need criteria for the project. The option would also require less R/W, resulting in substantially fewer residential displacements, and would cost less than the ten-lane freeway.	Not applicable
W55 Alternative alignment adjustment (W59 Alternative)	Design Adjustments (Fourth Tier)	3-23	The assessment of changing the alignment of the W55 Alternative north of Lower Buckeye Road resulted in the agreement to shift the alignment to 59th Avenue (W59 Alternative), thereby eliminating the W55 Alternative.	Because the W59 Alternative would connect to I-10 (Papago Freeway) at an existing service traffic interchange, I-10 traffic would be less affected and would have fewer ramp closures, which would be preferable to the greater I-10 operational impacts under the W55 Alternative. Although the W59 Alternative would cost approximately 3 percent more than the W55 Alternative, the project team determined the operational benefits to I-10 to be worth the additional expense.	Not applicable
Community Alignment (see Figure 12)	Alignment Screening and Further Design Adjustments (Fifth Tier)	3-24	The outcome of the Community-coordinated referendum resulted in the agreement to eliminate the Community Alignment.	A coordinated referendum of Community members to favor or oppose construction of the proposed freeway on Community land or to support a no-build option occurred in February 2012, and Community members voted in favor of the no-build option. As a sovereign nation, the Community must grant permission to the State before any alternatives that would cross Community land can be planned and studied in detail.	For these same reasons, the Community Alignment was determined to not be a prudent and feasible avoidance alternative for avoiding the South Mountains.
W59 Alternative Options through Laveen Village	Alignment Screening and Further Design Adjustments (Fifth Tier)	3-25	The assessment of alignment options resulted in agreement to carry forward the 62nd Avenue Option (located between the 63rd Avenue Option and the 61st Avenue Option) and to eliminate the other options.	The 62nd Avenue Option would avoid historic properties in the area and would not conflict with City of Phoenix-approved zoning in Laveen Village.	Not applicable

[a] Final Environmental Impact Statement [b] transportation system management [c] transportation demand management [d] Maricopa Association of Governments [e] Interstate 10 [f] Gila River Indian Community [g] State Route 85 [h] Interstate 8 [i] U.S. Route 60 [j] Interstate 17 [k] right-of-way

Figure 12 Alignment and Design Adjustments, Alternatives Development and Screening Process



Alternatives Eliminated from Further Study in the FEIS

Comments received on the DEIS included proposals for numerous alternatives. FHWA and ADOT considered each proposed alternative and determined that almost all had previously been considered during the alternatives development and screening process described in the DEIS.

An exception was the alternative presented in a letter from Community Governor Mendoza, who suggested an alignment beginning at the U.S. Route 60 (US 60) and I-10 (Maricopa Freeway) system traffic interchange and extending west between Baseline Road and Southern Avenue until turning north at approximately 59th Avenue, following the W59 Alternative from there to its connection with I-10 (Papago Freeway) (see Figure 11). The US 60 Extension to I-10 Alternative, as the suggested alternative was named, would begin at the same location and would serve similar travel demand (trips) as the US 60 Extension to Interstate 17 (I-17) and the I-10 Spur Alternatives; therefore, the traffic analysis of these alternatives sufficiently represents traffic conditions under the US 60 Extension to I-10 Alternative.

As noted in the *Validation of Alternatives Screening Process at FEIS Stage 09-16-14* memorandum (dated September 2014), rather than reduce congestion (as determined by average daily traffic) on the region's freeway system, the US 60 Extension to I-10 Alternative would place a greater amount of traffic on the system, even on routes not directly connected with the alternative. From the analysis, the following observations were noted relating to the alternative's effectiveness in meeting the project's purpose and need:

- would cause substantial traffic performance impacts on I-10 (Maricopa Freeway) between SR 202L (Santan Freeway) and US 60 (Superstition Freeway)
- would increase undesirable congestion on US 60 (Superstition Freeway) and SR 101L (Price Freeway)
- would not address needs based on regional travel demand and existing and projected transportation system capacity deficiencies (would not adequately improve regional mobility by shifting traffic from arterial streets to freeways, would not adequately improve travel times)

In addition to the traffic analysis, social and environmental impacts associated with the US 60 Extension to I-10 Alternative include:

- substantial impacts on existing residences and businesses, including thousands of residential displacements and over 100 business displacements
- substantial disruption to community character and cohesion, splitting South Mountain Village and constructing a barrier between schools, parks, and residences
- inconsistent with local and regional planning efforts, which include a freeway alternative that completes the loop system as part of SR 202L

For the reasons presented above, the US 60 Extension to I-10 Alternative was eliminated from further study and was found to not be a prudent and feasible avoidance alternative for avoiding the South Mountains.

Alternatives Studied in Detail in the DEIS and FEIS

The following text briefly describes the alternatives evaluated in detail in the DEIS and FEIS. These alternatives are discussed in detail in the section, *Alternatives Studied in Detail*, in Chapter 3, *Alternatives*, of the FEIS.

No-Action Alternative

The No-Action Alternative is included in accordance with NEPA requirements to compare beneficial and adverse impacts of the action alternatives with those benefits and adverse impacts of not proceeding with one of the action alternatives. The No-Action Alternative would not construct any type of major transportation facility, such as the extension of SR 202L (Santan Freeway) west of I-10 (Maricopa Freeway); it would, however, include all other projects described in the RTP. Traffic on the existing segment of SR 202L (Santan Freeway), as well as along I-10 (Papago Freeway), would need to use existing Interstate and Regional Freeway and Highway System facilities or the local street network.

FHWA and ADOT, in defining the No-Action Alternative, considered methods by which to frame the alternative, including scenario planning. FHWA and ADOT agree that scenario planning methods have application in some instances; however, in this case, FHWA and ADOT believe that the methods used to describe the No-Action Alternative as presented in the DEIS and FEIS are appropriate. At a basic level, NEPA requires consideration of reasonable alternatives, meaning that the No-Action Alternative should be reasonable as well. It stands then that speculation about what an alternative could be in the future and the conditions surrounding the alternative is not appropriate and that the effects of the No-Action Alternative need to be reasonably foreseeable. Under this premise, the description of the No-Action Alternative is appropriate. As described above, its features include: not extending SR 202L west of I-10 (Maricopa Freeway), assuming all other projects in the RTP are completed, and using population, employment, and housing projections officially approved by MAG.

Further justification of description of the No-Action Alternative includes:

- At certain points in the Phoenix metropolitan area's history, growth rates prior to planning for the region's freeway system exceeded growth rates after planning for and construction of the regional freeway system began. FEIS Chapter 1, *Purpose and Need*, and the sections, *Land Use* and *Economic Impacts*, in Chapter 4, establish cost of living, livability, mild climate, technological advancement (affordable air conditioning), employment opportunities, a development-oriented regulatory environment, and key location for industry as primary growth drivers in the Phoenix metropolitan area. Therefore, transportation is not the sole driver of growth.
- As established in the FEIS, "pre-freeway" land use planning mimics "post-freeway" land use planning. In 1979, the *Phoenix Concept Plan 2000* was

adopted by the City of Phoenix. The plan called for 25 Phoenix urban villages. Of those, it established 9 villages with instructions for village planning committees to prepare 25-year concept plans. The Laveen and Estrella Villages were included in the list of 25 suggested villages, although they were not among the 9 villages adopted in the initial plan. However, the intent was that Laveen and Estrella Villages would be developed at a later point in time. The freeway system considered in the plan included only I-10, I-17, and US 60—it did not include the regional freeway system.

The *Phoenix Concept Plan 2000* was replaced by the *Phoenix General Plan, 1985–2000* (see Appendix D for both documents). The resolution adopting the *General Plan* directed the village planning committees to continue in the City of Phoenix's planning process. The resolution included Laveen and Estrella as villages. Planning for the Laveen and Estrella Villages was completed around the same time as the initial planning for the regional freeway system, including the South Mountain Freeway. Therefore, the land use planning and transportation planning were conducted in parallel, not with one effort depending on the other.

To conclude that land use patterns would look different than they do today is not consistent with past planning patterns. It is more reasonable to argue that the City of Phoenix would have continued to plan for the urban village core concept as has been envisioned since the late 1970s.

FHWA and ADOT determined that scenario planning would be speculative for the following reasons:

- Factors affecting growth vary (see above), and to assume only transportation as a growth driver would be speculative.
- Continuation of "pre-freeway" historical land use planning patterns is reasonable to expect. The section, *Land Use*, in Chapter 4 of the FEIS documents the growth scenario under the No-Action Alternative and notes that the area would develop in a similar fashion with or without the project. This is supported by:
  - The Study Area already has good connecting transportation infrastructure (although congested) to support continued development without the freeway. It is also close to downtown Phoenix. Existing infrastructure plus location would result in growth without the freeway as described in the *Purpose and Need* chapter of the FEIS. The freeway is not opening up the area to development because existing roads (for example, Pecos Road, Baseline Road, and 51st Avenue) provide access.
  - To date, approximately 67 percent of the land in the Study Area has already been developed in accordance with the City of Phoenix's *General Plan* and zoning ordinance. It is assumed that such development would not be torn down and land uses redistributed if the freeway were not built.
  - As documented in the section, *Land Use*, in Chapter 4 of the FEIS, agricultural (22 percent) and open space (11 percent) land uses in the Study Area represent only 33 percent of land area (it should be noted the 11 percent of open space is mostly not developable because of topographic challenges and floodplain constraints), while the remainder of the area is in some form of "built" land use. Distribution of zoning further supports the conclusion—12 percent of the Study Area is zoned for agricultural and open space uses while 88 percent is zoned for other more intensive land uses.
  - Factors contributing to historical and projected growth are well-documented in the FEIS in Chapter 1, *Purpose and Need*, and in the sections, *Land Use* and *Economic Impacts*, in Chapter 4. The freeway will be built in an area planned for urban growth as established in local jurisdictions' land use planning activities for at least the last 25 years (see the section, *Induced Growth*, beginning on page 4-182 of the FEIS).
  - The sections, *Induced Travel* and *Induced Growth*, beginning on pages 4-179 and 4-182, respectively, of the FEIS, establish that the freeway would contribute to minimal induced travel demand (which has, to a large degree, been accounted for in the MAG model).
  - Section 93.110 of the U.S. Environmental Protection Agency's (EPA's) conformity rule requires that population and employment projections (which establish growth rates and distribution) used in a conformity analysis be the most recent estimates that have been officially approved by MAG (as the metropolitan planning organization for the Maricopa County nonattainment and maintenance areas). In accordance with the Governor's Executive Order 2011-04, county-level population projections used for all State agency planning purposes were updated by the Arizona Department of Administration in December 2012, based on the 2010 U.S. Census. To use projections other than the approved demographic trends would be inconsistent with the projections required for use in the transportation conformity assessment.

Even if one could argue the only reason the development has occurred as it has is because of the planned freeway (which is not the case—see above) for the last 30 years (in other words, if the freeway had not been planned, development would somehow have been different), the argument is irrelevant. Existing development is now there and, therefore, it is reasonable to assume that the land use distribution and related development will be there in the future.

The analysis documented in the FEIS leads to the conclusion that the No-Action Alternative and action alternative land uses would be similar, and thus no "scenario planning" is required. Scenario planning could have application if the area was not developed, but the manner in which the No-Action Alternative was determined and presented in the FEIS is "state-of-the-practice." Defining the No-Action Alternative as including all projected socioeconomic growth and planned transportation projects in the RTP except the proposed action is common practice. The No-Action

Alternative as defined in the FEIS is appropriate. It satisfies reasonableness, withstands a hard look, and was fully disclosed.

Consequently, the depiction of the severity of impacts caused by the No-Action Alternative is appropriate and correctly represented throughout the DEIS and FEIS. In defining the transportation problem in Chapter 1, *Purpose and Need*, of the DEIS and FEIS, the analysis illustrates the severity of the breakdown in the transportation network if no action were taken in the area. This is further supported by the impact analyses presented throughout Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, of the DEIS and FEIS. To summarize, durations and physical lengths of congestion would worsen, travel times would become longer over the same distances, congestion would continue to spill over into the arterial street network, and the monetary costs to the State and its residents would increase. Specifically, the No-Action Alternative would not meet the purpose and need because it would not alleviate congestion on the Interstate and regional freeway systems or on the arterial street network by the design year 2035. It would instead lead to worsening traffic congestion and substantial related impacts, resulting in:

- increased difficulty in gaining access to adjacent land uses
- increased difficulty in gaining access to the Interstate and regional freeway systems from the local arterial street network
- increased levels of congestion-related impacts
- reduced performance of regional freeway-dependent transit services
- noticeably longer trip times and higher user costs

Action Alternatives

Western Section Action Alternatives

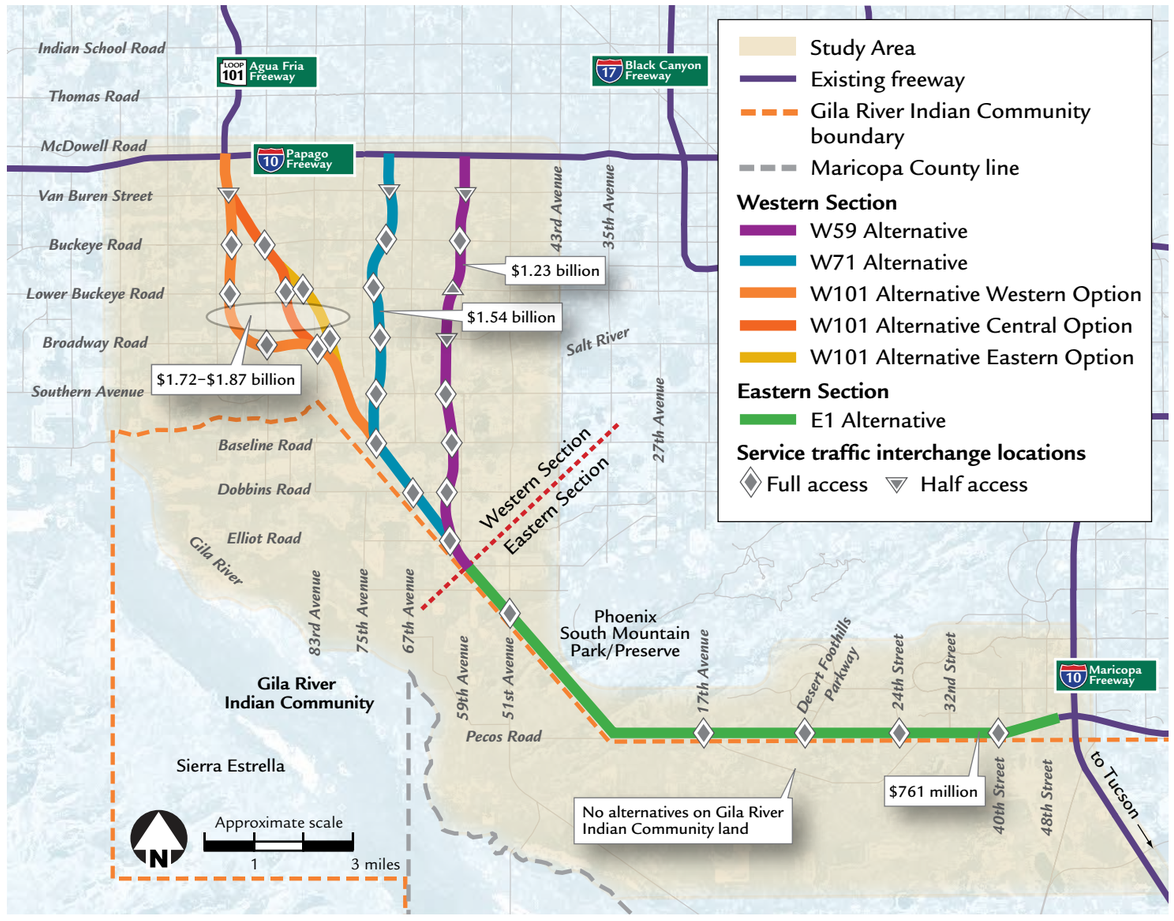
In the Western Section of the Study Area, alignment descriptions for the action alternatives begin at their western terminus with I-10 (Papago Freeway) and proceed east to the common point among all action alternatives (see Figure 13).

W59 Alternative

The W59 Alternative would connect to I-10 (Papago Freeway) with a system traffic interchange, which would replace the existing service traffic interchange at 59th Avenue and would convert the existing 59th Avenue to two-lane northbound and southbound frontage roads approximately between Van Buren Street and the Roosevelt Irrigation District canal. From I-10 (Papago Freeway), the W59 Alternative would proceed south along the eastern side of 59th Avenue, crossing Roosevelt and Van Buren streets, then shift to the western side, crossing the Union Pacific Railroad (UPRR) tracks and Buckeye Road before making a slight western shift approximately ⅓ mile north of Lower Buckeye Road.

The W59 Alternative would then travel south, crossing Lower Buckeye Road, Broadway Road, the Salt River, and Southern Avenue before making a slight shift to the east. The alternative would continue south, approximately ¼ mile west of 59th Avenue, and would

Figure 13 Action Alternatives



cross Baseline and Dobbins roads. It would continue south and then make a curve transition from the southern to the southeastern direction to cross Elliot Road and connect with the El Alternative at the point common to all action alternatives on an alignment parallel and adjacent to the Community boundary.

W71 Alternative

The W71 Alternative would proceed from a new system traffic interchange with I-10 (Papago Freeway) at 71st Avenue to the south-southeast, crossing Roosevelt Street, Van Buren Street, and the UPRR tracks before turning to the southwest, crossing Buckeye Road at approximately 71st Avenue. In its southwestern direction, the W71 Alternative would curve around the western side of Santa Maria Middle School, crossing Lower Buckeye Road approximately ¼ mile east of 75th Avenue. South of Lower Buckeye Road, the W71 Alternative would continue to the south, crossing Broadway Road, the Salt River, and Southern Avenue. Just north of Baseline Road, the W71 Alternative would begin the curve transition to the southeastern direction and would cross Baseline Road, the Laveen Area Conveyance Channel, Dobbins Road, and Elliot Road on an alignment parallel and adjacent to the Community boundary. The W71 Alternative would connect with the E1 Alternative at the point common to all action alternatives.

W101 Alternative and its Options

The W101 Alternative would proceed from a new system traffic interchange with I-10 (Papago Freeway) and SR 101L (Agua Fria Freeway) in a southerly direction across Roosevelt Street, Van Buren Street, and the UPRR tracks. At this point, the W101 Alternative has three alignment options heading in a southerly direction across Buckeye, Lower Buckeye, and Broadway roads before returning to a common alignment to the north of Southern Avenue.

After crossing 91st Avenue just south of Broadway Road, the W101 Alternative would head southeasterly to cross the Salt River, Baseline Road, the Laveen Area Conveyance Channel, Dobbins Road, and Elliot Road on an alignment parallel and adjacent to the Community boundary. The W101 Alternative would connect to the E1 Alternative at the point common to all action alternatives.

Eastern Section Action Alternative

E1 Alternative

At the point common to all action alternatives, the E1 Alternative would travel to the southeast parallel and adjacent to the Community boundary, crossing over Estrella Drive, 51st Avenue, and Ivanhoe Street. In this direction, the action alternative would pass through three ridges of the South Mountains (two of which are in Phoenix South Mountain Park/Preserve [SMPP]) before turning to the east. Traveling to the east, the E1 Alternative would follow and replace the Pecos Road alignment north of and adjacent to the Community boundary and would cross over 17th Avenue, Desert Foothills Parkway, 24th Street, 32nd Street, and 40th Street. The E1 Alternative would then connect to the existing I-10 (Maricopa Freeway)/SR 202L (Santan Freeway)/Pecos Road system traffic interchange.

Ability of Alternatives to Meet the Project Purpose and Need

The comparison of traffic operational characteristics between the action alternatives (the W59, W71, and W101 Alternatives combined with the E1 Alternative) and the No-Action Alternative is presented in the FEIS, beginning on page 3-27. The analysis shows that the action alternatives are responsive to the project's purpose and need and will:

- reduce overall traffic on the arterial street system (see FEIS Figures 3-12 and 3-13)
- optimize travel on the region's freeway system (see FEIS Figure 3-12)
- reduce the capacity deficiency to levels better than experienced today (see FEIS Figures 1-12 and 3-14)
- reduce the duration of LOS E or F conditions in key areas of the region's freeway system (see FEIS Figure 3-15)
- improve travel times on trips within the Study Area and across the region (see FEIS Figure 3-17 and Table 3-8)
- provide improved regional mobility for areas projected to experience growth in the next 25 years (see FEIS Figures 1-7 and 3-18)

When all of this is considered in the realm of travel time savings for motorists in the region, the user benefits total approximately $200 million per year (see FEIS Table 4-27).

Rationale for Decision

The EIS process, as defined by NEPA, requires an evaluation of a range of reasonable alternatives that would meet a project's purpose and need. A more complete comparison of the impacts of the alternatives is presented in Table 2. The elements identified as differentiators and used in the decision-making process are summarized in the following discussion.

The analyses documented in the FEIS demonstrate that of the range of alternatives considered (the W59, W71, and W101 Alternatives combined with the E1 Alternative), when comparing action alternatives in the Western Section, the W71 Alternative was considered the least desirable of the three action alternatives because:

- The duration and extent of congested conditions on I-10 would be the least desirable of the alternatives considered.
- Residential impacts and relocations would be high (up to 839 properties affected).
- Regional and public support is lacking.
- The alternative is not consistent with local land use plans dating back to the mid-1980s.

When the W59 and W101 Alternatives were compared, it was determined that both alternatives would have the following advantages and disadvantages in meeting the project's purpose and need.

Table 2 Environmental Factors Accounted for in the Decision

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Land Use					
Agricultural converted to Transportation (estimated acreage)	No immediate conversion would occur, other than what could occur from other planned transportation projects. Because of planned development, it is likely that land uses would be converted to transportation-related urban uses.	708	650	836–969[a]	Of the action alternatives, the W101/E1 Alternative and Options would have the greatest impact. Loss of agricultural land attributable to any action alternative would be negligible relative to the amount of land in the region and to other land development trends that are contributing to the loss of agricultural land.
Residential converted to Transportation (estimated acreage)	No immediate conversion would occur, other than what could occur from other planned transportation projects. Because of planned development, it is likely that land uses would be converted to transportation-related urban uses.	164	395	282–348	The W71/E1 Alternative and Options would result in the greatest conversion of residential to transportation, followed by the W101/E1 Alternative, and then the W59/E1 Alternative. Conversion of residential land caused by any action alternative would have a negligible effect on residential land availability relative to the amount of land in the region designated for residential use.
Commercial/Industrial converted to Transportation (estimated acreage)	No immediate conversion would occur, other than what could occur from other planned transportation projects. Because of planned development, it is likely that land uses would be converted to transportation-related urban uses.	177	220	186–218	The W71/E1 Alternative would result in the greatest acreage conversion of commercial/industrial use. Conversion of commercial/industrial land caused by any action alternative would have a negligible effect on commercial/industrial land use availability relative to the amount of land in the region designated for such use.
Open Space/Undeveloped converted to Transportation (estimated acreage)	Planned development will inevitably cause rural-to-urban land conversion, but no immediate conversions would occur other than from other planned transportation projects.	712	617	630–711	The W59/E1 Alternative would convert the most open space/undeveloped land of all the action alternatives. Loss of open space/undeveloped land attributable to any action alternative would be negligible relative to other land development trends that are contributing to the loss of open space/undeveloped land.
Public/Quasi-public converted to Transportation (estimated acreage)	No immediate conversion would occur, other than what could occur from other planned transportation projects.	13	17	20	Any of the action alternatives would have a negligible effect on the availability of public/quasi-public land in the region.
Total land use conversion (estimated acreage)	No immediate conversion would occur, other than what could occur from other planned transportation projects.	1,813	1,938	2,161–2,191	The W101/E1 Alternative and Options would result in the greatest impact of any of the action alternatives. Land conversion attributable to any action alternative would be negligible relative to the amount of land in the region and to other land development trends that are contributing to land conversion.

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Social Conditions					
Consistent with local and regional plans (provide a freeway in the Study Area in a planned corridor meeting goals and objectives of the long-range plans)	This alternative would not be consistent with the intent of the local and regional plans to provide a freeway in the Study Area and to promote growth along the corridor.	Yes	Yes, but inconsistent in location.		The W71/E1 and W101/E1 Alternatives would be consistent with local and regional plans, but not in location. The W59/E1 Alternative is most consistent with local and regional plans.
Community character and cohesion	No immediate substantial impacts on community character and cohesion; planned development within communities would have an effect.	Visual and noise intrusions to existing neighborhoods in Laveen and Estrella villages. The freeway would bisect developed properties and disrupt cohesion and existing internal site circulation. Visual and noise intrusions would affect rural, natural areas and recreational areas adjacent to the E1 Alternative.		Visual and noise intrusions to rural and industrial areas in western Estrella Village and in Tolleson. Options would interrupt the cohesion both of dairy operations and farmsteads. Visual and noise intrusions would affect rural, natural areas and recreational areas adjacent to the E1 Alternative.	The action alternatives would introduce an intensive land use adjacent to less-intensive, less-compatible uses in some areas. The impact of any action alternative would intensify as community character would transition from agricultural to residential, as has been ongoing and planned for several years. To reduce community intrusions caused by the action alternatives and to reduce impacts on the character of surrounding communities, the Arizona Department of Transportation will implement mitigation such as reducing the amount of right-of-way required, providing alternative access to the local road network to satisfy emergency services access requirements, and using noise barriers, aesthetic treatments of structures, and landscaping.
Environmental Justice and Title VI[b]					
Effects on minority, low-income, female head-of-household, elderly, and disabled populations	As congestion on surface streets increases, all neighborhoods would be affected equally. Travel times for local buses would increase, affecting low-income and minority populations. The No-Action Alternative would result in no property acquisitions and no household relocations. Therefore, environmental justice populations would not be affected by right-of-way acquisitions.	Minority, elderly, female head-of-household, low-income, and disabled populations would be adversely affected by the proposed action; however, no disproportionately high adverse effects on these populations would occur.	Minority, elderly, female head-of-household, and disabled populations would be adversely affected by the proposed action; however, no disproportionately high adverse effects on these populations would occur.		All action alternatives would adversely affect protected populations, but impacts would not be disproportionately high after comparing projected impacts or benefits with those experienced by all populations in the Study Area. Even if one were to reach a contrary conclusion and determine that disproportionately high and adverse effects will occur as a result of the freeway, there is substantial justification for the 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*, of the Final Environmental Impact Statement). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, *Section 4(f) Evaluation*, of the Final Environmental Impact Statement. Mitigation measures presented in Table 3 on page 38 would result in reduction, minimization, and avoidance of impacts as well as overall benefits to all populations in the Study Area (see SOC-6, DIS-1, DIS-2, DIS-3, NOI-1, CUL-1, CUL-4, CUL-5, CUL-6, S4F-13, S4F-15, S4F-16, S4F-17, and S4F-18).

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Impacts on minority populations protected by Title VI	Not applicable	Minority populations protected by Title VI would be adversely affected by the proposed action; however, no disparate impacts on these populations would occur.	Minority populations protected by Title VI would be adversely affected by the proposed action; however, no disparate impacts on these populations would occur.		All action alternatives would adversely affect minority populations protected by Title VI; however, no disparate impacts on these populations would occur after comparing projected impacts or benefits with those experienced by all populations in the Study Area. Even if one were to reach a contrary conclusion and determine that disparate adverse impacts will occur as a result of the Selected Alternative, there is substantial justification for the 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*, of the Final Environmental Impact Statement). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, *Section 4(f) Evaluation*, of the Final Environmental Impact Statement. Mitigation measures presented in Table 3 on page 38 would result in reduction, minimization, and avoidance of impacts as well as overall benefits to all populations in the Study Area (see SOC-6, DIS-1, DIS-2, DIS-3, NOI-1, CUL-1, CUL-4, CUL-5, CUL-6, S4F-13, S4F-15, S4F-16, S4F-17, and S4F-18).
Displacements and Relocations					
Residential displacements (as of 2013, approximate number)	0	168 houses 680 apartments	960 houses 0 apartments	1,061–1,439 houses 0 apartments	The W59/E1 Alternative would displace fewer residential properties than would the W71/E1 or W101/E1 Alternative, in part because local jurisdictions have planned for the proposed action along an alignment on 55th Avenue (most similar to the W59 Alternative) and among the commercial and industrial development along the W59 Alternative. The displacement projections are consistent with a project of this magnitude located in a growing region. Land acquisition and relocation assistance services for the project shall be available to all individuals in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
Business displacements (approximate number)	0	42	26	14–30	The W59/E1 Alternative would displace more businesses than would the W71/E1 Alternative or the W101/E1 Alternative and Options. The displacement projections are consistent with a project of this magnitude located in a growing region. Land acquisition and relocation assistance services for the project shall be available to all businesses in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
Effects on homeland security	No impacts on security-sensitive sites would occur.	The W59/E1 Alternative would be near a fuel tank farm.	No impacts on security-sensitive sites would occur.	No impacts on security-sensitive sites would occur.	While the W59/E1 Alternative would be located near the fuel tank farm, the Arizona Office of Homeland Security and the City of Phoenix have concurred that the W59/E1 Alternative and the fuel tank farm could coexist (an earlier version of the alternative was located closer to the tank farm).
Economic Resources					
Existing taxable land base conversion to nontaxable use (estimated acreage)	0	1,609	1,748	1,934–1,965	The W101/E1 Alternative and Options would convert the most taxable land base of any action alternative, primarily because the alternative and its options are the longest alignments considered. The conversion would be consistent with other projects of this magnitude.

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Estimated annual loss of tax revenues for existing land uses in Phoenix (property and sales tax/ general fund)	No immediate reduction would occur. Continued planned development within the Study Area and future transportation projects would affect property and sales tax/general fund revenues in the area.	$4,576,900	$5,594,900	as much as $2,286,900–$3,567,100	The Cities of Avondale, Phoenix, and Tolleson would experience reductions in sales and property tax revenues (Avondale and Tolleson would not be directly affected by the W59/E1 or W71/E1 Alternative). For Phoenix and Avondale, reductions would be inconsequential, regardless of which action alternative were implemented. However, under the W101/E1 Alternative and Options, tax revenue losses for Tolleson would be substantial; the City would experience a 20 to 24 percent annual reduction.
Estimated annual loss of tax revenues for existing land uses in Tolleson (property and sales tax/ general fund)		No effect on Tolleson property and sales tax/ general fund revenues would occur.		as much as $3,632,500–$4,114,800	
Estimated annual loss of tax revenues for existing land uses in Avondale (property and sales tax/ general fund)		No effect on Avondale property and sales tax/ general fund revenues would occur.		as much as $387,600	
Travel time (impacts in $/year)	No savings would result under this alternative.	Any of the action alternatives would result in over $200 million (in 2013 dollars) per year savings after construction of the entire facility.			
Air Quality					
Failure to meet CO[c] 8-hour and 1-hour standards	Congestion on the local arterial street network and regional freeway system would increase, leading to increased travel times and increased CO emissions.	All action alternatives would increase 1-hour and 8-hour CO concentrations near the proposed action; however, these increases would not cause exceedances of the health-based National Ambient Air Quality Standards in 2035. The action alternatives are anticipated to reduce congestion and travel times within the region, resulting in reduced regional CO emissions.			
Failure to meet particulate matter standards (PM_{10} and $PM_{2.5}$)[d]	Increased traffic congestion on the transportation network would lead to increased travel times and increased PM_{10} and $PM_{2.5}$ emissions.	All action alternatives would result in short-term increases in PM_{10} and $PM_{2.5}$ concentrations during construction. All action alternatives would increase particulate emissions near the proposed action; however, these increases would not cause exceedances of the health-based National Ambient Air Quality Standards in 2035. The action alternatives are anticipated to reduce congestion and travel times within the region, resulting in reduced regional PM_{10} and $PM_{2.5}$ emissions.			
MSATs[e]	MSAT levels would decline from existing levels because of compliance with strategies identified by the U.S. Environmental Protection Agency's national control programs.	For all action alternatives, increased traffic volumes would produce elevated MSATs emissions near the proposed action. The action alternatives would reduce congestion and improve regional traffic conditions, which would reduce regional MSATs emissions. Additionally, overall MSATs levels would decline from existing levels because of compliance with strategies identified by the U.S. Environmental Protection Agency's national control programs.			
Transportation conformity	Not consistent with the *Regional Transportation Plan* and Transportation Improvement Program.	The action alternatives would be consistent with the *Regional Transportation Plan* and Transportation Improvement Program because they would provide a planned transportation facility needed to improve traffic in the Phoenix metropolitan area.			
Noise					
Number of receivers (e.g., groups of residences) eligible for noise mitigation	Activities associated with planned development would affect noise levels but would not be mitigated by the proposed action.	114	109	53–68	Any of the action alternatives would introduce traffic noise where it currently does not exist or produce it at higher levels than now experienced. The W59/E1 and W71/ E1 Alternatives would affect the greatest number of noise receivers. With the placement of noise barriers in selected locations along the action alternatives, freeway noise would be reduced to levels that would meet Arizona Department of Transportation policy and Federal Highway Administration regulations for abatement where possible.

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Water Resources					
Loss of water resources (wells potentially affected)	0	121	57	57–75	The W59/E1 Alternative would affect the most groundwater wells. The number of wells potentially affected is consistent with a project of the magnitude of the proposed action. The well replacement program as outlined by State law is followed by the Arizona Department of Transportation on its projects throughout the region.
Floodplains					
Conversion of floodplains (estimated total acreage)	The No-Action Alternative would have no impact on floodplains. Any future projects to provide access across the Salt River would have potential floodplain impacts.	94	127	48–52	The W71/E1 Alternative would have a substantially greater impact on floodplain acreage than would either the W59/E1 Alternative or W101/E1 Alternative and Options. However, regardless of action alternative, the impact on the overall natural and beneficial values of the floodplain would be effectively mitigated through an elevated crossing (on piers) of the floodplain, using appropriate bridge design.
Waters of the United States					
Loss of jurisdictional waters (estimated acreage	0	In the Western Section, the W59 (Selected) 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 (Selected) Alternative would cross several jurisdictional waters. The E1 Alternative is anticipated to permanently affect between 1 and 2 total acres of jurisdictional waters (ephemeral washes), including potential disturbances of greater than 0.5 acre at individual wash crossings that may require an individual permit; Clean Water Act permitting would be determined during the project design phase.			
Topography, Geology, and Soils					
Change to topography, geology, and soil conditions	No direct effects.	In the Western Section, shallow groundwater conditions might influence both the design and method of construction of bridge foundations. In the Eastern Section, bedrock units would likely be encountered, resulting in difficult excavation conditions in cut sections that would require blasting to facilitate removal. Appropriate design, as commonly applied to projects of the size and features of the proposed action, would mitigate any geotechnical-related construction effects.			
Biological Resources					
Loss of habitat	No direct effects.	All action alternatives would result in the conversion of cover, nesting areas, and food resources for wildlife habitat provided by the natural plant communities found in the Study Area. Much of the land through which the proposed action would pass has already been converted to urban, agricultural, and transportation uses (see Secondary and Cumulative section in this table).			
Loss of wildlife of special concern	No direct effects.	The action alternatives in the Western Section may affect foraging behavior along the Salt River of individuals of the Sonoran Desert population of bald eagles that have nested west of the Study Area, but there would be no take of bald or golden eagles under the Bald and Golden Eagle Protection Act.			
Effects on threatened and endangered species	No direct effects.	In the Eastern Section, the action alternatives may affect the Sonoran desert tortoise.	The yellow-billed cuckoo was listed as threatened and critical habitat has been proposed near the W101 Alternative. In the Eastern Section, the action alternatives may affect the Sonoran desert tortoise.	The project will not affect any currently listed threatened or endangered species. The Sonoran desert tortoise is a candidate species and is currently being reviewed for listing under the Endangered Species Act, but it is not listed at this time. In the Eastern Section, the action alternatives may affect the Sonoran desert tortoise. Direct effects could include mortality from equipment and activities during construction and by vehicle traffic after completion. Individuals may be displaced by construction activities and the removal of food sources and cover habitat. Indirect effects could include the degradation of habitat caused by the introduction of invasive species.

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Loss of habitat connectivity	The No-Action Alternative would have no immediate effect. Planned and existing development could eventually cause impacts.	Some wildlife movement in the Western Section might be restricted because of the barrier that would be created. Wildlife movement has already been substantially affected by ongoing development. In the Eastern Section, the action alternatives would create a physical barrier that could, depending on design, decrease movement of wildlife to and from the South Mountains and Sierra Estrella. In response, multifunctional crossing locations have been identified to provide potential movement corridors under the freeway.			
Cultural Resources					
Archaeological sites (NRHP[f]-eligible sites affected)	0	16	12	10–11	All action alternatives would affect large prehistoric village sites. The extent of these impacts would be determined by subsequent testing. Therefore, it appears that all action alternatives have similar potential for affecting archaeological resources. Impacts would be effectively mitigated through use of strategies outlined in the Section 106 Programmatic Agreement and the commitments in Table 3.
Historic sites (NRHP-eligible sites affected)	0	The W59/E1 and W71/E1 Alternatives would cross the Roosevelt Canal and historic Southern Pacific Railroad, but neither would affect the eligibility of the sites. The W101/E1 Alternative would also cross the railroad with similar outcomes. Impacts to the canal and railroad would be mitigated through the use of bridges to span the resources. All of the action alternatives would affect Phoenix South Mountain Park/Preserve.			
TCPs[g] (NRHP-eligible sites affected)	0	All of the action alternatives would affect the South Mountains TCP.			
Prime and Unique Farmlands					
Conversion of prime and unique farmlands (estimated acreage)	No immediate loss would occur, but because of planned development, loss of farmland to urban uses would occur.	723	636	870–923	The W101/E1 Alternative and Options would have the greatest prime and unique farmlands impacts, followed by the W59/E1 Alternative, and then the W71/E1 Alternative. Placed in context, the impacts on prime and unique farmland from implementation of the proposed action, regardless of action alternative, would be negligible. Further, farmland impacts among action alternatives in the Western Section would be inconsequential in differentiating among the action alternatives.
Hazardous Materials					
Disturbance of hazardous materials (number of high-priority sites)	0	5	4	1	The W59/E1 Alternative would potentially interact with the greatest number of hazardous materials sites. Implementation of the W101/E1 Alternative and Options would involve one high-priority site. Appropriate design, as commonly applied to projects of the size and features of the proposed action, would effectively mitigate hazardous materials-related effects.
Visual Resources					
Alteration of visual resources	No immediate impacts would occur; planned development would result in the ultimate appearance of urban use.	Impacts on views from residential and rural uses would include construction impacts, new traffic interchanges, and visibility of the new facility. Impacts would not change the low-to-moderate visual quality of views along the W101/E1 and W59/E1 Alternatives. The W71/E1 Alternative would have a higher level of visual sensitivity because of more planned residential development than the other action alternatives; this would create a slightly greater magnitude of impacts. Visual impacts from severe road cuts through ridgelines of the South Mountains would alter views of the natural setting.			All action alternatives would introduce a substantial human-made feature into the environment. The W71/E1 Alternative would create a slightly greater magnitude of impacts, followed by the W59/E1 and W101/E1 Alternatives. Measures to minimize the effects of altering the views include using slope treatments, rock sculpting, native vegetation landscaping and buffering, and native vegetation transplanting to blend the appearance of the freeway and slope cuts with the surrounding natural environment, as feasible.
Energy					
Regional energy consumption in 2035 (millions of gallons/year)	2,874	2,848	2,853	2,850	Fuel consumption would vary because of differences in vehicle miles traveled, vehicle mix, and fuel economies. The action alternatives would provide benefits compared with the No-Action Alternative.

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Table 2 Environmental Factors Accounted for in the Decision (continued)

Type of Impact	No-Action Alternative	Action Alternatives			
		W59 Alternative + E1 Alternative (Selected Alternative)	W71 Alternative + E1 Alternative	W101 Alternative and Options + E1 Alternative	Context and Intensity of Impacts for all Action Alternatives
Temporary Construction					
Temporary construction impacts	No impacts would occur.	Temporary negative effects on air quality, noise levels, water resources, residential and business access, pedestrian and vehicular traffic, and utilities would be comparable among action alternatives. Measures to minimize temporary construction impacts will be implemented. For example, to reduce the amount of construction dust generated, particulate control measures related to construction activities will be followed. To reduce noise impacts, equipment will be regularly maintained, construction-related noise generators will be shielded from noise receivers, and hours of operation will be evaluated to minimize disruptions.			
Material Sources and Waste Materials					
Estimated deficit (amount of fill material needed, in millions of cubic yards)	No materials would be required.	10.00	6.45	7.20–10.20	The W71/E1 Alternative would have the smallest deficit, while the W101/E1 Alternative Eastern Option would have the largest deficit. These amounts are not considered excessive for a project of this size.
Secondary and Cumulative					
Secondary impacts	Growth in traffic, population, and related effects would occur with or without the proposed action, resulting in increased congestion. The action alternatives would also result in secondary impacts on biological resources, water resources, air quality, cultural resources, land uses, community character, and economic conditions.				
Cumulative impacts	All alternatives would occur in an already urbanizing area (most noticeably in the Western Section of the Study Area), an area planned for urban growth as established in local jurisdictions' land use planning activities for as many as the last 25 years. The purpose of the proposed action is not to promote economic development but to respond to a growing need for additional transportation capacity as a result of regional growth occurring now and as projected. Therefore, the action alternatives are not expected to contribute to induced growth in the region. For the action alternatives, the minimal contribution to overall traffic use is expected to have both positive and negative consequences. Cumulative impacts may occur on biological resources, water resources, cultural resources, land uses, visual resources, recreational land, noise, and air quality.				
Section 4(f) Resources					
Section 4(f) resources affected	No use of Section 4(f) resources would occur.	All action alternatives would result in the direct use of Section 4(f) resources in the South Mountains. There is no feasible and prudent alternative that avoids use of the South Mountains.			

[a] W101/E1 Alternative includes ranges because of design and alignment options. [b] Title VI of the Civil Rights Act of 1964 [c] carbon monoxide [d] PM_{10} – coarse particulate matter, $PM_{2.5}$ – fine particulate matter [e] mobile source air toxics [f] National Register of Historic Places [g] traditional cultural properties

Overall Transportation Needs

- The W59 Alternative will better link the southern areas of the region with the central metropolitan area and will provide an alternative route to I-10 for regional connectivity.
- The W59 Alternative will be more consistent with local and regional transportation plans, including the RTP.
- Northbound and southbound motorists using the W101 Alternative would have a direct connection to SR 101L (Agua Fria Freeway) and would not have to travel on I-10 (Papago Freeway). This would complete a true loop around the Phoenix metropolitan area.
- The W101 Alternative would need additional widening improvements to SR 101L (Agua Fria Freeway).
- The W59 Alternative will need additional widening improvements to I-10 (Papago Freeway).

Consistency with Regional and Long-range Planning Goals

- The W59 Alternative will result in less land being converted to freeway use, thereby optimizing opportunities for planned development.
- Since the mid-1980s, City of Phoenix land use planning has progressed in recognition of the planned location of the proposed freeway near the W59 Alternative. Related land use planning for the Phoenix Villages of Estrella and Laveen has been consistent with the City's long-range land use planning.
- The location of the Salt River crossing of the W59 Alternative will be consistent with the Rio Salado Oeste joint use project planned by the City of Phoenix, U.S. Army Corps of Engineers (USACE), and the Flood Control District of Maricopa County (FCDMC).

- The W59 Alternative will avoid impacts on the planned expansion of the City of Tolleson wastewater treatment facility.

Environmental and Societal Impacts

- The W59 Alternative will result in fewer residential displacements.
- The W59 Alternative will have a nominal effect on the local tax base in Phoenix. It will result in less impact on the local tax bases in Tolleson and Avondale.
- Conversely, the W101 Alternative would have a severe impact on the City of Tolleson's tax base and would lead to a reduction in City-provided services.
- R/W for the W101 Alternative would eliminate a substantial portion of the remaining developable land in Tolleson. Tolleson is landlocked by Phoenix and Avondale, with no opportunity for future expansion of its city limits.

Operational Differences

- The W101 Alternative would provide a direct connection to SR 101L (Agua Fria Freeway), thus completing the loop system without any overlap on I-10.
- The W59 Alternative will provide more direct access to downtown Phoenix.
- The W101 Alternative would provide better access to destinations west and north of downtown Phoenix.
- The W59 Alternative will optimize the long-term system of freeways planned in the southwestern portion of metropolitan Phoenix. However, these benefits will not be realized until the planned SR 30 and SR 303L, south of I-10, are completed (see Figure 2).
- The W59 Alternative will avoid the skewed arterial street interchange configurations that would be needed for the W101 Alternative to connect with the planned SR 30 and several arterial streets.

Estimated Costs

- The total cost of the W59 Alternative will be $490 million to $640 million less than the W101 Alternative.

Regional Support and Public Input

- Resolutions passed by the City/Town Councils of Avondale, Buckeye, Gila Bend, Goodyear, Litchfield Park, Phoenix, and Tolleson supported an alternative near 55th Avenue (now closely represented by the W59 Alternative) and opposed the W101 Alternative.
- Public input was split in support of either the W55 (now closely represented by the W59 Alternative) or W101 Alternative. The South Mountain Citizens Advisory Team supported the W101 Alternative, but expressed concern about its impacts on communities surrounding the proposed freeway.

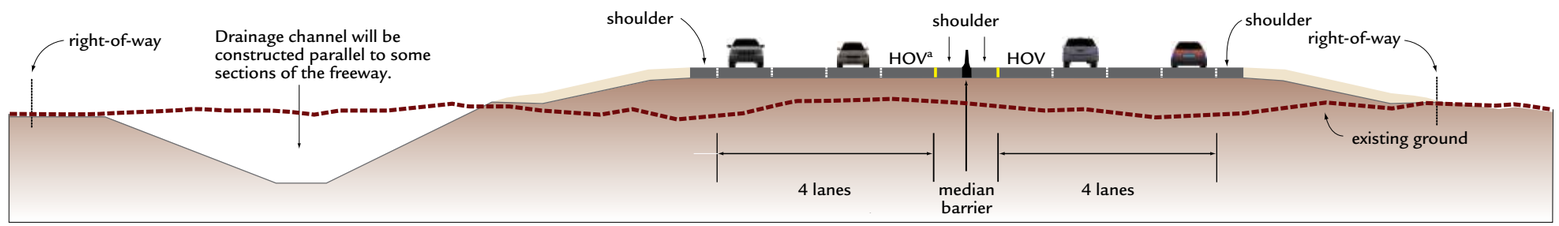
Based on the evaluation of information presented above and in the FEIS, the project's purpose and need, input from the public, and interagency and tribal coordination, FHWA has decided to identify the W59/E1 Alternative as the Selected Alternative. The Selected Alternative will meet the project needs as well as or better than the other alternatives. The Section 4(f) evaluation demonstrated that no feasible and prudent avoidance alternatives to use of the South Mountains' Section 4(f) resources are available. Direct use of the resource is the same regardless of the combination of action alternatives in the Western and Eastern Sections (representing a range of reasonable alternatives). Relative to other action alternatives considered, the Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will cause less construction disruption overall to I-10 (Papago Freeway); will include measures to reduce impacts and minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will allow regulatory permitting requirements to be met.

Selected Alternative (Preferred Alternative)

The Selected Alternative is the Preferred Alternative evaluated in the FEIS, which is a combination of the W59 and E1 Alternatives. The 22-mile-long freeway will be constructed as an eight-lane divided, access-controlled facility, with four travel lanes in each direction (see Figure 14). Three lanes will be for general purpose use and one lane will be dedicated to HOV, including transit, use. Applicable elements of TSM and TDM will be incorporated into the design and operation of the Selected Alternative.

The Selected Alternative will connect to I-10 (Papago Freeway) with a system traffic interchange that will replace the existing service traffic interchange at 59th Avenue and will convert the existing 59th Avenue to two-lane northbound and southbound frontage roads approximately between Van Buren Street and the Roosevelt Irrigation District canal. From I-10 (Papago Freeway), the Selected Alternative will proceed south along the eastern side of 59th Avenue (see Figure 15), crossing Roosevelt and Van Buren streets, then shift to the western side, crossing the UPRR tracks and Buckeye Road before making a slight western shift approximately ⅓ mile north of Lower Buckeye Road. The Selected Alternative will then travel south, crossing Lower Buckeye Road, Broadway Road, the Salt River, and Southern Avenue before making a slight shift to the east. The Selected Alternative will continue south, approximately ¼ mile west of 59th Avenue, and will cross Baseline and Dobbins roads. It will continue south (see Figure 16) and then make a curve transition from the southern to the southeastern direction to cross Elliot Road and then travel to the southeast parallel and adjacent to the Community boundary, crossing over Estrella Drive, 51st Avenue, and Ivanhoe Street. In this direction, the Selected Alternative will pass through three ridges of the South Mountains (two of which are in SMPP) before turning to the east. Traveling to the

Figure 14 Typical Eight-lane Freeway Section with Potential Drainage Basin



[a] high-occupancy vehicle

Note: The drainage channel will be located north or east of the freeway.

east, the Selected Alternative will follow and replace the Pecos Road alignment north of and adjacent to the Community boundary and will cross over 17th Avenue, Desert Foothills Parkway, 24th Street, 32nd Street, and 40th Street. The Selected Alternative will then connect to the existing I-10 (Maricopa Freeway)/SR 202L (Santan Freeway)/Pecos Road system traffic interchange.

Beginning at a new system traffic interchange with I-10 (Papago Freeway) at 59th Avenue, the Selected Alternative will start as an elevated facility. The alternative's vertical alignment will be a rolling profile, passing over all arterial streets, railroad tracks, canals, and the Salt River. Between these features, the Selected Alternative will descend toward the existing grade. All arterial streets will remain at their existing elevations, with minor variations. South of the Salt River, the profile will pass over Southern Avenue, Baseline Road, the Laveen Area Conveyance Channel, Dobbins Road, and Elliot Road. In the mountainous region, the profile will remain adequately elevated to facilitate wildlife passage through proposed multiuse crossings (see the section, *Biological Resources*, beginning on page 4-125 of the FEIS, for more details) and to avoid interrupting the natural drainage. All arterial streets will remain at their existing elevations, with minor variations. Three cut sections will be required where mountain ridges exist (one ridge is outside SMPP). Between 17th Avenue and 24th Street near Ahwatukee Foothills Village, other cut sections will also be required. The Selected Alternative will end near 46th Street.

The system traffic interchange connecting the Selected Alternative to I-10 (Papago Freeway) will include four freeway-to-freeway ramps and a direct HOV ramp to and from downtown Phoenix. These ramps are described below:

- For northbound traffic on the Selected Alternative, four general purpose lanes and an HOV lane will be provided approaching the system traffic interchange. The lanes will diverge, with two general purpose lanes forming the northbound-to-eastbound interchange ramp and two general purpose lanes forming the northbound-to-westbound interchange ramp. The HOV lane will travel northbound-to-eastbound and connect to the HOV lane along I-10.
- For general purpose lane traffic heading south on the Selected Alternative from I-10, an eastbound-to-southbound ramp and a westbound-to-southbound ramp will be provided. For eastbound-to-southbound traffic, two I-10 eastbound lanes will diverge, forming a ramp, and for westbound-to-southbound traffic, two I-10 westbound lanes will diverge to form another ramp. For HOV traffic, the westbound HOV lane will diverge, forming a ramp that connects to the southbound HOV lane on the Selected Alternative.
- All freeway-to-freeway general purpose lane ramps will have two lanes with shoulders.
- Access to and from existing service traffic interchanges on I-10 between 67th Avenue and 51st Avenue will be altered.
- I-10 between 75th Avenue and 43rd Avenue will be widened to accommodate additional traffic from the connection to the proposed freeway.

The Selected Alternative will connect to the existing I-10 (Maricopa Freeway)/SR 202L (Santan Freeway)/Pecos Road system traffic interchange by replacing the Pecos Road connection. The system traffic interchange was constructed between 2000 and 2002 to accommodate the western leg of SR 202L (the Selected Alternative). ADOT recently completed construction of a direct HOV connection between I-10 (to and from the north) and SR 202L (Santan Freeway) (to and from the east) along with HOV lanes along the SR 202L (Santan Freeway) corridor. The HOV lanes for the Selected Alternative will be extended to connect to the HOV lanes along SR 202L (Santan Freeway).

As a result of traffic analyses coordinated among the RTP-planned projects associated with the system traffic interchange, the northbound-to-westbound and eastbound-to-southbound ramps will be widened from one to two lanes in each direction to accommodate projected 2035 traffic. The Selected Alternative includes provisions for the proposed ramp widening, which will be constructed as a part of a future project.

The Selected Alternative will include the construction and operation of service traffic interchanges to provide access between the arterial streets and the new freeway. Figure 13 illustrates the locations and access proposed for the service traffic interchanges. Additional information in support of the concepts shown in Figure 13 includes:

- Service traffic interchanges were generally spaced at 1-mile intervals along the arterial street grid. The spacing is consistent with other freeway facilities in the MAG region. Some locations were not conducive to the 1-mile spacing because of geographic features, operational characteristics, or design limitations

Figure 15 W59 Alternative (Selected Alternative), Horizontal and Vertical Alignments

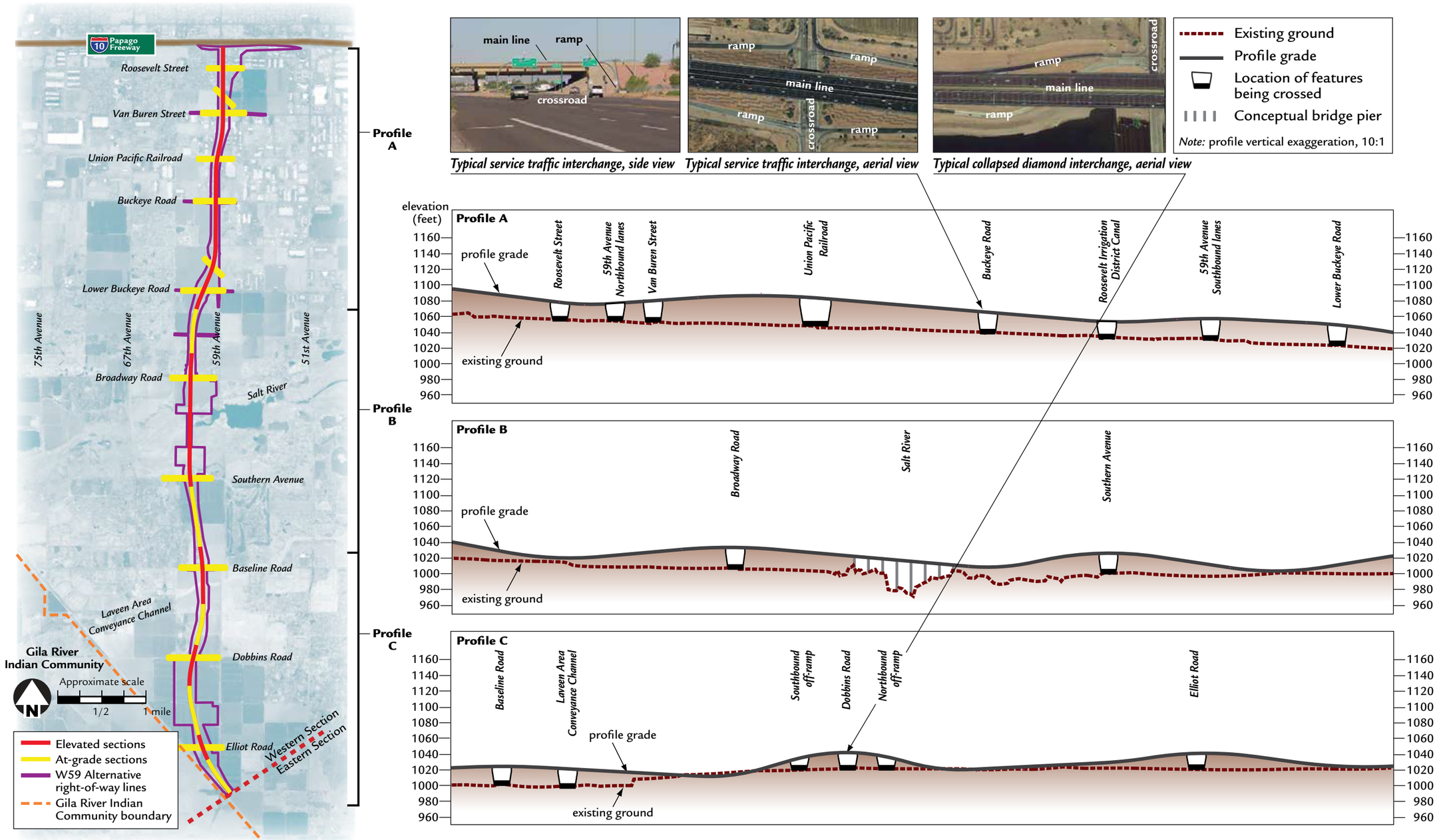
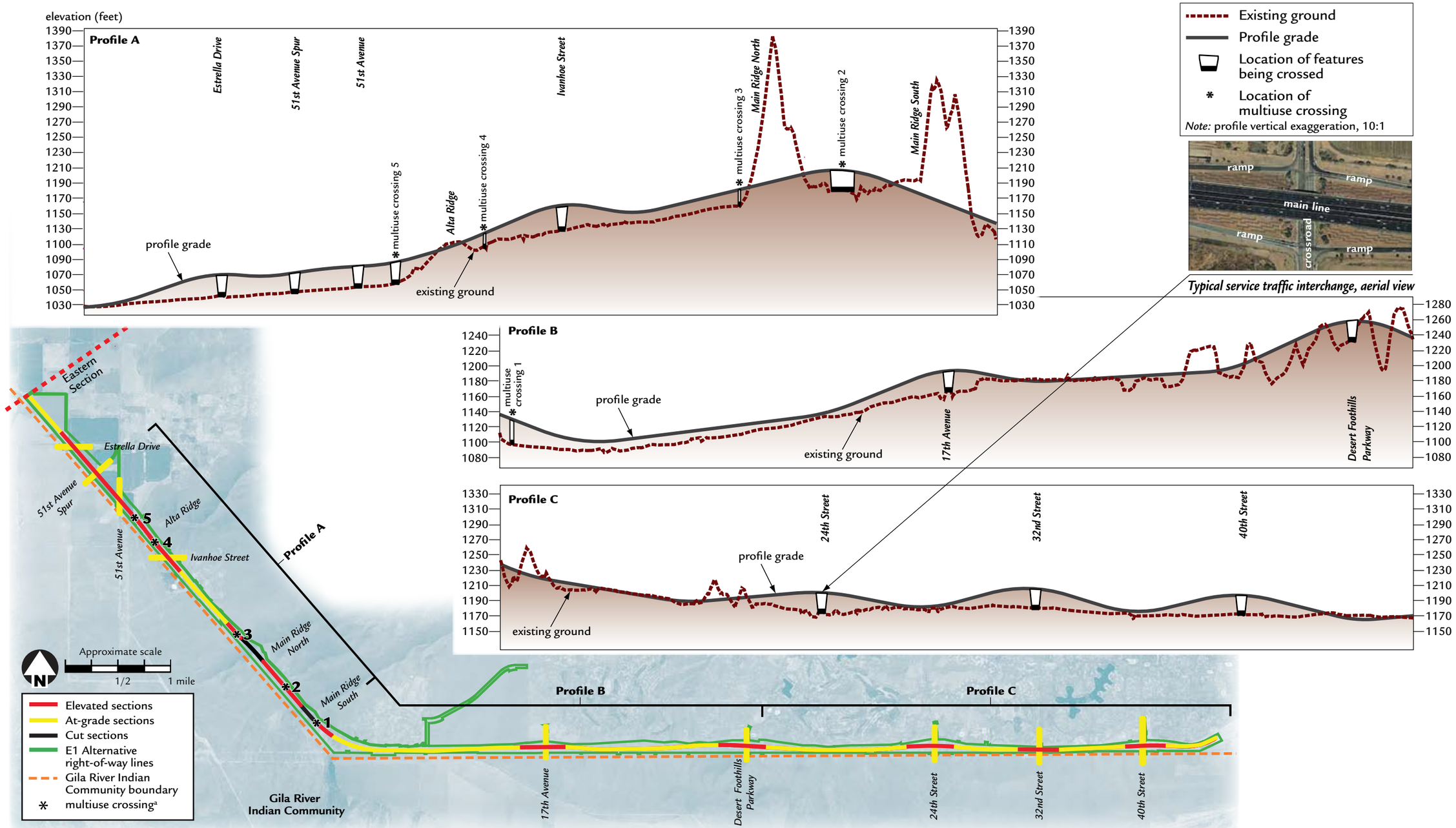


Figure 16 E1 Alternative (Selected Alternative), Horizontal and Vertical Alignments



[a] Multiuse crossing 4 is aligned with the Maricopa County Regional Trail/Sun Circle Trail/National Trail (see Figure 5-5 on page 5-8 of the Final Environmental Impact Statement). Multiuse crossings 1, 2, 3, and 5 will provide access by Gila River Indian Community members to the South Mountains and facilitate wildlife movement (see the commitments and mitigation measures for biological resources and Section 4(f) resources in Table 3, beginning on page 38, for more information).

(e.g., the arterial street crossing location did not conform to the 1-mile grid).

- Members of the public and local jurisdictions influenced the locations, configuration concepts, and access of some of the service traffic interchanges.
- Environmental, operational, and/or design considerations will determine the level of access to be provided at each service traffic interchange. Most service traffic interchanges will provide full access (ramps in all four directions). Half-diamond (half-access) interchanges will be used near system traffic interchanges to avoid undesirable operational conflicts.
- The diamond interchange configuration was used to evaluate service traffic interchange needs. The configuration has been commonly used for other freeway facilities in the MAG region. The actual configuration(s) of the service traffic interchanges will be determined during final design of the Selected Alternative. Designers will assess whether other configurations will be more cost-effective, have smaller R/W needs, and/or have less impact while providing adequate or better operational benefits than the diamond configuration. On- and off-ramps at the service traffic interchanges will include one lane with left and right shoulders. Additional lanes as warranted by traffic projections will be provided to accommodate turning movements at the crossroad.
- Access control will be maintained along the arterial street to ensure desirable traffic performance

The Selected Alternative will introduce a large system traffic interchange to a segment of I-10 (Papago Freeway) that now has a series of service traffic interchanges at 1-mile intervals. The size of the system traffic interchange will affect access to and from I-10 from neighboring service traffic interchanges. As a result, modifications to local access will adversely affect nearby businesses, emergency response times, bus routes, arterial street operational characteristics, and freeway conditions. Conversely, local access by way of service traffic interchanges located too close to a system traffic interchange will adversely affect the operational and safety characteristics of the freeway main lines. Because of these potential impacts, various concepts using half-diamond interchanges connected to adjacent half- or full-diamond interchanges with access roads were developed to examine the balance between local access and main line operation.

Figure 17 illustrates the local access concepts determined for the Selected Alternative, but the effects of different combinations of ramp configurations (e.g., braided ramps), ramp lengths, access roads (parallel to I-10), and modifications to the service traffic interchange ramps were examined.

The Selected Alternative will affect several segments of the existing local street network. Alteration of the local street network (principally immediately adjacent to the Selected Alternative) will be subject to modification during final design. Examples of how the local street network could be reconfigured are shown in Figures 18 and 19.

Various approaches could be used in the reconfiguration of the local street network. Examples of these approaches are:

- **Removed street** – As shown in Detail A of Figure 18, Latham Street will be removed. No additional reconfiguration will be needed.
- **Newly constructed street** – As shown in Detail B of Figure 18, 62nd Avenue will be removed from its existing location and reconstructed farther west. 62nd Avenue will continue to connect Encinas Lane, Wood Street, and Pueblo Avenue.
- **Existing street remaining below freeway** – As shown in Detail A of Figure 18, Roosevelt Street will remain in its existing location and bridges will be constructed over it.
- **Newly constructed street** – As shown in Detail C of Figure 19, construction of Chandler Boulevard between approximately 27th and 19th avenues will be completed as a part of this project.

The design criteria used to develop the action alternatives meet standards and guidelines used by ADOT, FHWA, and the American Association of State and Highway Transportation Officials (AASHTO) as set forth in:

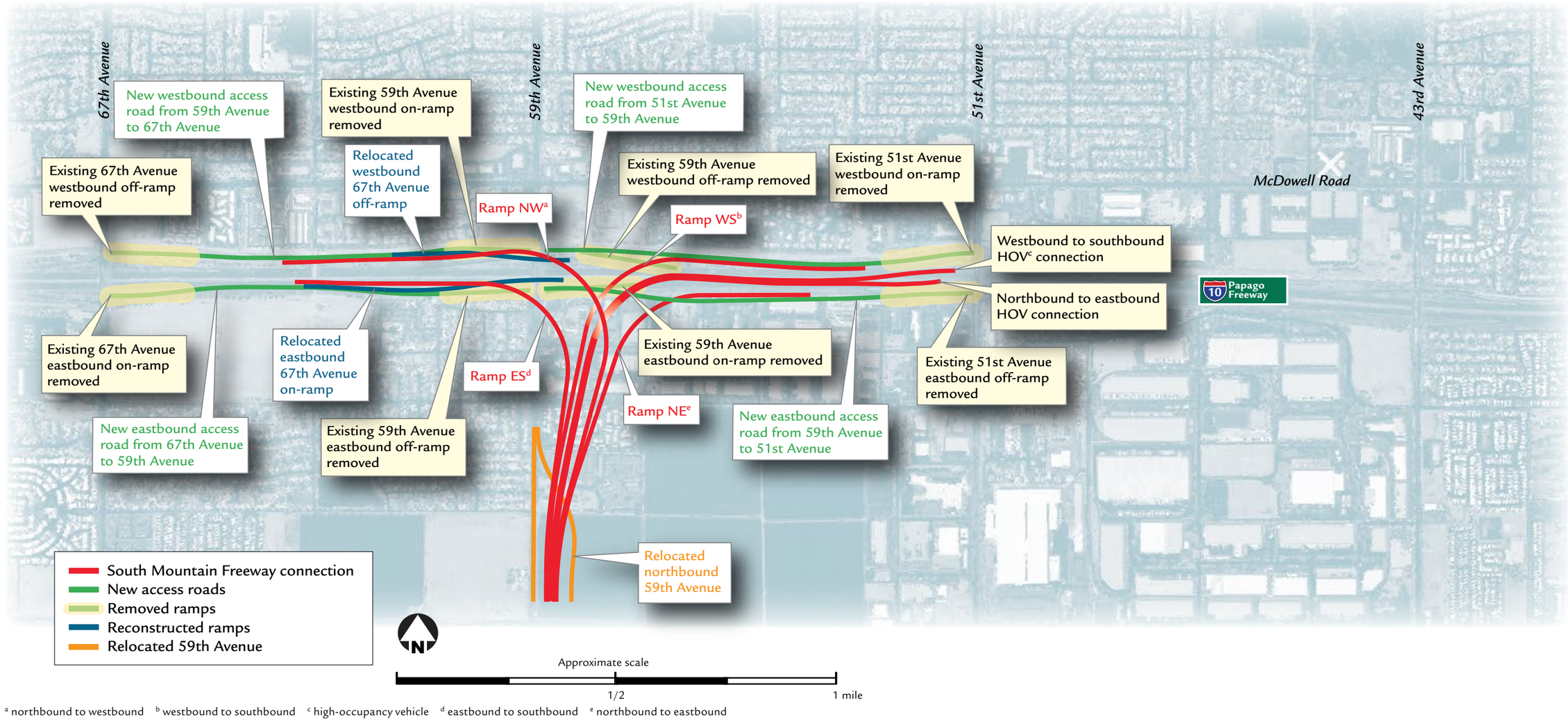
- *Roadway Design Guidelines* (ADOT 2012a)
- *Interim Auxiliary Lane Design Guidelines* (ADOT 1996)
- *A Policy on Geometric Design of Highways and Streets* (AASHTO 2011a)
- *A Policy on Design Standards – Interstate System* (AASHTO 2005)
- *Roadside Design Guide* (AASHTO 2011b)

The Selected Alternative will be readily accessible to and usable by individuals with disabilities and will comply with the applicable provisions set forth in the Americans with Disabilities Act. For example, the reconstruction and construction of new curb ramps and sidewalks at proposed service traffic interchanges will satisfy the relevant requirements.

Figure 14 depicts the typical freeway section for the Selected Alternative. The freeway main line will have three 12-foot-wide general purpose lanes and one HOV lane in each direction, separated by a median barrier with left shoulders.

An auxiliary lane is a lane located to the outside of freeway through-lanes. Located between successive on- and off-ramps associated with service traffic interchanges, auxiliary lanes are used by vehicles entering and exiting the freeway main line. Common to Regional Freeway and Highway System segments, auxiliary lanes reduce the degree of conflict between traffic merging onto and exiting a freeway and minimize disruption to on- and off-ramps. By reducing conflict, auxiliary lanes typically improve overall traffic performance. Auxiliary lanes will be 12 feet wide and maintain a full right shoulder, similar to the freeway main line. Auxiliary lanes will be used where warranted in accordance with ADOT's *Interim Auxiliary Lane*

Figure 17 Local Access Modifications, Service Traffic Interchanges, W59 Alternative (Selected Alternative), Western Section



[a] northbound to westbound [b] westbound to southbound [c] high-occupancy vehicle [d] eastbound to southbound [e] northbound to eastbound

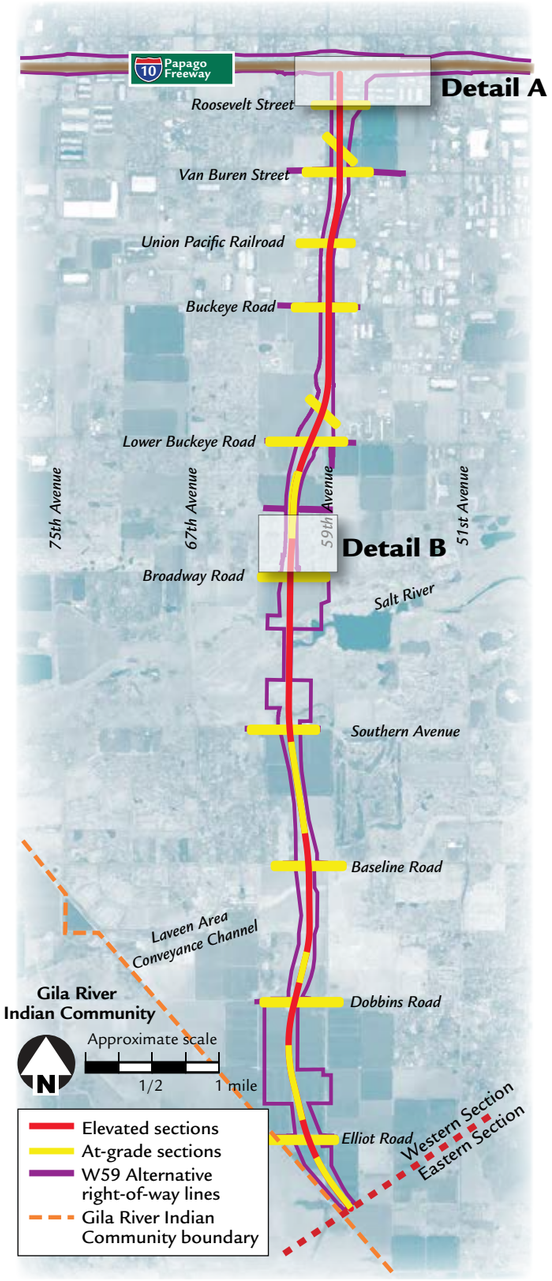
Design Guidelines (1996). Impacts associated with auxiliary lanes were accounted for in the analysis.

Signs, lighting, traffic signals, and pavement marking will be designed to meet current guidelines and standards referenced under the section, *Design Criteria*, on page 3-54 of the FEIS, as well as in the *Manual on Uniform Traffic Control Devices for Streets and Highways* (FHWA 2009a). Any freeway lighting installed will be designed to reduce illumination spillover onto sensitive light receptors (such as residential and natural areas). Lighting needs will also include underdeck lighting on bridges where appropriate. The use of municipal or ADOT standard traffic control devices and illumination at arterial streets will be determined during the design phase.

Guidance for the design of drainage structures includes:

- *Roadway Design Guidelines* (ADOT 2012a)
- *Standard Specifications for Road and Bridge Construction* (ADOT 2008)

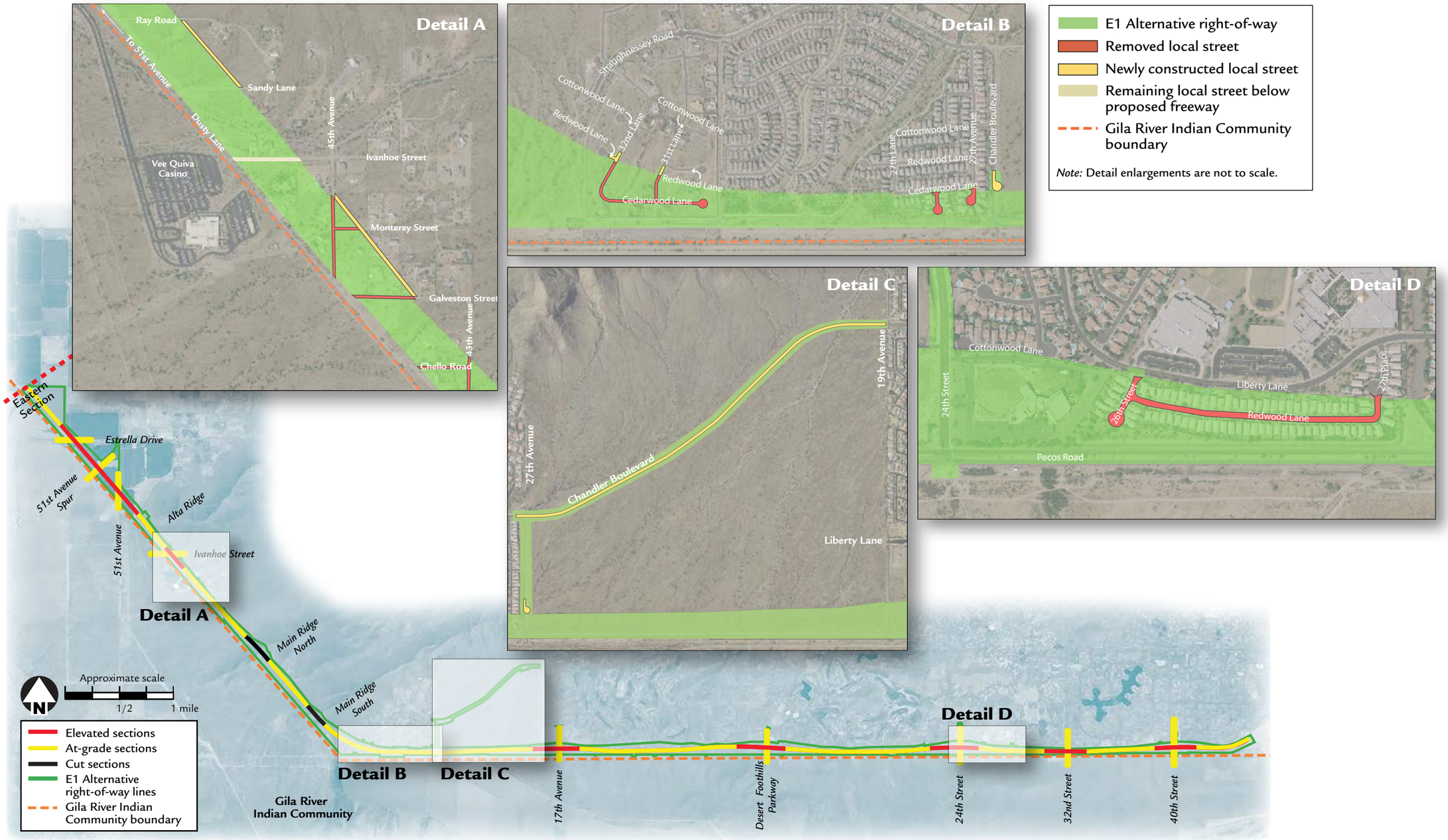
Figure 18 Local Street Realignments, W59 Alternative (Selected Alternative), Western Section



W59 Alternative right-of-way
Removed local street
Newly constructed local street
Remaining local street below proposed freeway

Note: Detail enlargements are not to scale.

Figure 19 Local Street Realignments, E1 Alternative (Selected Alternative), Eastern Section



- *Drainage Design Manual for Maricopa County, Arizona: Hydrology* (FCDMC 2009)
- *Drainage Design Manual for Maricopa County, Arizona: Hydraulics* (FCDMC 2003)
- *Guidelines for Culvert Construction to Accommodate Fish & Wildlife Movement and Passage* (Arizona Game and Fish Department [AGFD] 2006)
- *Guidelines for Bridge Construction or Maintenance to Accommodate Fish & Wildlife Movement and Passage* (AGFD 2008)
- *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team 2008)
- municipal standards as appropriate

Coordination between ADOT and such agencies as applicable—including the City of Phoenix, FCDMC, the Bureau of Reclamation, the Bureau of Land Management (BLM), the Natural Resources Conservation Service, the Community, and local irrigation districts—regarding drainage canal crossings within the Study Area will continue during the design phase and construction. Arterial cross streets will be designed according to the standards of the relevant jurisdictions, in coordination with their staff, during the design phase.

Where appropriate, the defined R/W includes a drainage channel (see Figure 14) and drainage basins. Final configuration of drainage features will be determined during the design phase. The size and location of drainage facilities could change based on additional design efforts, adjacent development plans, changes in rainfall or drainage patterns, and consideration of wildlife connectivity in key locations.

According to ADOT policy, new freeways constructed in the MAG region will be overlaid with rubberized asphalt. See the section, *Noise*, beginning on page 4-88 of the FEIS, for more information regarding the use of rubberized asphalt.

Effects of the Selected Alternative Compared with the Others

The difference in impacts among the action alternatives is based on impacts in the Western Section of the Study Area because the same E1 Alternative is paired with each alternative in the Western Section. For this reason, all action alternatives will result in the direct use of Section 4(f) resources in the South Mountains.

As noted in the FEIS, many impacts from the action alternatives in the Western Section will be similar in type and magnitude. For example, impacts on air quality, waters of the United States, topography, geology, soils, energy, and utilities, along with temporary construction impacts and secondary and cumulative impacts, will be relatively the same among the three action alternatives in the Western Section. For other elements of the social, environmental, and economic analyses, impacts will vary measurably depending on the action alternative. Table 2 reveals the differences among the action alternatives in the following areas: conversion of land uses, social conditions such as consistency with local and regional plans, effects on environmental justice populations, effects on Title VI of the Civil Rights Act of 1964 (Title VI) populations, residential and business displacements, economic resources such as loss of tax revenues, noise impacts and costs of their mitigation, effects on wells and floodplains, effects on biological and cultural resources, conversion of prime and unique farmland, disturbance of hazardous material sites, alteration of visual resources, energy consumption, and estimated amount of fill material needed.

Since completion of the FEIS, the U.S. Fish and Wildlife Service (USFWS) removed the Tucson shovel-nosed snake from the Endangered Species Act (ESA) candidate list; therefore, there is no intent to list the snake as threatened or endangered. As a result, mitigation measures that required preconstruction surveys for the snake are not included in the ROD. It is important to note, however, that FHWA and ADOT continue to commit to coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality during the design phase regarding wildlife connectivity concerns and whether any additional species-specific mitigation measures will be required.

In addition to the removal of the Tucson shovel-nosed snake from the candidate list, the yellow-billed cuckoo, which at the time of the release of the FEIS was listed as "proposed threatened," is now listed as threatened with proposed critical habitat. Although proposed critical habitat for the cuckoo occurs within the FEIS Study Area, the proposed critical habitat does not occur within the action alternative corridors. The W101 Alternative, the farthest west of any of the action alternatives, is adjacent to the proposed critical habitat within the Salt River floodplain. The Selected Alternative is over 2 miles from the proposed critical habitat; therefore, the determinations in the FEIS and the Biological Evaluation prepared for the project are still appropriate. FHWA determined that the Preferred Alternative (now the Selected Alternative) will have no effect on the yellow-billed cuckoo or its habitat because there are no documented occurrences of the species within 2.5 miles of the project area, no suitable habitat occurs for the species in or adjacent to the project area, and only marginally suitable habitat occurs adjacent to the project area. USFWS reviewed the Biological Evaluation and provided technical assistance for minimizing impacts to the Tucson shovel-nosed snake and Sonoran desert tortoise. USFWS elected not to comment on the "no effect" findings in the Biological Evaluation.

Based on the evaluation of information presented above and in the FEIS, the project's purpose and need, input from the public, and interagency and tribal coordination, FHWA has decided to identify the W59/E1 Alternative as the Selected Alternative. The Selected Alternative will meet the project needs as well as or better than the other alternatives. The Section 4(f) evaluation demonstrated that no feasible and prudent avoidance alternatives to use of the South Mountains' Section 4(f) resources are available. Direct use of the resource is the same regardless of the combination of action alternatives in the Western and Eastern Sections (representing a

range of reasonable alternatives). Relative to other action alternatives considered, the Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will cause less construction disruption overall to I-10 (Papago Freeway); will include measures to reduce impacts and minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will allow regulatory permitting requirements to be met.

Feasibility of Obtaining Required Permits

FHWA and ADOT have worked with resource agencies and Tribes to reduce the effects of the Selected Alternative and to define appropriate mitigation and measures to minimize harm. Determinations and approvals are discussed further below in this ROD. FHWA and ADOT can demonstrate that the Selected Alternative would meet the applicable regulatory requirements related to alternative selection, such as the requirement under Section 404(b)(1) of the CWA to select the least environmentally damaging practicable alternative.

4. MEASURES TO MINIMIZE HARM

FHWA and ADOT have included measures to avoid and/or minimize harm in the Selected Alternative. The lead agencies' approach to avoid and minimize effects of the South Mountain Freeway includes the following components:

- Identifying and advancing reasonable project alternatives for consideration that will result in the least overall environmental effects, as discussed above.
- Considering all feasible and prudent alternatives to the use of properties protected under Section 4(f).
- Conducting a comprehensive public involvement program.
- Developing commitments and mitigation measures designed to avoid, minimize, or mitigate impacts to the extent possible and to reflect discussions with the public and agencies throughout the EIS process.

23 C.F.R. Part 771 established minimum requirements for public input during the EIS process. Since the start of the EIS process for the freeway in 2001, ADOT, with the concurrence of FHWA, has exceeded the minimum public involvement requirements of NEPA. The efforts by ADOT and FHWA to engage the public, agencies, and other stakeholders represented open, frequent, diverse, and comprehensive opportunities for those providing information, those seeking information, or those wishing to otherwise influence the analytical and alternatives screening processes.

ADOT and FHWA developed an extensive agency and public involvement plan, soliciting input into the process throughout all phases. Purposes of seeking public input were to:

- identify new data pertinent to the freeway to assist in determining the full scope of the study
- gauge the general public's understanding of the freeway and disseminate information to help further that understanding
- identify any preferences for alternatives
- identify and address, to the extent practicable, public questions and concerns regarding the freeway

To accomplish these goals, a variety of communication tools were used at major project milestones, including:

- A 2-day agency scoping meeting was held with 95 agency representatives at the beginning of the EIS process.
- Communication with local, regional, State, and federal agencies continued throughout the process with monthly coordination meetings.

The following items highlight the results of public outreach efforts undertaken leading up to publication of the DEIS in April 2013:

- Over 200 presentations were made to community groups, homeowners' associations, chambers of commerce, village planning committees, trade associations, and other interested parties.
- Twelve formal public meetings were held. Fifteen days prior to each meeting, display advertising was placed in *The Arizona Republic*, the *Ahwatukee Foothills News*, the *Gila River Indian News*, the *East Valley Tribune*, *La Voz*, and the *West Valley View*. Total distribution was approximately 260,000 newspapers per formal meeting.
- One meeting notice flier and four newsletters were distributed throughout the Study Area in the following quantities (per distribution per meeting): 28,500 door hangers, 5,000 inserts in the *Gila River Indian News*, and 28,000 inserts in the *Ahwatukee Foothills News*. In addition, newsletters and fliers were sent to over 4,500 individuals on the project mailing list.
- The November 2008 project newsletter was mailed to 78,700 businesses and residences in the Study Area and to 3,300 individuals on the project mailing list.
- The February 2010 project newsletter was mailed to 62,400 businesses and residences in the Study Area and to 3,600 individuals on the project mailing list.
- The February 2011 informational postcard was mailed to 5,000 businesses and residences on the project mailing list.

A project Web site (azdot.gov/southmountainfreeway) was developed to provide the public with project information and an e-mail address (projects@azdot.gov) was provided to obtain feedback. Approximately half of the comments received prior to publication of the DEIS in April 2013 were submitted electronically through the Web site's online survey or by e-mail. Over 5,000 comments were received by the project team up to publication of the DEIS.

Since 2001 and up to publication of the DEIS, more than 800 news articles were published in the region's newspapers.

A project hotline number (602-712-7006) was established so that the public could provide feedback on the study. The hotline was monitored daily. Between 2006 and 2013, more than 500 calls were received.

The public outreach program for the DEIS phase (April 2013 to July 2013) was developed to maximize opportunities for the public to review and provide comments on the DEIS, maintaining compliance with NEPA requirements. The outreach program had four main components:

- awareness campaign – included a fact sheet, "how to participate" handout and video, events, and briefings of elected officials and key stakeholders
- public hearing – held on May 21, 2013, at the Phoenix Convention Center from 10 a.m. to 8 p.m., with an estimated 500 attendees, including 117 people who spoke before a panel of project team members
- online public hearing – went live at 10 a.m. on May 21, 2013, at <azdot.gov/southmountainfreeway> and linked to <smfonlinehearing.com>, with 1,864 people visiting the site
- community forums – held between June 4 and July 11, 2013, at six locations: in the Estrella, Laveen, and Ahwatukee Foothills villages of Phoenix; within the Community; and in Chandler and Avondale

Public involvement during the DEIS 90-day public comment period included participation by 1) attending the public hearing or community forums, 2) viewing the online public hearing, or 3) submitting a comment. Approximately 900 people attended one of the public events held during the comment period. Almost 1,900 unique visitors viewed information from the online hearing. The project team received over 8,000 comments from federal, State, local, and tribal agencies; special interest groups; businesses; and members of the public. When combined, over 10,000 people participated in the DEIS phase through one or more of the public involvement methods available.

To advance project communication and coordination, a voluntary, advisory working group of 25 to 30 representatives was formed to provide a forum for ongoing communication among ADOT, FHWA, and the local and regional community regarding the development of the EIS. The South Mountain Citizens Advisory Team met regularly to review project status, serve as a conduit of information with community organizations, and define neighborhood and regional issues and concerns.

Public opinion regarding a project such as the freeway can change. Several factors can play a role in the ebb and flow of public opinion over the course of time. Seeking input into the process provides awareness of any changes. As an example, during the first half of the EIS process, comments from the public indicated a need for the freeway, but opinions on its location were divided. As action alternatives were identified for further study and their alignments presented to the general public, comments from the participating public revealed a change in the perception of the need for the freeway. Further analysis of the comments revealed many people living adjacent to proposed alignments were the most likely to comment either that there is no purpose or need for the freeway or to simply oppose the freeway entirely. Conversely, the remainder of the comments received from residents throughout the region revealed continued support for the freeway as an effective way to reduce regional traffic congestion (see Volume III of the FEIS).

Public comments strongly suggested the need to clarify how much coordination has occurred with the Community regarding the freeway and also a desire for ADOT and FHWA to exhaust efforts to study alternatives for the freeway on Community land. In addition to written and verbal conversations, over 110 meetings have been held since 2001, at which Community representatives were invited to discuss issues pertaining to the freeway. Efforts to involve the Community in the process were discussed in Chapter 2, *Gila River Indian Community Coordination*, of the FEIS.

The FEIS presents measures to avoid, reduce, or otherwise mitigate environmental impacts of the freeway. Presentation in the FEIS represents a commitment by ADOT to implement the measures. The commitment by ADOT to the measures was made in cooperation with FHWA and is reinforced in this ROD. Specific mitigation measures and commitments are presented in the *Project Commitments* section.

Measures committed to will be implemented as part of project development, including the final design, R/W acquisition, construction, operation, and maintenance phases of the Selected Alternative, as appropriate.

It is possible that mitigation measures proposed for the benefit of one resource or stakeholder group will also provide benefits to a secondary resource or stakeholder group. Other agencies or groups, such as MAG or the City of Phoenix, may take further actions to augment the project, but such actions would be independent of this project and would not change this NEPA document.

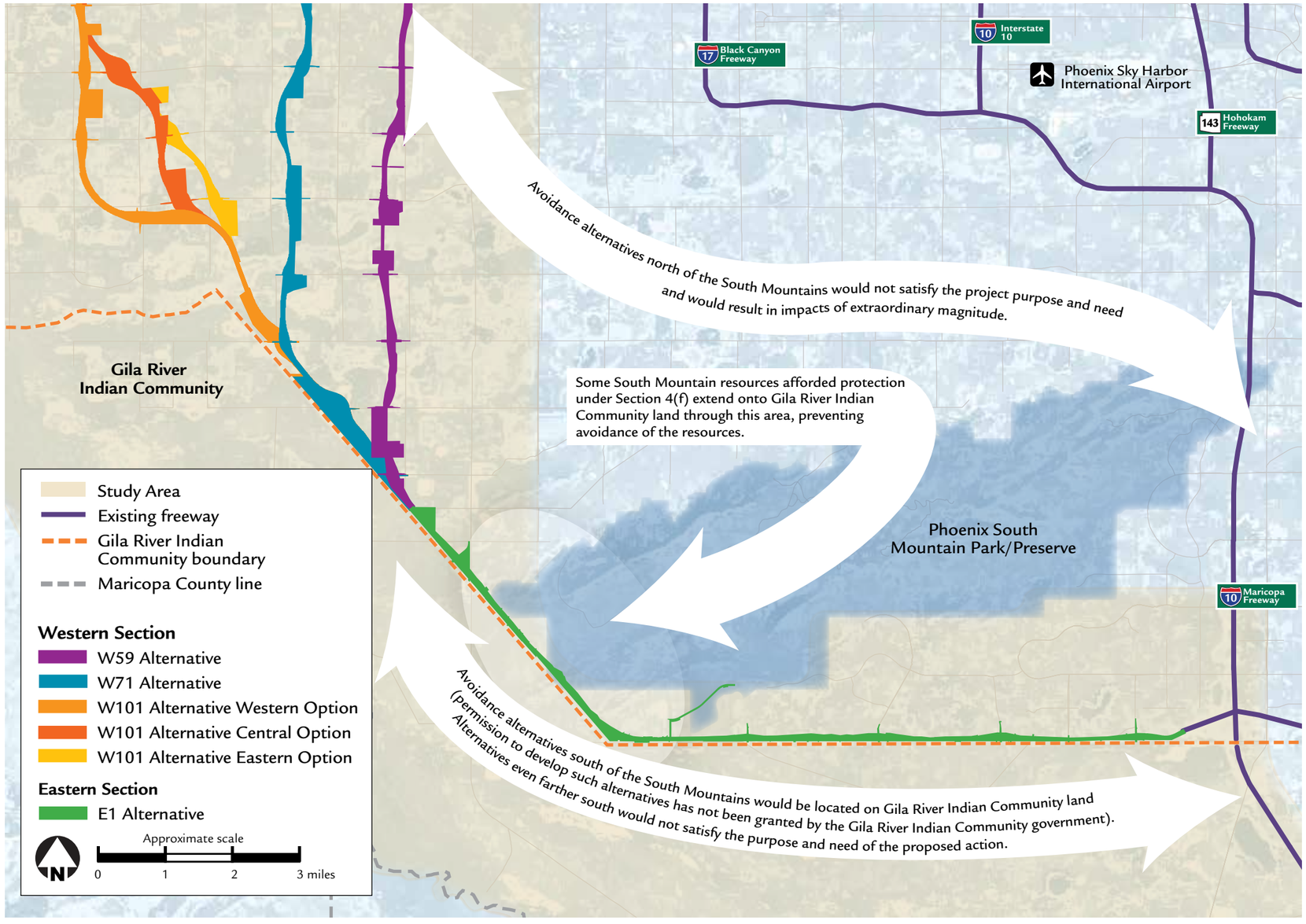
5. TREATMENT OF RESOURCES AFFORDED PROTECTION UNDER SECTION 4(f) – AT THE FEIS STAGE

Section 4(f) of the Department of Transportation Act of 1966 provides the Secretary of Transportation with a means to protect land that may be affected by construction and operation of a transportation project. The protection extends only to significant publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, as well as significant historic sites, whether they are publicly or privately owned. This protection stipulates that those facilities can be used for transportation projects only if

- there is no prudent and feasible alternative to using the land
- the project includes all possible planning to minimize harm to the land [see Chapter 5, *Section 4(f) Evaluation*, in the FEIS]

SMPP, encompassing approximately 16,600 acres (see Figure 20), is afforded protection under Section 4(f) as a publicly owned recreation area and a historic property. Land area within SMPP used for the freeway will be

Figure 20 Sovereign Nation and Section 4(f) Constraints, Action Alternatives



approximately 31.3 acres, which represents less than 0.2 percent of the total parkland.

The South Mountains are a traditional cultural property (TCP) and are afforded protection under Section 4(f). Defining a meaningful boundary for the entire TCP would require detailed study of the traditional uses and cultural significance of the South Mountains beyond that which has been undertaken and is necessary for the EIS process. ADOT, FHWA, and the Community agree that any of the action alternatives would adversely affect the TCP, regardless of its precise boundary.

The South Mountains are highly valued by area residents for various reasons, including the following:

- SMPP is one of the largest city parks in the United States and is considered a centerpiece of the Phoenix Mountain Preserve system.
- As a property eligible for listing in the National Register of Historic Places (NRHP), SMPP's origins are rooted in President Franklin D. Roosevelt's New Deal programs (see page 5-25 of the FEIS). SMPP is a symbol of Phoenix's parks program origins.
- As a TCP and a resource directly associated with other TCPs, the mountains are considered sacred—playing a role in tribal cultures, identities, histories, and oral traditions—and appear in many creation stories. The South Mountains continue to play a role in cultural and community identity.

Avoidance of the South Mountains is not prudent and feasible because:

- Located south of downtown Phoenix and north of the Community, the mountain range serves as a physical barrier for regional transportation (see Figure 20).
- Alternatives located north of the mountains to avoid the protected resource will not meet the purpose and need of the freeway and/or will create impacts of extraordinary magnitude (see Table 3-5 on page 3-12 of the FEIS).
- Alternatives located south of the mountains would pass through Community land. Because the

Community has not granted permission to develop alternatives on its land, there is no prudent and feasible alternative to avoid use of the mountains. Placing an alternative even farther south of the Community land would not satisfy the purpose and need of the freeway. Therefore, using a portion of the mountains is the only build action available.

ADOT and FHWA will implement all possible measures to reduce impacts on the resource, including:

- reducing the freeway's footprint from the original 40 acres as proposed in 1988 to the 31.3 acres planned for under the current design
- skirting the park as much as possible to avoid bisecting the 16,000-acre park
- providing replacement lands to compensate for the use of 31.3 acres of the park
- using slope treatments, rock sculpting, native vegetation landscaping and buffering, and native vegetation transplanting to blend the appearance of the freeway and slope cuts with the surrounding natural environment, as feasible
- working with park stakeholders through the City of Phoenix in finalizing these improvements

See the section, *Project Commitments*, and Table 3 on the next page for more details.

6. PROJECT COMMITMENTS

For the entire duration of the EIS process, a myriad of mitigation measures and strategies was presented by project team members, the public, agencies, and other project stakeholders. ADOT and FHWA have considered each mitigation measure. In each instance, the two agencies must ensure the appropriate use of transportation funding while considering such factors as effects on driver safety, regulatory requirements associated with proposed mitigation, and NEPA requirements in terms of accepting mitigation for the project. As a result, some proposed mitigation measures have not been included as part of the project. The mitigation as presented in the commitments in Table 3 represents all practicable measures to minimize environmental harm while accounting for the above-referenced factors. FHWA and ADOT are fully responsible for the commitments described in this ROD and commit to the measures listed in Table 3.

7. MONITORING AND ENFORCEMENT

FHWA and ADOT ultimately will be responsible for monitoring and enforcing mitigation measures. Mitigation measures will be implemented as described in Table 3.

If the design or scope of the project changes during the final design or construction phases (for example, if the construction footprint extends outside the area analyzed in the FEIS), ADOT and FHWA will conduct an environmental reevaluation. The reevaluation will determine, through a review of information in the FEIS, whether the FEIS and ROD are still valid or whether additional analysis and/or NEPA documentation are needed. A reevaluation provides evidence for FHWA in determining whether or not the preparation of a new categorical exclusion, environmental assessment, or a supplemental EIS is necessary to advance the project to the next stage [23 C.F.R. § 771.129(c)].

The contractor shall be responsible for implementing, monitoring, and enforcing those mitigation measures and commitments that are assigned by ADOT to the contractor. An Environmental Management Plan (EMP) for the project will be developed by the contractor that describes the approach, based on the environmental commitments from the ROD, for addressing all identified potential environmental impacts by ADOT and the contractor. This plan must be approved by ADOT and FHWA before design and construction can begin.

The comprehensive EMP for the project shall comply with all applicable governmental rules (including environmental laws), commitments, and governmental approvals issued thereunder, whether obtained by ADOT, a utility owner, or the contractor. The EMP, at a minimum, will include:

- contractor and ADOT's environmental personnel and training (provided or received)
- environmental commitments and mitigation measures from the ROD and contract documents and any additional measures developed during final design
- environmental monitoring plan that indicates times, locations, and other primary monitoring parameters
- contents of weekly reports, including the name of inspector, dates, weather conditions, locations, resources addressed, and locations and nature of all issues or violations and recommended remedial actions
- contents of monthly reports that combine the weekly reports into a summary of the month's environmental monitoring activities
- environmental notification contact list
- schedule of activities
- spill containment and countermeasure plan
- hazardous materials management plan, including procedure for discovery of unanticipated hazardous waste or contaminated materials
- unanticipated archeological discovery plan
- final technical noise analysis and mitigation report
- pre- and postconstruction surveys for structures located within one-half mile in the event any blasting and/or heavy ripping is planned for construction purposes
- air quality management plan
- biological resources management plan, including procedures for complying with applicable regulations and for handling, relocating, and, if necessary, treating living creatures encountered on the site
- asbestos control management plan for demolition
- lead-based paint control management plan for demolition
- Stormwater Pollution Prevention Plan
- sedimentation and erosion control plan

Table 3 Commitments and Mitigation Measures

Commitments and Mitigation Measures		Timing for Implementation
Land Use		
LNDU-1	ADOT and FHWA will coordinate with public land holding agencies (BLM and ASLD) managing affected public land and the various leaseholders to complete acquisition of parcels needed for the South Mountain Freeway.	R/W Acquisition
Social Conditions		
SOC-1	ADOT will consider methods of reducing the amount of R/W needed, providing alternative access to the local road network to satisfy emergency services access requirements, and using noise barriers, aesthetic treatments of structures, and landscaping to reduce neighborhood intrusions.	Final Design
SOC-2	ADOT will coordinate during the design phase to designate necessary utility corridors for relocations where appropriate.	Final Design
SOC-3	ADOT will coordinate with all local agencies and private facility owners to minimize, where possible, the effects of utility relocations and adjustments. Coordination will include, when possible, developing construction schedules to coincide with scheduled maintenance periods and off-peak loads.	Construction
SOC-4	ADOT will coordinate with appropriate City of Phoenix officials during the final design process to consider and identify, if appropriate, enhancements such as a pedestrian overpass to reduce possible pedestrian-related impacts. Such enhancements would be independent of this project and would not change this NEPA document.	Final Design
SOC-5	ADOT will coordinate with municipalities and affected communities to address and resolve impacts on internal road networks.	Final Design
SOC-6	ADOT will develop and implement a public involvement plan for the design and construction phases of the proposed action. Objectives of continued public involvement may include, but will not be limited to, a level of involvement in: • architectural design treatment of structures • measures to minimize harm to Section 4(f) resources • the acquisition and relocation process • modification to the local roadway network • construction activity monitoring	Final Design, Construction
SOC-7	ADOT will coordinate with all appropriate emergency services, and efforts will be made to minimize effects on response routes and times for all service areas.	Construction
Displacements and Relocations		
DIS-1	An acquisition and relocation assistance program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 C.F.R. Part 24), which identifies the process, procedures, and entitlements for R/W acquisition and relocation of affected residents or businesses.	R/W Acquisition
DIS-2	Relocation assistance will be available to all residential and business relocatees, without discrimination. All replacement housing will be decent, safe, and sanitary. Replacement housing is available in the general area; last-resort housing will, however, be provided if it were found that sufficient, comparable housing were not available within monetary limits of owners and tenants. If necessary, specific relocation plans will be developed to assist displacees, including residents of mobile homes, in finding new locations for their mobile homes. All acquisitions and relocations resulting from the proposed freeway will comply with Title VI of the Civil Rights Act of 1964 and with 49 C.F.R. Part 24.	R/W Acquisition
DIS-3	Private property owners will be compensated at market value for land and may be eligible for additional benefits. As for renters, HUD considers anything under a 6 percent rental vacancy rate as a "tight" rental market. The Rental Supplement is based on a calculation between the current rental plus utilities and the determined available comparable rental unit plus utilities times 42 months (if the amount of the benefit exceeds $7,200 the benefit would fall under the Last Resort Provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended). This payment will be made available to assist with the difference in rent if the cost of replacement housing were to exceed the rental cost at that time (with conditions).	R/W Acquisition
DIS-4	ADOT will provide, where possible, alternative access to properties losing access to the local road network. In the event that alternative access could not be provided, ADOT will compensate affected property owners in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.	Final Design, R/W Acquisition
DIS-5	ADOT will coordinate with the local jurisdictions, MAG, and Valley Metro to identify opportunities to use excess R/W, whenever possible, for future park-and-ride lots and related public facilities.	Final Design, R/W Acquisition

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
Economics		
ECON-1	During construction, ADOT will coordinate with local businesses to ensure reasonable access to businesses will be maintained during regular operating hours.	Construction
Air Quality		
AQ-1	Mitigation measures will be followed in accordance with Maricopa County rules 310 and 310.01. Such measures could include, but are not limited to: Site preparation • Minimize land disturbance. • Use watering trucks to minimize dust. • Stabilize the surface of dirt piles if not removed immediately. • Use windbreaks to prevent accidental dust pollution. • Limit vehicular paths and stabilize temporary roads. • To prevent dirt from tracking or washing onto paved roads, stabilized construction entrances will be placed adjacent to paved roads and fencing will be installed to direct vehicles to drive over the track pad immediately before entering a paved surface.	Construction
AQ-2	Construction • Use dust suppressants on unpaved traveled paths. • Minimize unnecessary vehicular and machinery activities. • To prevent dirt from tracking or washing onto paved roads, stabilized construction entrances will be placed adjacent to paved roads and fencing will be installed to direct vehicles to drive through the entrance before entering a paved surface. • To the extent practicable, construction equipment that meets EPA's Tier 4 emission standards shall be used. • Where feasible, construction equipment powered by alternative fuels (e.g., biodiesel, compressed natural gas, electricity) shall be used. • ADOT will require training in compliance with Maricopa County rule 310 for contractor's personnel regarding air quality impacts from construction activities, potential health risks, and methods to reduce emissions.	Construction
AQ-3	Postconstruction • Revegetate or use decomposed granite or rock mulch on all disturbed land. • Remove dirt piles and unused materials. • Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities. • Include control of access fence to prevent vehicle traffic on unpaved surfaces.	Construction
AQ-4	A Traffic Management Plan will be developed and implemented to help reduce impacts of traffic congestion and associated emissions during construction.	Preconstruction
AQ-5	An approved dust permit will be obtained prior to demolition and construction from the Maricopa County Air Quality Department for all phases of the proposed action. The permit will describe measures to control and regulate air pollutant emissions.	Preconstruction
Noise		
NOI-1	General locations of noise barriers have been identified, but these locations and general noise wall design will be reevaluated as design progresses. Where feasible, noise barriers will be constructed as early as possible in the construction phasing to shield adjacent properties from construction-related noise impacts.	Final Design, Construction
Water Resources		
WRE-1	The proposed freeway will have properly designed drainage channels to resist erosion, energy-dissipating structures at all culverts where discharge velocity may cause downstream erosion, and sediment-trapping basins strategically located to maximize sediment removal and to function as chemical-spill containment structures.	Final Design
WRE-2	Vegetative or mechanical means will be used to minimize erosion from cut and fill slopes.	Final Design

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
WRE-3	Runoff discharge from the roadway to the irrigation district canals and conveyance ditches will be minimized by roadway design and the use of permanent BMPs.	Final Design
WRE-4	To reduce the potential impact of contaminants such as oil, grease, soil, and trash, settling basins will be used to collect water and allow materials to settle. The basins could also serve to contain chemical spills resulting from vehicle accidents. Each basin will be designed to contain an initial rainfall runoff volume before allowing discharge. If an accident occurs, and the basins are dry at the time of the accident, the spill volume, in most cases, will be accommodated.	Final Design
WRE-5	A construction AZPDES permit, for ground-disturbing activities exceeding 1 acre, will be obtained from ADEQ for the project in accordance with the provisions set forth in Section 402 of the CWA. The AZPDES permit must be consistent with discharge limitations and water quality standards established for the receiving water. The contractor shall coordinate with ADOT before filing a Notice of Intent and a Notice of Termination with ADEQ in accordance with Section 402 of the CWA and shall provide copies of the permit authorization to ADOT.	Preconstruction
WRE-6	A SWPPP shall be prepared by the contractor in accordance with the AZPDES construction general permit. Upon construction completion, all contaminated material (e.g., concrete wash water) will be removed and disposed of in accordance with local, regional, and federal regulations. The contractor will comply with ADOT's Post-Construction Best Management Practices Program.	Preconstruction, Construction, Postconstruction
WRE-7	ADOT will coordinate with appropriate governmental bodies such as flood control districts and the Community when designing drainage features for the proposed action.	Final Design
WRE-8	ADOT will replace water lost through well acquisitions. This will be done through full well replacement or well abandonment and compensation (if requested by the owner).	R/W Acquisition
WRE-9	An analysis will be performed during the design process to determine whether it is possible to keep the Foothills Community Association well in its current location, but move the well controls and associated piping to outside of the R/W.	R/W Acquisition
WRE-10	Existing irrigation canals affected by the freeway may be relocated to allow for conveyance of irrigation water (through installation of pipe, conduit, or extension) from one side of the freeway to the other.	Construction
WRE-11	A copy of the certificate authorizing permit coverage and a copy of the Notice of Termination acknowledgement letter will be sent to ADOT EPG, Glendale, Phoenix, Chandler, Goodyear, Tolleson, and Avondale, as appropriate, based on the location of project activities	Preconstruction
WRE-12	ADOT will comply with the State of Arizona Surface Water Quality Standard Rules (18 A.A.C. § 11).	R/W Acquisition, Final Design, Construction, Postconstruction
WRE-13	Water used for dust suppression will not contain contaminants that could violate ADEQ water quality standards for surface waters or aquifers and will not be discharged off site. ADOT will obtain the necessary permits for such activities.	Preconstruction, Postconstruction
Floodplains		
FLD-1	Bridge structures will be designed to cross floodplains in such a way that their support piers and abutments will not contribute to a rise in floodwater elevation of more than a foot.	Final Design
FLD-2	Floodplain impacts will be minimized by implementing transverse crossings of the floodplain and avoiding longitudinal encroachments.	Final Design
FLD-3	The Maricopa County Floodplain Manager and/or Floodplain Administrator will be given an opportunity to review and comment on the design plans.	Final Design
FLD-4	On-site drainage design shall be performed using the procedures in FHWA's *Urban Drainage Design Manual*, *Hydraulic Engineering Circular No. 22* (2009b, with revisions).	Final Design
FLD-5	The hydraulic design of culverts shall be performed using the procedures in FHWA's *Hydraulic Design Series No. 5*, *Hydraulic Design of Highway Culverts* (2012). Other criteria include: • Culverts will be sized, at a minimum, based on the design discharge of a 50-year storm. • With the 100-year storm, water levels should not significantly increase the flood damage potential on areas outside of the proposed R/W or as noted in accordance with ADOT's *Roadway Design Guidelines* (2012a), Section 611.3.C. • Reinforced concrete box culvert and reinforced concrete pipe will be provided with adequate cover. • Outflow discharges from detention basins shall not cause peak discharges downstream greater than peak discharges without the project.	Final Design

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
FLD-6	Comprehensive hydrologic, hydraulic, sediment transport, and erosion-related assessments regarding potential 100-year flood effects associated with ephemeral washes will be conducted on the Selected Alternative. Results will provide information necessary to make a determination regarding what mitigation measures will need to be implemented. Measures may include physical structures associated with the freeway such as culverts.	Final Design
Waters of the United States		
WUS-1	ADOT will prepare and submit an application to USACE for a CWA Section 404 permit as appropriate, dictated by impacts on jurisdictional waters. If necessary, ADOT will submit a CWA Section 401 application to ADEQ. The permit conditions will be developed according to the current Memorandum of Agreement between USACE, ADOT, and FHWA. No work will occur within jurisdictional waters until the appropriate CWA Section 401 certification and Section 404 permit is obtained.	Preconstruction
WUS-2	If more time is required to complete the South Mountain Freeway than authorized by the Section 404 of the CWA permit, ADOT will submit a request for a time extension to USACE and ADEQ at least 1 month prior to reaching the authorized date.	Construction
WUS-3	If previously unidentified cultural resources are encountered in or adjacent to waters of the United States during the construction of the freeway, ADOT will notify FHWA and USACE immediately to make arrangements for the proper treatment of those resources.	Construction
WUS-4	If ADOT sells the freeway, ADOT will obtain the signature of the new owner in the applicable space provided in the permit and will forward a copy of the permit to USACE to validate the transfer of the authorization.	Postconstruction
WUS-5	ADOT will provide a copy of the Section 401 water quality certification conditions to all appropriate contractors and subcontractors. ADOT will post a copy of these conditions in a water-resistant location at the construction site where it may be seen by workers.	Preconstruction
WUS-6	ADOT will maintain the project authorized by the permit in good condition and in conformance with the terms and conditions of the permit. ADOT will not be relieved of this condition even if ADOT abandons the project. Should ADOT cease to maintain the freeway or abandon the freeway without a good faith transfer, ADOT will obtain a modification of the CWA Section 404 permit from USACE.	Operation, Maintenance
WUS-7	If a substantive change/modification to the project is necessary, ADOT will provide notice and supporting information to FHWA, ADEQ, and USACE for review.	Final Design, Construction
WUS-8	When construction begins, ADOT will notify ADEQ and USACE prior to the start date. When notification is made, ADOT will provide the start date and the name and phone number of the primary contractor and a contact person. When the activities are completed, ADOT will notify ADEQ and USACE after project completion as required by the CWA Section 401 certification and CWA Section 404 permit.	Preconstruction
WUS-9	ADOT will comply with all conditions set forth in the CWA Section 404 permit, CWA Section 401 certification, and CWA Section 402 construction general permit made as part of the project.	Construction
WUS-10	Prior to initiating construction activities under the permit, ADOT will ensure that all appropriate contractors and subcontractors have been provided with a copy of the Section 404 authorization. This will be intended to confirm that the contractor(s) will comply with the terms and conditions of the Section 404 authorization and that a copy of the permit will be maintained on-site.	Preconstruction
WUS-11	After completion of the proposed project, the washes will be returned to a preconstruction elevation.	Construction, Postconstruction
WUS-12	Pollution from the operation of equipment in the floodplain shall be cleaned up and removed by the contractor before it can be washed into a watercourse. Spills will be promptly cleaned and properly disposed.	Construction
WUS-13	Temporary erosion and sediment control measures will be installed, at a minimum, according to ADOT's *Standard Specifications for Road and Bridge Construction* (2008) and *Erosion and Pollution Control Manual* (2012b), prior to construction and will be maintained as necessary during construction and will not be installed in a manner that causes noncompliance with the Section 404 permit.	Preconstruction, Construction
WUS-14	If permanent erosion and sediment control measures are required, they will be installed as soon as practicable, preferably prior to construction activities, and will be maintained throughout the life of the project. Permanent erosion and sediment control measures will be located to protect downstream entities from construction impacts when there will be a flow in watercourses within the project boundary.	Preconstruction, Construction
WUS-15	Any soil contaminated as a result of contractors' operations shall be assessed and then disposed of in an appropriate, approved disposal facility.	Construction

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
WUS-16	No excavation, fill, or leveling will be permitted in the watercourses outside the boundaries of the permitted work area.	Construction
WUS-17	No fill will be taken from any watercourse outside the boundaries of the permitted work area. Fill will come from an area outside the OHWM of any watercourses and will be free of any contaminants or pollutants.	Construction
WUS-18	Heavy equipment traffic shall be restricted from entering the watercourses outside the boundaries of the permitted work area. Appropriate barricades shall be installed to preclude this activity.	Construction
WUS-19	During construction, the work sites shall be maintained such that no construction debris or material spillover shall be allowed in the watercourses. Upon completion of the work, all construction debris and excess material shall be removed from the job sites and disposed of appropriately outside the USACE jurisdictional areas.	Construction, Postconstruction
WUS-20	During construction, appropriate measures shall be taken to accommodate flows within the watercourses, such that waters will not be diverted outside the OHWM.	Construction
WUS-21	ADOT will fence, stake, or flag the construction limits for work within waters of the United States.	Preconstruction
WUS-22	ADOT will mitigate for any permanent loss of waters of the United States, as required by USACE.	Preconstruction
Topography, Geology, and Soils		
GEO-1	The contractor shall be required to perform in-depth pre- and postconstruction surveys for all structures located within one-half mile in the event any blasting and/or heavy ripping is planned for construction purposes. This documentation shall include photographic and video documentation.	Preconstruction, Construction, Postconstruction
GEO-2	Geotechnical-related construction effects will be mitigated through use of appropriate design, including excavations and slopes in soil and rock with an accepted degree of safety, placement of fills with an accepted degree of safety, protection of excavation and fill slopes against erosion, and design of roadway subgrade and foundations in accordance with accepted practices.	Final Design, Construction
Biological Resources		
BIO-1	Protected native plants within the project limits will be affected by this project; therefore, ADOT will determine whether ADA notification will be needed. If notification is needed, ADOT will send the notification at least 60 calendar days prior to the start of construction.	Preconstruction
BIO-2	The freeway will be designed to protect and maintain opportunities for wildlife movement between the South Mountains, the Gila River, and the Sierra Estrella. These opportunities will be located in the region where the freeway will intersect the southwestern portion of the South Mountains. The project will include the five multiuse crossings (bridge structures) identified in Figure 16. Multiuse crossing 4 is aligned with the Maricopa County Regional Trail/Sun Circle Trail/National Trail (see Figure 5-5 on page 5-8 of the Final Environmental Impact Statement). Multiuse crossings 1, 2, 3, and 5 will facilitate wildlife movement and provide access by Community members to the South Mountains. These crossing structures and associated fences will be designed to reduce the incidence of vehicle-wildlife collisions and to reduce the impact of the proposed action on wildlife connectivity between the South Mountains, the Gila River, and the Sierra Estrella. ADOT will coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality during the design phase regarding the location and design of wildlife-sensitive roadway structures.	Final Design
BIO-3	For drainage structures, such as culverts located in potential wildlife movement corridors, ADOT will coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality during the design phase regarding the location and design of wildlife-sensitive roadway structures based on the results of species surveys.	Final Design
BIO-4	All disturbed soils not paved that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.	Construction
BIO-5	ADOT will coordinate with AGFD and the Community's Department of Environmental Quality regarding State and culturally sensitive species and ADOT will determine whether additional species-specific mitigation measures are appropriate.	Final Design
BIO-6	If new species or critical habitat are listed following completion of the ROD, or if the potential effects on species or critical habitat from the project have changed from those described in the Biological Evaluation, an update to the Biological Evaluation will be prepared and any required consultation with USFWS will be completed. ADOT will coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality to determine whether any additional species-specific mitigation measures will be required.	Preconstruction, Construction
BIO-7	Prior to construction, ADOT will arrange for surveys to be completed for the Sonoran desert tortoise and other species as determined by ADOT to be necessary.	Preconstruction
BIO-8	ADOT will require the contractor's personnel to receive training as part of the overall project safety program regarding procedures for interactions with sensitive species that may be encountered during construction.	Preconstruction

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
BIO-9	If vegetation clearing will occur during the migratory bird breeding season (March 1 to August 31), the contractor shall avoid any active bird nests. If the active nests cannot be avoided, the contractor shall notify the ADOT Engineer to evaluate the situation. During the non-breeding season (September 1 to February 28), vegetation removal is not subject to this restriction. If any active bird nests cannot be avoided by vegetation clearing or construction activities, the ADOT Engineer will contact the EPG Biologist (602-712-6819 or 602-712-7767) to evaluate the situation.	Construction
BIO-10	Invasive species surveys will be conducted during the design phase. If noxious or invasive species are found to be present in the project footprint during that survey, the contractor will develop and implement an invasive and noxious species control plan.	Final Design
BIO-11	To prevent the introduction of invasive species seeds, the contractor shall inspect all earthmoving and hauling equipment at the equipment storage facility and the equipment shall be washed prior to entering the construction site.	Construction
BIO-12	To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.	Construction
BIO-13	Habitat impacts shall be minimized by restricting construction activities to the minimum area necessary to perform the activities and by maintaining natural vegetation where possible.	Construction
BIO-14	If any Sonoran desert tortoises are encountered during construction, the contractor shall adhere to the most current guidelines regarding encounters with Sonoran desert tortoises.	Construction
BIO-15	The contractor shall develop procedures for encounters with sensitive species in the Environmental Management Plan. The procedures shall include allowing the animal to leave of its own accord or contacting a trained person if the animal needs to be removed from the work area.	Construction
BIO-16	A biologist will be employed to complete a preconstruction survey for burrowing owls 96 hours prior to construction in all suitable habitat that will be disturbed. The biologist shall possess a burrowing owl survey protocol training certificate issued by AGFD. Upon completion of surveys, the survey results will be reviewed with the ADOT biologist and a course of action will be identified.	Preconstruction
BIO-17	If any burrowing owls are located in the work area, the contractor shall immediately stop work at that location and notify the ADOT Engineer. The ADOT Engineer will contact the ADOT biologist to determine whether the owls could be avoided or must be relocated. The contractor shall not work within 100 feet of any active burrow until the situation had been evaluated by the ADOT biologist. If the ADOT biologist determined that the owl must be relocated, a biologist holding a rehabilitation permit from USFWS will relocate burrowing owls from the project area.	Construction
Cultural Resources		
CUL-1	ADOT, on behalf of FHWA and in conjunction with tribal and local authorities, Western, and BIA, developed a PA for the proposed action under Section 106 of the National Historic Preservation Act of 1966. No ground-disturbing activities will be conducted until ADOT EPG has notified the ADOT Engineer that the terms and stipulations of the PA have been fulfilled (see Appendix D of Volume III of the ROD).	Preconstruction
CUL-2	Strategies for prehistoric sites will include: • In accordance with the PA, a historic properties treatment plan will be developed and implemented for the sites by ADOT. ADOT will consult with SHPO and other consulting parties as required. Depending on the results of the testing program, follow-up data recovery excavations might also be required. • A burial agreement with the ASM and concerned Native American Tribes will be developed to outline procedures for proper removal, treatment, and reburial of any human remains and associated funerary objects that might be encountered.	Preconstruction
CUL-3	Impacts on the Roosevelt Canal and historic Southern Pacific Railroad will be avoided through the use of bridges to span the resources.	Final Design
CUL-4	ADOT and FHWA will fund a TCP evaluation of the South Mountains TCP to be prepared by the Community. FHWA and ADOT will fund the development and implementation of a TCP enhancement and management plan to be prepared by the Community.	Post-Record of Decision
CUL-5	Consultation will continue throughout design and construction with SHPO, the Community, and other Tribes regarding other appropriate mitigation strategies; selected, limited disclosure of locations of cultural resources sites; and other cultural resources issues related to the freeway.	Final Design, Construction
CUL-6	Pedestrian access to TCPs will be modified by the freeway. Access will be maintained by multifunctional crossings under the freeway. The interested Native American Tribes will continue to be consulted on the multifunctional crossings in conjunction with the design of the freeway.	Final Design
CUL-7	Gaps in the cultural resources inventory are being investigated by ADOT and will continue during the design phase. All cultural resource inventories will be completed prior to any construction or any ground-disturbing activities. Additionally, all land acquired by ADOT that has not been previously surveyed will be surveyed and consultation will occur as appropriate.	Final Design, Preconstruction

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
CUL-8	If previously unidentified cultural resources are encountered during activity related to the construction of the freeway, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources and notify the ADOT Engineer. The ADOT Engineer will contact the ADOT EPG HPT immediately and make arrangements for the proper treatment of those resources. ADOT will, in turn, notify the appropriate agency(ies) to evaluate the significance of those resources.	Construction
CUL-9	The contractor shall contact the ADOT EPG HPT (602-712-8636 or 602-712-7767) at least 14 business days prior to the start of ground-disturbing activities to arrange for a qualified archaeologist to flag avoidance areas and arrange for a monitor. The contractor shall avoid all flagged and/or otherwise designated sensitive resource areas within or adjacent to the project area.	Preconstruction
CUL-10	If human remains or funerary objects are encountered during activity related to the construction of the freeway, the contractor shall stop work immediately within the area of the discovery, take steps to protect the discovery, and immediately notify the ADOT EPG HPT (602-712-8636 or 602-712-7767). ADOT EPG HPT shall notify and consult with appropriate Native American groups to determine the proper treatment and disposition measures in accordance with the implemented burial agreement. ADOT EPG HPT shall also inform the director of the ASM and SHPO of the discovery.	Construction
CUL-11	All key personnel and those people involved in field work or ground disturbing activities during the design, construction, and operation of the project will attend cultural sensitivity training conducted by the Community prior to any ground disturbing activities.	Final Design, Preconstruction
Prime and Unique Farmland		
PUF-1	During the design phase of the proposed action, ADOT will coordinate with affected property owners as part of the R/W acquisition process to provide access, if possible, for farm equipment between divided agricultural parcels or to purchase remaining farm parcels considered too small to be farmed either economically or functionally.	R/W Acquisition, Final Design, Construction
PUF-2	Provision will be made for access to farmland otherwise made functionally inaccessible by the project.	Final Design, Construction
Hazardous Materials		
HZM-1	A site-specific Phase I assessment will be performed prior to site acquisition for each property.	R/W Acquisition
HZM-2	ADOT will review the status of open regulatory cases relating to hazardous materials releases during the Phase I assessments. Responsible parties associated with any open regulatory cases will be determined at that time. ADOT will coordinate with responsible parties to determine the status of any required cleanup actions.	Final Design
HZM-3	ADOT will conduct asbestos and lead-paint inspections of structures to be demolished and will require abatement measures during demolition according to NESHAP regulations.	R/W Acquisition
HZM-4	ADOT will determine the need for additional site assessments with the final design submittal.	Final Design
HZM-5	Staging for construction activities near wells or dry wells will be located in areas where accidental releases of potential contaminants will be minimized and any accompanying threat to groundwater resources minimized.	Preconstruction
HZM-6	In cooperation with the contractor, ADOT will develop and coordinate emergency response plans with local fire authorities, local hospitals, and certified emergency responders for hazardous materials releases or chemical spills.	Preconstruction
HZM-7	If suspected hazardous materials are encountered during construction, work will cease at that location and ADOT will arrange for proper assessment, treatment, or disposal of those materials.	Construction
HZM-8	Asbestos- and lead-paint-containing materials identified in structures to be demolished will be properly removed and disposed of prior to demolition according to NESHAP and EPA/HUD regulations, respectively.	R/W Acquisition
HZM-9	Any existing aboveground storage tanks or underground storage tanks will be removed or relocated. The removal/relocation activities will be addressed in accordance with applicable laws and regulations of ADEQ.	R/W Acquisition
HZM-10	The contractor shall develop an on-site health and safety plan for construction activities.	Preconstruction
HZM-12	The contractor shall develop a hazardous waste management plan for the handling of hazardous materials during construction.	Construction
HZM-13	Use of asbestos-containing materials will be prohibited for construction.	Construction

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
Visual Resources		
VIS-1	During the design phase, ADOT will evaluate: • leaving in place rock outcrops—if stable and not a hazard to the traveling public—not interfering with construction or looking out-of-place in the natural landscape • using vegetative buffers to screen views both of the road and from the road • transplanting saguaro, mature trees, and other cacti likely to survive the transplanting and setting-in period to visually sensitive or critical roadway areas • blending retention basins and their landscape treatments into their natural surroundings • placing landscape treatment on the periphery of R/W areas at overpass locations as well as at other areas adjacent to residential development • clustering or grouping plant material in an informal pattern to break up the linear form of the freeway • using strategic gaps in plantings to frame positive views from the road • using earth colors for overpasses, retaining and screen walls, and noise barriers • using natural-tone metals with a noncontrasting, nonglare finish for guardrails and handrails • using riprap that blends with the surrounding rocks and exposed soil color • using shotcrete that matches the color and texture of adjacent rocks • using bridges and overpass structural systems that help unify a visually complex landscape • minimizing structural sizes and/or recessing the face of structural members from the edge of the roadway to reduce real or apparent breadth of structures	Final Design, Construction
VIS-2	If a jurisdiction through which the freeway will pass were to request treatments other than ADOT's South Mountain Freeway corridor standard palette of treatments to noise barriers, screen walls, piers, concrete barriers, retaining walls, or highly visible headwalls, such efforts may be negotiated with ADOT. (Treatments beyond the ADOT South Mountain Freeway corridor standard palette may be more expensive to construct and/or maintain. In such cases, a given jurisdiction must cover the additional expenses to secure the desired treatment.)	Final Design
VIS-3	Road cuts through the South Mountains will incorporate the newly exposed rock faces characteristic of the adjacent natural rock features, including scale, shape, slope, and fracturing to the extent that could be practicable and feasible as identified through geotechnical testing and constructibility reviews. ADOT will require the contractor to round and blend new slopes to mimic the existing contours to highlight natural formations. ADOT will evaluate having the contractor adjust and warp slopes at intersections of cuts and natural grades to flow into each other or transition with the natural ground surfaces without noticeable breaks.	Final Design, Construction
VIS-4	Freeway lighting will be provided along the median of the freeway and at interchanges to achieve desired lighting levels for safety reasons. Any freeway lighting will be designed to reduce illumination spillover onto sensitive light receptors (such as residential and natural areas).	Final Design
Temporary Construction Impacts		
TMP-1	A traffic control plan will be developed and implemented to help reduce impacts of traffic congestion and associated emissions during construction.	Preconstruction
TMP-2	An approved "Application for Earth Moving Permit, Demolition, and Dust Control Plan" will be obtained prior to construction from the Maricopa County Air Quality Department for all phases of the proposed action. The permit will describe measures to control and regulate air pollutant emissions during construction.	Preconstruction
TMP-3	The following measures will be implemented for the Selected Alternative: • All equipment exhaust systems will be in good working order. Properly designed engine enclosures and intake silencers will be used. • Equipment will be maintained on a regular basis. New equipment will be subject to new product emission standards. • Stationary equipment will be located as far away from sensitive receivers as possible. • Construction-related noise generators will be shielded from noise receivers (e.g., use temporary enclosures to shield generators or crushers, take advantage of site conditions to provide topographic separation). • Construction alerts will be distributed to keep the public informed of construction activities, and a toll-free number for construction-related complaints will be provided. • During the design phase, hours of operation will be evaluated to minimize disruptions during construction.	Construction

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
TMP-4	Congestion from construction-related traffic will create temporary impacts in the project vicinity. The magnitude of these impacts will vary depending on the location of the sources of the fill material and of the disposition sites for surplus material, the land uses along the routes, the duration of hauling operations, staging locations, and the construction phasing. To identify acceptable routes and times of operation, ADOT, or its representative, will prepare an agreement with local agencies regarding hauling of construction materials on public streets.	Final Design, Preconstruction
TMP-5	Traffic will be managed by a detailed Transportation Management Plan, including coordination with potentially affected public services. Access will be maintained during construction, and construction activities that might substantially disrupt traffic will not be performed during peak travel periods. To minimize disruption, ADOT will coordinate with local jurisdictions regarding traffic control and construction activities during special events. Requirements for the use of construction notices and bulletins will be identified as needed. The effectiveness of the traffic control measures will be monitored during construction and any necessary adjustments will be made.	Final Design, Construction
TMP-6	ADOT will coordinate with the responsible local entities regarding the relocation of utilities, as appropriate. ADOT coordination with affected utilities will be ongoing and will continue through the design phase. Utilities with prior rights will be relocated at ADOT cost according to the requirements of the utility.	Final Design, Preconstruction
TMP-7	Disruptions to utility services, if necessary, will be restricted to being short-term and localized. ADOT and project contractors will continue to coordinate with utility providers during the design phase and project construction to identify potential problems and/or conflicts and to provide opportunities for their resolution prior to proposed actions. Replacement and/or relocation of utilities will be coordinated with ADOT construction activities and other projects in the area. Planning will include scheduling of disruptions and prior notification of adjacent property owners who will be affected by temporary service cut-offs. Emergency response procedures will be outlined by ADOT in consultation with local utility providers to ensure quick and effective repair of any inadvertent or accidental disruptions in service.	Final Design, Construction
TMP-8	Community access to the TCPs will be maintained during construction, but may temporarily involve detours. The TCPs will be flagged or fenced for avoidance during construction.	Preconstruction, Construction
Material Sources		
MAT-1	The contractor may use material sources from the ADOT *Contractor-Furnished Materials Sources List*. If the source that the contractor prefers to use is not on the ADOT list, then the contractor shall complete ADOT EPG's Material Source Environmental Analysis Application. Contractor-furnished material sources must go through a process to obtain environmental clearance for use on ADOT projects. The material source owner or operator must submit a Material Source Environmental Analysis Application, with cultural survey and reports, to ADOT EPG. After receiving the completed application, ADOT EPG will initiate a cultural consultation process. Upon successful completion of the environmental review, the material source will receive a tracking number and may be included on the ADOT *Contractor-Furnished Materials Sources List*.	Preconstruction
MAT-2	Materials excavated from the cuts through the South Mountains shall be used along the project only between 51st Avenue and 17th Avenue.	Construction
Section 4(f)		
S4F-1	Where the Selected Alternative will cross NRHP-eligible properties (specifically, the Grand Canal, Roosevelt Canal, and the historic Southern Pacific Railroad [Wellton-Phoenix-Eloy Main Line]), the freeway will be constructed as an elevated span to clear the properties.	Final Design, Construction
S4F-2	Because existing access to some of the NRHP-eligible properties afforded protection under Section 4(f) may be affected, alternative access will be provided. In those instances, access will not be restricted and utility of the resources will not be altered.	Final Design, Construction
S4F-3	Where the Selected Alternative will cross over trail segments (specifically, Segments Seven, Fifty-six, Sixty-eight, and Sixty-nine of the Maricopa County Regional Trails System, and Segment One of the Sun Circle Trail), the freeway will be constructed as an elevated span to clear the trail segments.	Final Design, Construction
S4F-4	ADOT will engage Maricopa County in the design phase to coordinate the design of the freeway with relevant segments of the County's trail system.	Final Design
S4F-5	During the design phase, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Mountains Preservation Council, Mountain Bike Association of America, Phoenix Parks and Recreation Board, and Arizona Horsemen's Association to identify and implement other design measures, when possible, to further reduce parkland needed for the freeway.	Final Design
S4F-6	During the design phase, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests to enter into an IGA to identify and purchase replacement land. Replacement land will not exceed a 1:1 ratio (minus previously purchased replacement land) unless ADOT and the City of Phoenix determine jointly that exceeding the 1:1 ratio will be in the best interests of both parties. Under provisions set forth in the IGA entered into by both ADOT and the City of Phoenix, the City will be responsible for identification of replacement land. Once agreed upon under the terms of the IGA, ADOT will issue payment to the City of Phoenix for the acquisition of replacement land. Provisions of the IGA will ensure commitment of the transaction will be solely for the purposes of timely acquisition of public parkland within Phoenix.	R/W Acquisition

Note: Abbreviations and acronyms are provided at the end of this table, on page 47.

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Table 3 Commitments and Mitigation Measures (continued)

Commitments and Mitigation Measures		Timing for Implementation
S4F-7	ADOT will undertake the acquisition process to obtain the land from SMPP for the Selected Alternative. Replacement land will be provided as a measure to minimize harm.	R/W Acquisition
S4F-8	Design measures will be implemented to blend the appearance of the cuts with the surrounding natural environment, as feasible. The degree of slope treatment will depend on the interaction of two primary factors: the angle of the cut slope and the receptivity of the cut rock to rock sculpting and rounding to mimic existing contours and allow for staining, revegetation, and other related measures to blend the slope with the South Mountains' natural setting.	Final Design, Construction
S4F-9	ADOT will undertake additional geotechnical investigations during the design phase to determine, in part, how receptive the proposed slope angles will be to slope treatments. During this period, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Parks and Recreation Board, and Phoenix Mountains Preservation Council in establishing a slope treatment plan for cut slopes through the ridgelines, with the clear intent to blend as well as will be possible the cut slopes with the South Mountains' natural setting.	Final Design, Construction
S4F-10	Barriers proposed to mitigate noise impacts on neighboring residential developments (near the Foothills Reserve residential development and the Dusty Lane residential area), while not specifically intended to mitigate noise intrusion into SMPP, will provide incidental noise mitigation.	Final Design
S4F-11	Where appropriate, visual intrusions will be reduced by a number of measures: • Vegetation buffers will be used to screen views of the freeway from SMPP. • Saguaros, mature trees, and other cacti likely to survive the transplanting and setting-in period will be transplanted in relatively natural areas near the proposed action to blend with the existing landscape. • Clustering or grouping plant material in an informal pattern to break up the linear form of the freeway will be utilized where appropriate to "naturalize" areas within the R/W. • Landscape treatments using native plants on the periphery of R/W areas at overpass locations and areas near residential developments will be installed where appropriate. • Aesthetic treatments and patterning will be applied to noise barriers, overpasses, abutments, retaining and screening walls.	Final Design
S4F-12	To set clear parameters defining the scope of the mitigation measures to be implemented and for making environmental determinations, an IGA will be created between ADOT and the City of Phoenix. For the proposed action through SMPP, ADOT will consult directly with the Phoenix City Manager's office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee, Phoenix Parks and Recreation Board, and the Phoenix Mountains Preservation Council and with Community representatives to develop the aesthetic treatment of landscaping and structures through the park/preserve.	Final Design
S4F-13	During the design phase, ADOT will consult directly with USFWS, AGFD, and the Community's Tribal Historic Preservation Officer and Department of Environmental Quality to finalize design features and locations of the crossings designed to provide access to SMPP.	Final Design
S4F-14	The Selected Alternative was designed to avoid two contributing elements to the South Mountains TCP, resulting in no direct use of the TCP elements. A R/W fence will restrict access to the sites by freeway users, but Community members will continue to gain access to the sites as they do currently. ADOT and FHWA will consult with the Community during final design of these features.	Final Design, Preconstruction, Construction
S4F-15	As a measure to minimize harm to the South Mountains TCP, ADOT and FHWA will provide funds for the Community to conduct the TCP evaluation.	Post-Record of Decision
S4F-16	ADOT will invite the Community to participate in direct consultation with the City of Phoenix in establishing a slope treatment plan for cut slopes through the ridgelines, with the clear intent to blend the cut slope with the South Mountains' natural setting.	Final Design, Construction
S4F-17	ADOT will invite the Community to participate in direct consultation with the City of Phoenix to develop the aesthetic treatment of landscaping and structures (e.g., noise barriers) through the South Mountains TCP.	Final Design, Construction
S4F-18	The multipurpose crossings constructed as a measure to minimize harm to SMPP will provide access from the Community to the mountains.	Final Design, Construction

A.A.C. – Arizona Administrative Code
ADA – Arizona Department of Agriculture
ADEQ – Arizona Department of Environmental Quality
ADOT – Arizona Department of Transportation
AGFD – Arizona Game and Fish Department
ASLD – Arizona State Land Department
ASM – Arizona State Museum
AZPDES – Arizona Pollutant Discharge Elimination System
BIA – U.S. Bureau of Indian Affairs
BLM – Bureau of Land Management
BMPs – best management practices
C.F.R. – Code of Federal Regulations
Community – Gila River Indian Community
CWA – Clean Water Act
EPA – U.S. Environmental Protection Agency
EPG - ADOT Environmental Planning Group
FHWA – Federal Highway Administration
HPT – ADOT Historic Preservation Team
HUD – U.S. Department of Housing and Urban Development
IGA – intergovernmental agreement
MAG – Maricopa Association of Governments
NEPA - National Environmental Policy Act
NESHAP - National Emissions Standards for Hazardous Air Pollutants
NRHP – National Register of Historic Places
OHWM – ordinary high-water mark
PA – programmatic agreement
ROD - Record of Decision
R/W – right-of-way
SHPO – State Historic Preservation Office
SMPP – Phoenix South Mountain Park/Preserve
SWPPP – Stormwater Pollution Prevention Plan
TCP – traditional cultural property
USACE – U.S. Army Corps of Engineers
USFWS – U.S. Fish and Wildlife Service
Western – Western Area Power Administration

8. PERMITS AND APPROVALS

ADOT will be responsible for ensuring compliance with all related commitments and regulatory permit conditions made or obtained for the project. Anticipated permits and approvals required for the South Mountain Freeway—and the agencies from which these permits and approvals will be obtained—are listed as follows.

Federal

USACE:

- Section 404, individual permits and nationwide permits, as required

FHWA:

- authorization to proceed with design, construction, and R/W activities

State

Arizona Department of Environmental Quality (ADEQ):

- Section 401, Water Quality Certification
- Section 402, construction Arizona Pollution Discharge Elimination System permit

Local

Maricopa County Air Quality Department:

- dust permit

9. PUBLIC OUTREACH AND COMMENTS RECEIVED ON THE FEIS AND ERRATA

Although issuance of an FEIS does not require a formal comment period under NEPA, FHWA's Environmental Impact and Related Procedures (23 C.F.R. Part 771) call for new substantive comments received on an FEIS to be responded to in the ROD. This section of the ROD describes the public outreach related to the FEIS.

Final Environmental Impact Statement Availability

The FEIS was made available to the public on September 26, 2014. Public notification of availability of the FEIS included the following:

- publication in the *Federal Register*
- direct mail and/or e-mail notice (notice provided to all participants who provided a direct mail or e-mail address during the project's public involvement process; direct mail used for key agencies)
- Community and jurisdictional briefings about the FEIS
- project Web site announcement
- notification posters distributed throughout the Study Area
- advertisement of FEIS availability in local newspapers of wide distribution, including:
  - *Ahwatukee Foothills News*: Friday, September 26, 2014
  - *Arizona Informant*: Wednesday, October 1, 2014
  - *The Arizona Republic*: Friday, September 26, 2014
  - *East Valley Tribune*: Sunday, September 28, 2014
  - *Gila River Indian News*: Friday, October 3, 2014
  - *La Voz*: Friday, September 26, 2014
  - *West Valley View*: Friday, September 26, 2014

The FEIS and notices of availability stated that comments could be submitted by:

- mailing them to the South Mountain Freeway project team at: South Mountain Freeway Project Team; Arizona Department of Transportation; 1655 West Jackson Street, MD 126F; Phoenix, AZ 85007
- e-mailing them to <projects@azdot.gov>
- leaving them as a message on the project hotline at (602) 712-7767

Printed copies of the FEIS and related documents were available for purchase from ADOT upon request or were available for the cost of printing at a FedEx Office Print & Ship Center. Compact discs of the FEIS were available at no charge and were provided upon request.

The FEIS, DEIS, and technical reports were available to download at no charge at <azdot.gov/southmountainfreeway>.

A printed copy of the FEIS was available for review at eight libraries throughout the Study Area and at nine locations on the Community (see Volume III, Appendix B). In addition, printed copies were available for review by appointment at ADOT.

Errata to the Final Environmental Impact Statement

After release of the FEIS, ADOT was contacted by a stakeholder organization and was informed that the comments it had submitted on the DEIS were not included in the FEIS. ADOT examined this concern and found that the comments, submitted through e-mail, had been received, but were not transmitted to the project team. ADOT conducted a thorough search of the e-mail system and found that 10 e-mail comments had been inadvertently omitted from the FEIS. The omitted comments consist of the e-mail from the stakeholder organization and 9 e-mails from other interested parties. The comments were reviewed, and FHWA and ADOT determined that omitted comments did not raise new issues not analyzed in the FEIS. Based on this, FHWA, in conjunction with ADOT, published an omission notice in the *Federal Register* on November 7, 2014, and prepared an errata volume [Volume IV of the FEIS] to address these omissions.

The errata was made available to the public on ADOT's Web site and at the repositories on November 28, 2014. Public notification of availability of the errata included the following:

- publication in the *Federal Register* on December 5, 2014
- direct mail and/or e-mail notice (notice provided to all participants who provided a direct mail or e-mail address during the project's public involvement process; direct mail used for key agencies)
- Community and jurisdictional briefings about the errata

- project Web site announcement
- advertisement of errata availability in local newspapers of wide distribution, including:
  - *Ahwatukee Foothills News*: Friday, November 28, 2014
  - *Arizona Informant*: Wednesday, December 3, 2014
  - *The Arizona Republic*: Friday, November 28, 2014
  - *East Valley Tribune*: Sunday, November 30, 2014
  - *Gila River Indian News*: Friday, December 5, 2014
  - *La Voz*: Friday, November 28, 2014
  - *West Valley View*: Friday, November 28, 2014

The errata and notices of availability stated that comments could be submitted by:

- mailing them to the South Mountain Freeway project team at: South Mountain Freeway Project Team; Arizona Department of Transportation; 1655 West Jackson Street, MD 126F; Phoenix, AZ 85007
- e-mailing them to <projects@azdot.gov>
- leaving them as a message on the project hotline at (602) 712-7767

Printed copies of the errata were available for purchase from ADOT upon request or were available for the cost of printing at a FedEx Office Print & Ship Center. Compact discs of the errata were available at no charge and were provided upon request.

The errata was added to the documents available to download at no charge at <azdot.gov/southmountainfreeway>.

A printed copy of the errata was available for review at eight libraries throughout the Study Area and at nine locations on the Community (see Volume III, Appendix B). In addition, printed copies were available for review by appointment at ADOT.

Gila River Indian Community Outreach

On August 29, 2014, ADOT hand-delivered a letter to the Community's Transportation Technical Team describing the project team's desire for guidance from the Community on how to best accommodate communication with Community members, specifically related to comments received during the DEIS comment period regarding the Community's oral tradition (see Volume III, Appendix C). The letter proposed conducting a forum for Community members, in partnership with the Community, during the 60-day FEIS review period. The forum would include an opportunity for oral testimony. To allow sufficient time to prepare for such a forum, the letter requested a response to the proposal by September 19, 2014.

On September 12, 2014, the Community indicated that to properly form its response, it needed to review the comments submitted by Community members on the issue of oral traditions. Specific comments related to this topic were provided to the Community on September 26, 2014, and the deadline for response to the forum request was extended to October 30, 2014 (see Volume III, Appendix C). The Community responded on October 30, 2014, that it would like to hold a Community meeting; therefore, a Community meeting was held on November 15, 2014.

The forum occurred from 9 a.m. to 12 p.m. on Saturday, November 15, 2014, at the Boys & Girls Club, Gila River – Komatke. The Boys & Girls Club is located just east of 51st Avenue and Pecos Road in District 6 of the Community. The time, location, and duration of the forum was determined by the Community.

The Community's Communications and Public Affairs Office (CPAO) coordinated all notification which included:

- a flier posted at the bulletin boards at each District's service center (see Volume III, Appendix C)
- direct mail postcard to Community members (see Volume III, Appendix C)
- meeting information (newspaper version of the flier) published in the *Gila River Indian News* on November 7, 2014
- meeting information posted on social media

The Community's leadership decided that, other than invited guests, the meeting would be open to Community members only. The Community developed the agenda and facilitated the forum, which consisted of introductions, a description of the comment opportunities and court reporters' roles, an introduction to the South Mountain Freeway video flyover simulation, and an "open-microphone" comment period. The Community facilitator stated that the FHWA and ADOT project team members were guests at the forum and were in attendance to listen to comments. A translator was provided by the Community for those wishing to speak in the native O'odham language.

CPAO staff provided a sign-in table, at which 60 attendees signed in (see Volume III, Appendix C). During the meeting, Community members had the following methods to provide comments:

- public testimony at a microphone and recorded by a court reporter (see Volume III, Appendix C for a transcript of the meeting)
- one-on-one testimony with two court reporters at the back of the meeting area (no comments were provided)
- in writing via comment cards (no comments were provided)

Responses to the comments received at the meeting are presented in Volume II, Appendix A.

Public Comments

The initial 60-day review period for the FEIS was from September 26, 2014, to November 25, 2014. As a result of the publication of the errata, ADOT and FHWA extended the review period to December 29, 2014. Between September 26, 2014, and December 29, 2014, approximately 250 comments pertaining to the FEIS, errata, or NEPA process and documentation for the South Mountain Freeway were received. Comment letters, voice mail message summaries, and e-mails and responses from ADOT and FHWA are included in Volume II, Appendix A. ADOT and FHWA identified several recurring public comments. The nature of these comments, followed by a broad response to the issue, is provided in the text box beginning on the next page.

Responses to Frequently Submitted Public Comments

ADOT and FHWA identified several recurring public comments. The nature of these comments is summarized below, immediately followed by a broad response to the issue. The responses address issues that were commented on by multiple reviewers and address the majority of the comments submitted.

ISSUE: ACQUISITIONS AND RELOCATIONS

Frequent comment: *Commenters inquired about the process that will be undertaken by ADOT in the acquisition and relocation of their homes or businesses.*

Response: Land acquisition and relocation assistance services for the project shall be available to all individuals without discrimination in accordance with Title VI and the Uniform Act, which provides uniform, fair, and equitable treatment of people whose property is affected or who are displaced as a result of the project, including those with special needs. Advisory assistance services and compensation practices are described in detail in ADOT's *Right-of-way Procedures Manual*, located at <azdot.gov/business/RightofWay_Properties/booklets-and-manuals>. For further discussion, see page 4-51 of the FEIS and Appendix 4-1. For questions on specific properties, contact the ADOT Right-of-Way Group at (602) 712-7316.

ISSUE: AIR QUALITY

Frequent comment: *Commenters expressed the belief that the freeway will cause an increase in air pollution and that the freeway will worsen air quality.*

Response: Since the release of the DEIS, ADOT and the FHWA have consulted extensively with EPA on the air quality analytical approach and methods used in the FEIS. This consultation has resulted in agreement on the analysis methodologies and the results of these analyses. The carbon monoxide (CO) and particulate matter (PM_{10}) analyses demonstrated that the proposed freeway will not contribute to any new localized violations, increase the frequency or severity of any existing violation, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS) or any required interim emissions reductions or other milestones. The roadside CO and PM_{10} analyses used the latest traffic estimates and emissions and pollutant dispersion models and were reviewed by EPA. The FEIS includes analysis at three different locations along the proposed project (I-10 interchange, Broadway Road interchange, and 40th Street interchange), including worst-case locations based on traffic volumes, and additional locations to ensure coverage of all areas along the corridor. All locations meet the PM_{10} NAAQS and are well below the CO NAAQS, and the receptor diagrams in Figure 22 in the ROD show that concentrations decrease rapidly as distance from the roadway increases. At the worst-case locations, nearly all of the concentrations reported are attributable to background concentrations; at the location with the absolute highest concentration for PM_{10}, 145 micrograms per cubic meter is the background concentration and only 3.8 micrograms per cubic meter will be added by the project.

For mobile source air toxics (MSATs), the updated analysis showed that for the Study Area, constructing the freeway will have a marginal effect on annual emissions in 2025 and 2035 (less than a 1 percent difference in total annual emissions between the Preferred Alternative and No-Action Alternative). With the Preferred Alternative in 2035, modeled MSATs emissions will 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 (see discussion beginning on page 4-78 of the FEIS). Congestion relief resulting from the freeway will provide localized air quality emissions reductions on area freeways, arterial streets, and at interchanges, benefiting users of area highways and those living near or using congested roads. Additional details on air quality issues can be found in the frequent responses for *Health Effects* and *Children's and Seniors' Health*.

Some commenters expressed confusion or skepticism that construction of a large new freeway would result in a small change in emissions, as documented in the FEIS. As explained in the FEIS and response to comments, FHWA MSATs emissions assessments in the agency's NEPA documents are designed to evaluate emissions changes within a study area including roadway segments where traffic volumes change as a result of the project. EPA's risk estimates for MSAT pollutants are based on 70-year lifetime exposure; it is more likely that a person will be within the study area for 70 years than at a fixed location near the proposed corridor for 70 years. Thus, emissions changes in a study area are a reasonable indicator of potential changes in health risk.

FHWA acknowledges that emissions will be higher on average along the project corridor when the project is built, compared with the No-Action Alternative. However, emissions will likely decrease elsewhere in the Study Area. While FHWA did not calculate any site-specific emissions changes for the South Mountain Freeway or any other roadway segments, the *Traffic Overview* report provides an indication of where this could occur. For example, Table 19 in the *Traffic Overview* report shows that traffic volumes on nearly all sections of I-10 analyzed will decrease with the project; Table 20 shows that traffic volumes on nearly all affected sections of arterial streets will also decrease. It is reasonable to assume that since traffic volumes decrease relative to the No-Action Alternative, MSATs emissions will also decrease. Tables 23 and 24 of the *Traffic Overview* report show that travel times will decrease for all representative trips, meaning that MSAT exposures for these travelers will also likely decrease (since they are spending less time in traffic, exposed to emissions). Thus, while people will be exposed to higher concentrations of MSATs during the portion of their 70-year lifetime that they are located adjacent to the project corridor, they will also be exposed to lower concentrations of MSATs while they are located elsewhere in the Study Area. Again, a study area analysis best captures the overall likelihood of changes in MSAT emissions and possible MSAT health outcomes attributable to the project.

Finally, to address the fact that emissions will be higher along the project corridor, the FEIS includes a summary of past health risk studies for similar projects. As explained in the FEIS and air quality technical report, all of these studies identified very low health risk, well below EPA's "Action Level" for addressing risk. These studies also assumed long-term constant exposure to the roadways studied (24 hours a day for 70 years in most of the studies, 24 hours a day for 30 years in one study), even though these long exposure time frames are not representative of real-life conditions. FHWA did not receive any negative comments on the summary of these studies from EPA or other experts.

To summarize FHWA's understanding of the likely air quality impacts from the project:

1) The CO and PM_{10} modeling analyses, conducted in close consultation with EPA, show that neither of these air quality standards will be violated in the vicinity of the project.

2) The MSAT emissions analysis for the applicable geographic area for 70-year health risks shows a small increase in emissions (about 1 percent) with the project built (compared to not building it), but large declines from today's levels (about 80 percent) whether it is built or not.

3) While MSAT emissions will increase in the immediate vicinity of the corridor, the project-specific risk studies available to FHWA indicate that the potential risk is very low and is far less than EPA's Action Level for addressing it.

ISSUE: ALTERNATIVES, ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Frequent comment: *Commenters expressed that the No-Action Alternative is the environmentally preferable alternative.*

Response: CEQ regulations [40 C.F.R. Section 1505.2(b)] require a ROD to identify the environmentally preferable alternative. The environmentally preferable alternative is defined as the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Designation of the environmentally preferable alternative typically involves judgment and the balancing of some environmental values against others. CEQ notes that comments on draft environmental documents (such as the DEIS and FEIS for this project) can assist the lead agency in developing and determining environmentally preferable alternatives.

Although the No-Action Alternative would overall have less environmental impact, this alternative does not meet the project's purpose and need. Mitigation measures have been added to the project's ROD based on comments received on the DEIS and FEIS. The Selected Alternative is the environmentally preferable alternative that satisfies the project's purpose and need. Although the Selected Alternative does not have the least impact in every environmental discipline, ADOT and FHWA believe that this alternative best balances environmental effects and benefits. The Selected Alternative will meet

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the project needs as well as or better than the other alternatives, and, in the case of the E1 Alternative, was determined to be the only prudent and feasible alternative in the Eastern Section of the Study Area. The Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise as the other action alternatives; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will result in less construction disruption overall to I-10 (Papago Freeway); will mitigate impacts and provide measures to minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will meet regulatory permitting requirements.

ISSUE: ALTERNATIVES, GILA RIVER INDIAN COMMUNITY ALIGNMENT

Frequent comment: *Commenters expressed a desire to locate the freeway on Community land.*

Response: Tribal sovereignty is based on the inherent authority of Native American Tribes to govern themselves. States have very limited authority over activities within tribal land (see FEIS page 2-1). ADOT and FHWA do not have the authority to survey tribal land, make transportation determinations directly affecting tribal land, or condemn tribal land through an eminent domain process.

While efforts to study project alternatives on Community land were attempted (see FEIS Chapter 2, *Gila River Indian Community Coordination*), the Community has long held a position of not allowing the freeway to be located on its land. For example, a coordinated referendum of Community members to favor or oppose construction of the freeway on Community land or to support a no-build option occurred in February 2012, and Community members voted in favor of the no-build option. Moving forward, therefore, the freeway cannot be located on the Community (see FEIS page 3-25). The Community's position regarding a "no-build" option was considered in the DEIS and FEIS. That position is formally known as the No-Action Alternative and was evaluated in depth in assessments of the impacts of the freeway on each resource. FHWA, ADOT, and MAG will continue to coordinate with the Community regarding concerns and potential mitigation for those concerns.

ISSUE: ALTERNATIVES, GILA RIVER INDIAN COMMUNITY NO-BUILD REFERENDUM

Frequent comment: *Commenters expressed a belief that the project team had not considered the Gila River Indian Community's vote for the no-build option.*

Response: The FEIS on page 2-4 acknowledges that the Community Council passed Resolution GR-64-96 that strongly opposed any future alignment of the South Mountain Freeway on Community land. In addition, the comments received from Community Governor Gregory Mendoza (see letter dated July 11, 2013, on page B38 in Appendix 7, Volume III, of the FEIS and letter dated December 15, 2014, on page A24 in Appendix A) confirm the Community's position. A coordinated referendum of Community members to favor or oppose construction of the proposed freeway on Community land or to support a no-build option occurred in February 2012, and Community members voted in favor of the no-build option. The EIS process allows the voter outcome to be taken into account as one of many factors to consider in terms of the NEPA decision making intent to promote a more informed decision with regard to the proposed action.

ISSUE: ALTERNATIVES, NO-ACTION (NO-BUILD) ALTERNATIVE

Frequent comment: *Commenters expressed a desire to select the No-Action (No-Build) Alternative as the Preferred Alternative.*

Response: As stated on page 3-40 of the FEIS, the No-Action Alternative would not satisfy the purpose and need of the freeway because it would result in further difficulty in gaining access to adjacent land uses, increased difficulty in gaining access to Interstate and regional freeway systems from the local arterial street network, increased levels of congestion-related impacts, continued degradation in performance of regional freeway-dependent transit services, increased trip times, and higher user costs. Further, the No-Action Alternative would be inconsistent with MAG's and local jurisdictions' long-range planning and policies. The No-Action Alternative was included in the DEIS and FEIS for detailed study to compare impacts of the action alternatives with the consequences of doing nothing (as impacts can result from choosing to do nothing). The impacts associated with the No-Action Alternative are discussed in each section of Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, in the FEIS. These impacts are also summarized in Table S-3 on page S-10 of the *Summary* chapter of the FEIS.

The comparison of traffic operational characteristics between the action alternative and the No-Action Alternative is presented in the FEIS, beginning on page 3-27. The analysis shows that the action alternatives will:

- reduce overall traffic on the arterial street system (see Figures 3-12 and 3-13 in the FEIS)
- optimize travel on the region's freeway system (see Figure 3-12 in the FEIS)
- reduce the capacity deficiency to levels better than experienced today (see Figures 1-12 and 3-14 in the FEIS)
- reduce the duration of LOS E or F conditions in key areas of the region's freeway system (see Figure 3-15 in the FEIS)
- improve travel times on trips within the Study Area and across the region (see Figure 3-17 and Table 3-8 in the FEIS)
- provide improved regional mobility for areas projected to experience growth in the next 25 years (see Figures 1-7 and 3-18 in the FEIS)

When all of this is considered in the realm of travel time savings for motorists in the region, the user benefits total approximately $200 million per year (see Table 4-27 in the FEIS).

ISSUE: ALTERNATIVES, NONFREEWAY ALTERNATIVES

Frequent comment: *Commenters expressed a desire for ADOT to invest in nonfreeway travel modes.*

Response: The study has considered a variety of transportation modes: TSM/TDM, mass transit (commuter rail, light rail, expanded bus service), arterial street improvements, land use controls, new freeways, and a No-Action Alternative. These alternatives alone or in combination would have limited effectiveness in reducing overall traffic congestion in the Study Area and, therefore, would not meet the purpose and need criteria; specifically, they would not adequately address projected capacity and mobility needs of the region. Mass transit modes such as light rail and an expanded bus system were reexamined in the FEIS and were eliminated from further study because even better-than-planned performance of transit would not adequately address the projected 2035 travel demand (see FEIS page 3-4). For example, the average daily ridership for the light rail system connecting downtown Phoenix and the Arizona State University campus was approximately 44,000 in 2014. This is only approximately 25 percent of the total daily vehicles projected to use the freeway in 2035. Two high-capacity transit corridors are being considered near the western and eastern extents of the Study Area, but such extensions would not adequately address the projected 2035 travel demand. A freeway/light rail combination would integrate a freeway and light rail system into a single transportation corridor (see FEIS page 3-6). Such a freeway/light rail system is planned at two locations: along I-10 (Papago Freeway) and along SR 51 (Piestewa Freeway). These two segments would connect to the light rail system currently in operation. With these two freeway/light rail segments already in planning stages, members of the public identified a similar opportunity along the South Mountain Freeway. Most freeway/light rail combinations, however, radiate from a central travel demand generator such as a business district or airport. No such systems are known to follow a circumferential route, as the freeway will. Furthermore, the additional R/W needed for light rail (generally, a 50-foot-wide corridor) would have substantial community impacts such as displaced residences and businesses and parkland impacts. Therefore, the light rail alternative and light rail and freeway combination would not be prudent and were eliminated from further study. The freeway mode was determined to be an appropriate response to the project's purpose and need.

The freeway is part of the RTP for the MAG region. The RTP, as described on pages 1-5 and 1-10 of the FEIS, addresses freeways, streets, transit, airports, bicycle and pedestrian facilities, freight, TDM, TSM, and safety. The freeway is only one part of the overall multimodal transportation system planned to meet the travel demand needs of the MAG region.

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As noted on page 3-4 of the FEIS, however, even better-than-planned performance of transit and other modes would not adequately address the projected 2035 travel demand.

ISSUE: ALTERNATIVES, RANGE OF REASONABLE ALTERNATIVES

Frequent comment: *Commenters expressed that they did not feel the study considered a range of reasonable alternatives.*

Response: In accordance with NEPA, a range of reasonable action alternatives to carry forward for further analysis was determined through application of multidisciplinary criteria in a logical, step-wise progression. Alternatives were not disposed of or dismissed without a thorough evaluation using the multidisciplinary criteria outlined in the systematic alternatives development and screening process presented in Chapter 3 of the DEIS and FEIS. This process, which occurred early in the EIS process, was revisited and validated in the FEIS (see page 3-2).

As discussed on page 5-18 of the FEIS, many alternatives were examined to avoid the South Mountains. However, none of these alternatives are feasible and prudent. The alternatives development and screening process considered the ability of an alternative to minimize impacts on the human and natural environments (see page 3-3 of the FEIS). Throughout the process described beginning on page 3-3, environmental impacts are used to eliminate alternatives. In the evaluation of action alternatives (see text beginning on page 3-62 of the FEIS), environmental and societal impacts play a substantial role in the identification of the W59 and E1 Alternatives as the Preferred Alternative. In comparison with the other action alternatives studied in detail, the Preferred Alternative is the least harmful alternative.

ISSUE: ALTERNATIVES, W59 ALTERNATIVE VERSUS W101 ALTERNATIVE

Frequent comment: *Commenters expressed that the W101 Alternative would be a better connection point to I-10 in the Western Section and expressed concerns that traffic operations along I-10 will be adversely affected by the connection at 59th Avenue (W59 Alternative).*

Response: In preparing the FEIS, FHWA and ADOT once again compared the W59 Alternative with the W101 Alternative (see FEIS beginning on page 3-68). This comparison examined overall transportation needs, consistency with regional and long-range planning goals, environmental and societal impacts, operational differences, estimated costs, and regional support and public input. The W101 Alternative would result in approximately 200 to 600 more displaced residential properties than the W59 Alternative. The W59 Alternative will have a nominal effect on the local tax base in Phoenix. The W101 Alternative would have a severe impact on the City of Tolleson's tax base and would lead to a reduction in City-provided services. R/W for the W101 Alternative would eliminate a substantial portion of the remaining developable land in Tolleson. The W101 Alternative would need the partial or complete reconstruction of the SR 101L (Agua Fria Freeway) and I-10 (Papago Freeway) interchange and additional widening improvements to SR 101L (Agua Fria Freeway). The total cost of the W101 Alternative would be $490 million to $640 million greater than the W59 Alternative. Resolutions passed by the City/Town Councils of Avondale, Buckeye, Gila Bend, Goodyear, Litchfield Park, Phoenix, and Tolleson supported an alternative near 55th Avenue (now closely represented by the W59 Alternative) and opposed the W101 Alternative. Following this reanalysis, FHWA and ADOT identified the W59 Alternative as the Preferred Alternative in the Western Section.

In preparing the FEIS, FHWA and ADOT reanalyzed the Western Section action alternatives' effects on operations along I-10 (see FEIS beginning on page 3-62). The analysis determined that the No-Action Alternative would result in the most sections along I-10 operating at LOS E or F, and for the longest duration. The connection to I-10 (Papago Freeway) at 59th Avenue will include substantial improvements (widening) along I-10 to provide adequate operations on I-10 in the area of the junction and to allow traffic moving to and from the South Mountain Freeway to enter and exit the I-10 main line (see page 3-49 of the FEIS). The design of the I-10 and South Mountain Freeway system traffic interchange at 59th Avenue has received preliminary acceptance from the FHWA, subject to completion of the NEPA process.

ISSUE: BIOLOGY, PLANTS, AND WILDLIFE

Frequent comment: *Commenters expressed concerns about the impacts the freeway will have on plants and wildlife within and around the SMPP area.*

Response: Within the context of overall vegetation, wildlife, and wildlife habitat, all action alternatives and options would result in a decrease in the amount of cover, nesting areas, and food resources for wildlife species caused by construction of the project. See the section, *General Impacts on Vegetation, Wildlife, and Wildlife Habitat*, beginning on page 4-136 of the FEIS, for additional details on potential effects on vegetation, wildlife, and wildlife habitat.

ADOT and FHWA completed a Biological Evaluation containing an analysis of the project effects on listed and candidate species under the ESA. The Biological Evaluation was completed in May 2014 following identification of the Preferred Alternative in the DEIS. The Biological Evaluation was sent to USFWS, AGFD, and the Community Department of Environmental Quality. USFWS was asked for technical assistance with minimizing impacts on listed and candidate species prior to completion of the FEIS. In a letter dated July 18, 2014, the Community provided comments on the Biological Evaluation for the freeway and expressed that the Community holds all animals in the highest regard and recognizes animals as culturally important. The letter included a list of plant and animal species that are culturally important to the Community. The Biological Evaluation for the freeway was revised to incorporate an evaluation of the identified species (see page 4-127 of the FEIS). ADOT and FHWA have committed to continue coordination with AGFD, the Community Department of Environmental Quality, and USFWS regarding wildlife concerns as a result of the freeway's implementation. The analysis of biological resources may be found beginning on page 4-125 of the FEIS. FHWA made "no effect" findings for all listed and candidate species except for the Tucson shovel-nosed snake and Sonoran desert tortoise. The Tucson shovel-nosed snake was subsequently removed from the Candidate species list in a decision by USFWS on September 23, 2014. Mitigation measures to conduct preconstruction surveys for the Sonoran desert tortoise, where appropriate and after consultation with AGFD, were included in the FEIS (see page 4-138). These commitments are confirmed in Table 3, beginning on page 38.

The freeway will be designed to protect and maintain opportunities for wildlife movement between the South Mountains, Gila River, and Sierra Estrella. These opportunities will be located in the region where the South Mountain Freeway will intersect the southwestern portion of the South Mountains. Some drainage structures incorporated into the roadway plans will be designed to accommodate multifunctional crossings in appropriate locations that will allow limited use by the Community and will also serve wildlife. These crossing structures and associated fences will be designed to reduce the incidence of vehicle-wildlife collisions and to reduce the impact of the freeway on wildlife connectivity between the South Mountains, Gila River, and Sierra Estrella. ADOT will coordinate with the USFWS, AGFD, and the Community's Department of Environmental Quality during the design phase regarding the potential for locating and designing wildlife-sensitive roadway structures.

ISSUE: CHILDREN'S AND SENIORS' HEALTH

Frequent comment: *Commenters expressed concern that exposure to emissions from the South Mountain Freeway could adversely affect children's and seniors' health.*

Response: As noted throughout the FEIS, potential impacts on and subsequent mitigation for human health are disclosed and identified, as inherent in the EIS process. The FEIS incorporates an assessment of the potential impacts of the project on all populations, including children, in the Chapter 4 environmental consequences analyses. A discussion addressing children's health was added to page 4-83 of the FEIS.

While there is ample evidence that *air pollution* has the potential for greater adverse impacts on children compared with the population at large, this does not imply that the project will have disproportionate impacts on children. The project itself will affect all near-road populations equally; it does not include elements that would lead to higher air pollutant concentrations near children compared with other receptors. The FEIS evaluates Clean Air Act criteria air pollutant concentrations in Maricopa County and the Phoenix area (see pages 4-75 to 4-77). With regard to air quality impacts, the FEIS addresses children's and seniors' health impacts within the broader discussion regarding health impacts under the NAAQS. Clean Air Act Section 109(b)(1) requires the EPA to promulgate primary NAAQS at levels that allow an adequate margin of safety and that are requisite to protect the public health. As noted by the EPA in its 2013 rulemaking for particulate matter, Clean Air Act Section 109's legislative history demonstrates that the primary standards are "to be set at the maximum

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permissible ambient air level ... which will protect the health of any [sensitive] group of the population" (78 *Federal Register* 3086 and 3090) (quoting S. Rep. No. 91 1196, 91st Cong., 2 Sess. 10 [1970]) (alterations in original). Accordingly, the FEIS's NAAQS-based evaluation of criteria air pollutants includes a health-based review of sensitive populations, including children and seniors, given the NAAQS' inherent consideration of those factors. Furthermore, the NAAQS-based assessment ensures adequate consideration of health-based issues as "[t]he requirement that primary standards provide an adequate margin of safety was intended to address uncertainties associated with inconclusive scientific and technical information ... and to protect against hazards that research has not yet identified" (78 *Federal Register* 3090).

Since the FEIS analysis of the NAAQS, conducted in consultation with EPA, showed that no violations of the NAAQS would occur along the project, and since EPA's NAAQS protect children's and seniors' health with an adequate margin of safety, the project has no adverse impacts on children's or seniors' health.

ISSUE: COMMUNITY IMPACTS

Frequent comment: *Commenters expressed a concern that the freeway will adversely affect the livability of their neighborhoods.*

Response: As noted in Table 4-9 on page 4-27 of the FEIS, the South Mountain Freeway will visually and audibly intrude on the less-intensive, passive, residential character of the area. The magnitude of impact will be offset by the fact that the freeway will replace the existing four lane Pecos Road. Pecos Road, although to a lesser degree than will occur with the freeway, now visually and audibly intrudes on the village. Further, the impact will not be "new" to the village, considering that I-10 (Maricopa Freeway) and the I-10/SR 202L/Pecos Road system traffic interchange border the village on the east and that either or both are used regularly by village residents.

ISSUE: CRIME

Frequent comment: *Commenters expressed a concern that the freeway will increase crime in their neighborhoods.*

Response: While the City of Phoenix Police Department reported in 2005 that it did not have any statistics specific to crime adjacent to freeways, it did note that based on its experience there does not appear to be a correlation between crime rates and freeways.

ISSUE: CULTURAL RESOURCES

Frequent comment: *Commenters expressed a belief that the project team had not considered impacts on prehistoric sites or cultural heritage in the analysis.*

Response: Since the beginning of the environmental impact statement process, FHWA and ADOT have been carrying out cultural resource studies and engaging in an ongoing, open dialogue with the Community Tribal Historic Preservation Office (THPO) and other Tribes to understand the Native American's way of life and to identify and evaluate places of religious, spiritual, and cultural importance to the Community and other Tribes that may be adversely affected by the freeway. Such places may be referred to as TCPs. As a result of these discussions and of studies conducted by the Community's Cultural Resource Management Program, the Community and other Tribes have identified TCPs that are eligible for listing in the NRHP and that could be affected by construction of the freeway. The religious, spiritual, and cultural importance of the South Mountains is acknowledged in the FEIS in several locations, notably page 5-26. The project will accommodate and preserve (to the fullest extent possible from the available alternatives) access to the South Mountains for religious practices. For more discussion of TCPs, see the section, *Cultural Resources*, beginning on page 4-140 of the FEIS and pages 5-26 through 5-28.

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires a government-to-government relationship between the federal government and Native American Tribes as described beginning on page 4-140 of the FEIS. Section 106 requires that federal agencies take into account the effects of their undertakings on historic properties. This process requires consultation with State Historic Preservation Officers (SHPOs) and tribal authorities. Consultation has occurred with Community government officials, the THPO, the Cultural Resource Management Program, many different tribal authorities, and the SHPO. The consultation regarding all historic properties in the area of potential effects has resulted in concurrence from the Community THPO, other tribal authorities, and the SHPO on NRHP eligibility recommendations (including TCPs), project effects, and proposed mitigation and measures to minimize harm. This consultation has been ongoing and will continue until the commitments in the ROD are completed.

ISSUE: DESIGN

Frequent comment: *Commenters questioned the elevation or grade of the freeway.*

Response: The freeway will have a rolling profile (see page 3-41 of the FEIS) and will be elevated to pass over arterial streets. To maximize the effectiveness of noise walls and to minimize costs, walls are normally constructed on the elevated grades with the freeway.

ISSUE: ECONOMICS, SOCIOECONOMICS

Frequent comment: *Commenters expressed a concern that the freeway will reduce the value of their homes or properties.*

Response: A review of the literature revealed few detailed and comprehensive analyses of the relationship between transportation infrastructure and residential property values (Transportation Research Record: Journal of the Transportation Research Board, No. 2174, Transportation Research Board of the National Academies, Washington, D.C., 2010, pp. 138-47; "Residential Property Values and the Build Environment; Empirical Study in the Boston Massachusetts Metropolitan Area"). A local case study concerning US 60 (Superstition Freeway) found that 1) freeway construction may have an adverse impact on some properties but, in the aggregate, property values tend to increase with freeway development; 2) freeways do not affect all properties' values in the same way (proximity to the freeway was observed to have a negative effect on the value of detached single-family homes in the corridor but a positive effect on multifamily residential developments and most commercial properties); 3) the most important factor in determining negative impact on property values appears to be the level of traffic on any major roads in the proximate area, which implies that regional traffic growth is more significant than the presence of a freeway per se (Journal of the Transportation Research Board, No. 1839, Transportation Research Board of the National Academies, Washington, D.C., 2003, pp. 128-135; "Impact of Highways on Property Values: Case Study of Superstition Freeway Corridor"). The California Department of Transportation has studied this subject for a number of years. Its *Standard Environmental Reference Handbook, Volume 4, Appendix D, Transportation Effects on Property Value* concludes that while a majority of studies found that properties abutting the freeway do not appreciate as rapidly as other properties a little farther away from the freeway, there is a net gain in value in the general vicinity of the freeway attributable to increased accessibility to the regional freeway system. In other words, houses in both the abutting and the nearby zones appreciated more than comparable properties a few miles away from the freeway.

ISSUE: ENVIRONMENTAL JUSTICE

Frequent comment: *Commenters expressed a belief that the proposed project constituted an illegal action with respect to environmental justice.*

Response: ADOT and FHWA, as the federal lead agency, have an obligation under NEPA to assess whether the proposed action and its alternatives would lead to substantial adverse environmental impacts, disclose those impacts, and identify mitigation to reduce the impact to below a level of significance (and if such mitigation is unavailable, disclose that such an impact would occur but would not be mitigated). The section entitled *Environmental Justice and Title VI*, beginning on page 4-29 in the FEIS, presents acceptable methods, data, and assumptions to assess the potential for disproportionately high and adverse effects from the proposed action on environmental justice populations.

Based on the content of the section, no such effects would result from the action alternatives. Even if one were to reach a contrary conclusion and determine that disproportionately high and adverse effects would occur as a result of the freeway, there is substantial justification for the 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*, in the FEIS). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, *Section 4(f) Evaluation*, in the FEIS.

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ISSUE: FREEWAY AWARENESS

Frequent comment: *Commenters expressed that they were not made aware of the potential project when they moved into an area located near the previously approved alignment.*

Response: As noted on page 4-13 of the FEIS, the City of Phoenix first documented a future major transportation facility to serve the southwestern part of Phoenix in a 1980 planning report, *Annexation Implications in the Area South of South Mountain Park*. The City of Phoenix recommended constructing a six-lane freeway interchange on Pecos Road and a six-lane street from I-10 (Maricopa Freeway) west on Pecos Road and continuing northwest to 51st Avenue (City of Phoenix 1980). In 1985, MAG modified the proposal by proposing a future six-lane freeway on a similar alignment (instead of the six-lane street). The MAG proposal was included in the 1985 *Long-Range Transportation Plan*, and the evolved South Mountain Freeway has been included in adopted long-range plans ever since.

With the Study Area subject to continued land development projects, the proposed action will require acquisition of developed properties and relocation of property owners for R/W where there was once mostly vacant land. Public comments received from potentially affected property owners as part of the EIS process suggest the City of Phoenix, land developers, and ADOT did not disclose the future freeway project. Review of previously published ADOT, City of Phoenix, MAG, and developer documents confirms freeway project and alignment disclosure has occurred since 1980, when the Study Area was still primarily vacant land.

Since original adoption of the South Mountain Freeway alignment (an alignment similar to the W59 and E1 Alternatives) in 1984, ADOT has purchased some R/W in the Western and Eastern Sections (the original alignment and locations of property owned by ADOT in 2000 are shown in maps on page 4-12 and 4-13 of the FEIS). In the same time period, the City of Phoenix has approved six planned community districts adjacent to the eastern alignment. These developments are Lakewood, Foothills, Pecos Road, Goldman Ranch, Foothills Reserve, and South Mountain 620. Approvals for these require developers to inform potential buyers of conflicts with planned transportation projects such as the proposed action. These mechanisms include:

City of Phoenix responsibility – Stipulations referring to the freeway alignment were included in the zoning cases for each of the developments, except for the Lakewood Planned Community District. The Circulation Master Plan for the Lakewood Planned Community District identifies the clean take line (the line where subdivisions are severed for the freeway and the remaining properties continue to function as intended) for the future freeway.

Developer responsibility – Arizona real estate law requires developers to disclose adverse conditions such as construction of a future freeway in a public document [5 Arizona Administrative Code 650, R4 28-A1203]. Additionally, Arizona law states that subsequent purchasers have the right to "receive a copy of the public report" and "any contract, agreement or lease which fails to make disclosures . . . shall not be enforceable against the purchaser" (5 Arizona Revised Statutes § 32-2185.06). Developers typically disclose adverse conditions in the covenants, conditions, and restrictions document, which is provided to potential buyers who in turn are required to acknowledge they have received and read the covenants, conditions, and restrictions by signing documents provided during the closing period of the sale.

ADOT responsibility – ADOT uses the "Red Letter" process to coordinate planned transportation projects with proposed developments within local jurisdictions. Local jurisdictions are requested to notify ADOT of potential development plans within ¼ mile of established or proposed project corridors. ADOT assigns a Red Letter Coordinator to review the proposed development projects and to provide a written response explaining the transportation project's potential effects on the proposed developments.

ISSUE: HAZARDOUS MATERIALS

Frequent comment: *Commenters expressed a concern that the study did not adequately address the possibility of a hazardous materials spill on the freeway.*

Response: According to 46 *Federal Register* 18026 (March 23, 1981), an EIS must discuss reasonably foreseeable actions. These are actions that are likely to occur or probable, rather than those that are merely possible. There are no requirements in 23 C.F.R. Part 771, Environmental Impact and Related Procedures, or in FHWA's Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents, to address releases of hazardous chemicals resulting from a transportation incident in NEPA documents for transportation projects such as the proposed action. Planning for emergency situations will be initiated as the project moves into design.

Issues related to a severe accident exist for many portions of the Phoenix metropolitan area. A fast and effective response is critical in the emergency response plans prepared by emergency service providers and is discussed on page 4-166 of the FEIS.

Arizona highways, as with most highways across the United States, are open to all kinds of traffic, so long as the cargo being carried is in accordance with U.S. Department of Transportation regulations for the specific type of cargo. ADOT has a few locations in the state with hazardous cargo restrictions, but these restrictions are based on emergency response issues or roadway design limitations specific to that location. For example, the I-10 Deck Park Tunnel has certain hazardous cargo transport restrictions because of the limited ability for emergency responders to address a hazardous materials incident in the tunnel. The South Mountain Freeway is expected to operate under the same rules as other similar facilities in the state; transport of hazardous cargo is expected to be allowed (see text box on page 4-166 of the FEIS).

ISSUE: HEALTH EFFECTS

Frequent comment: *Commenters expressed concern that the South Mountain Freeway will be located within half a mile of schools and other sensitive locations, and that exposure to emissions from the South Mountain Freeway could lead to asthma, autism, and other adverse health effects.*

Response: Under the Clean Air Act, EPA is responsible for establishing NAAQS to protect public health and the environment from adverse effects of air pollutants. Health effects from air pollutants are based on the concentration of the pollutants and the duration of exposure. Concentrations vary with distance from a roadway based on many factors, including background (or ambient) levels of pollution from all sources; the number, speed, and type of vehicles on the roadway; wind speed and direction; topography; and other factors. For the freeway, modeling for CO and PM_{10} was conducted using worst-case (most congested or highest traffic) modeling locations at discrete receptor locations around each analysis location (primarily residences near the interchanges). The CO and PM_{10} analyses demonstrated that the freeway will not contribute to any new localized violations, increase the frequency or severity of any existing violation, or delay timely attainment of the NAAQS or any required interim emissions reductions or other milestones (see discussion beginning on pages 4-75 and 4-76 of the FEIS, respectively).

MSATs can also have adverse health impacts, but EPA has not established NAAQS for these pollutants. As a result, FHWA analyzes these pollutants using emissions analyses. The MSAT emissions analysis for the Study Area found little difference in total annual emissions of MSATs between the Preferred and No-Action Alternatives (less than a 1 percent difference) in 2025 and 2035. With the Preferred Alternative in 2035, modeled MSAT emissions will 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 (see discussion beginning on page 4-78 of the FEIS).

Many studies have investigated the prevalence of adverse health effects in the near-road environment. Given concerns about the possibility of air pollution exposure in the near-road environment, the Health Effects Institute has dedicated a number of research efforts toward investigating this issue. In November 2007, the Health Effects Institute published Special Report #16: Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects. This report concluded that the cancer health effects attributable to mobile sources are difficult to discern because the majority of quantitative assessments are derived from occupational cohorts with high concentration exposures and because some cancer potency estimates are derived from animal models. In January 2010, the Health Effects Institute released Special Report #17, investigating the health effects of traffic-related air pollution. The goal of the research was to synthesize available information on the effects of traffic on health. Researchers looked at linkages between: 1) traffic emissions (at the tailpipe) with ambient air pollution in general, 2) concentrations of ambient pollutants with human exposure to pollutants from traffic, 3) exposure to pollutants from traffic with human-health effects and toxicological data, and 4) toxicological data with epidemiological associations. Overall, researchers felt that there was "sufficient" evidence for causality for the exacerbation of asthma (see page 25 of the air quality technical report [2014]). Evidence was "suggestive but not sufficient" for health outcomes such as cardiovascular mortality and others. Study authors also noted that past epidemiological

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studies may not provide an appropriate assessment of future health associations because vehicle emissions are decreasing over time. Finally, in 2011 three studies were published by the Health Effects Institute evaluating the potential for MSAT "hot spots." In general, the authors confirmed that while highways are a source of air toxics, they were unable to find that highways were the only source of these pollutants. They determined that near-road exposures were often no different or no higher than background (or ambient) levels of exposure and, hence, no true hot spots were identified. These reports are available from the Health Effects Institute's Web site at <healtheffects.org>. FHWA and EPA provide financial support to the Health Effects Institute's research work.

Another source of information is EPA's recently released report on Children's Health and the Environment:

> *The level of knowledge regarding the relationship between environmental exposures and health outcomes varies widely among the topics [presented in this report], and the inclusion of an indicator in the report does not necessarily imply a known relationship between environmental exposure and children's health effects. The report provides data for selected children's health conditions that warrant further research because the causes, including possible contributing environmental factors, are complex and not well understood at this point.*
>
> *In the case of asthma, researchers do not fully understand why children develop the condition. However, substantial evidence shows exposure to certain air pollutants, including particulate matter and ozone, can trigger symptoms in children who already have asthma. Although the report found the percentage of children reported to currently have asthma increased from 8.7 percent in 2001 to 9.4 percent in 2010 and that minority populations are particularly affected by asthma, the severity of children's asthma and respiratory symptoms has declined. The rate of emergency room visits for asthma decreased from 114 visits per 10,000 children in 1996 to 103 visits per 10,000 children in 2008. Between 1996 and 2008, hospitalizations for asthma and for all other respiratory causes decreased from 90 hospitalizations per 10,000 children to 56 hospitalizations per 10,000 children.*
>
> *The report also looks at trends in other health conditions, such as Attention-Deficit/Hyperactivity Disorder (ADHD) and preterm births, for which rates have increased. There is no conclusive information on the role of environmental contaminants in ADHD or preterm births, and additional research is ongoing.*

Finally, FHWA notes that while the incidence of some health effects (such as asthma, autism, and attention deficit/hyperactivity disorder) in the U.S. population appears to have been increasing, motor vehicle emissions have declined. This decline in MSAT emissions is documented in Figure 4-24 of the FEIS and for other pollutants at <epa.gov/ttn/chief/trends/>. This negative correlation between emissions trends and health effects trends illustrates the complexity of the issues.

In summary, the analyses for CO and PM_{10} indicated that concentrations for these pollutants will be in compliance with (or below) EPA's health-based standards for these pollutants. As explained in the FEIS, FHWA does not conduct comparable analysis for MSAT pollutants, in part because EPA's health risk guidelines for these pollutants are based on 70-year exposure, and it is extremely unlikely that anyone would be at a fixed location near the project for 70 continuous years. Instead, FHWA conducted an MSAT emissions analysis for the area affected by the project, and found that emissions in the project design year will be roughly 80 percent lower than current emissions, and that the difference between building and not building the project is only about 1 percent. Emissions will increase in the immediate vicinity of the project corridor if the project is built; to address this, the FEIS includes a summary of past health risk studies for similar projects, all of which identified very low health risk, well below EPA's Action Level for addressing risk.

ISSUE: NOISE

Frequent comment: *Commenters expressed concerns about the increase in noise from the freeway.*

Response: The noise analysis conducted for and documented in the DEIS and FEIS complied with FHWA's regulations for conducting noise analyses in 23 C.F.R. § 772. The noise analysis was updated for the FEIS using the most recent FHWA and ADOT policy and traffic projections provided by MAG. Discussion of this updated analysis begins on page 4-88 of the FEIS. No substantial differences between the analyses presented in the DEIS and the FEIS resulted. This report may also be found on the study Web site at <azdot.gov/southmountainfreeway>.

Without noise mitigation, noise levels from the freeway are predicted to range from 61 A-weighted decibels to 78 A-weighted decibels at the nearest homes, depending on the distance from the freeway. Noise mitigation was estimated to reduce those noise levels to a range of 55 A-weighted decibels to 64 A-weighted decibels for most of the areas (see FEIS beginning page 4-93). Because of topography, local street traffic, or other engineering constraints in a few areas, estimated noise levels will not be reduced as much and will be as high as 64 A-weighted decibels to 70 A-weighted decibels (see FEIS beginning on page 4-93).

Although not recognized by the FHWA as mitigation, rubberized asphalt will be used as the top level of paving; it is discussed beginning on FEIS page 4-99.

ISSUE: PROJECT COSTS, TOTAL COST

Frequent comment: *Commenters claimed that the true cost of the freeway will be substantially higher than the cost presented in the FEIS.*

Response: As noted on page 3-59 and in the text box on page 3-60 of the FEIS, planning-level cost estimates are used in the preparation of environmental documents. Figure 3-36 summarizes overall planning-level cost estimates for each action alternative. These estimates include design, R/W acquisition, and construction. Costs will be updated during the design phase and will be reflected in the RTP update process. Updating costs is critical to account for cost fluctuations for materials, land acquisition, and design refinements.

From October 28 through October 30, 2014, a formal cost estimate review was conducted in accordance with SAFETEA-LU guidelines. The official review determined a probability and range for the cost of the Selected Alternative in the expected year of expenditure and in current year dollars. The year of expenditure total cost at the 70 percent confidence level was $1.9 billion. The costs associated with planned mitigation are included in the total project cost.

ISSUE: PURPOSE AND NEED, LACK OF SUPPORT

Frequent comment: *Commenters expressed opposition to the freeway based on a lack of need or the belief that it is not supported by local communities or that it will not be used by local travelers or regional commuters.*

Response: It is important and fiscally prudent to provide a new freeway in an area where it will be fully used. Of the projected 51 percent increase in population, 39 percent increase in housing units, and 69 percent increase in jobs between 2010 and 2035 in the Phoenix metropolitan area, nearly half of these increases are expected in areas that would be immediately served by the freeway (see FEIS page 1-21). When ADOT determines whether a freeway should be built, the agency must consider numerous factors, including local and regional transportation needs, project costs, and environmental considerations. Decisions regarding freeway projects are based on the transportation needs of the entire Phoenix metropolitan area as part of a comprehensive, multimodal, regional approach. The South Mountain Freeway is a major component in the Regional Freeway and Highway System. Additionally, the freeway is an important component of past and current planning efforts. Maricopa County, Phoenix's villages (Laveen, Estrella, and Ahwatukee Foothills), Tolleson, and Avondale have all made transportation, land use, and economic planning decisions in a context of the freeway operating in the Study Area. Finally, the freeway will function as intended in the RTP.

ISSUE: PURPOSE AND NEED, OLD PLAN OR USE OF OLD DATA

Frequent comment: *Commenters expressed concerns that the project is based on a plan from the mid-1980s and that the study used older data (prior to the economic downturn) to establish the purpose and need for the freeway.*

Response: MAG is the local government agency responsible for traffic forecasting. MAG's travel demand model is a state-of-the-practice model that predicts traffic movement and is used by MAG and ADOT to determine the need for transportation projects. The model is calibrated to actual, observed traffic conditions and meets an advanced practice guideline by FHWA for similarly sized areas. FHWA and EPA approved the air quality conformity determination that includes the MAG regional travel demand model that produced the traffic projections used in the traffic analysis for the project. Key model inputs used to forecast travel demand included (see Table 3-7 on FEIS page 3-27):

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- socioeconomic data based on the adopted general plans of MAG members, which includes projected growth in population, housing, and employment (including proposed commercial centers), along with economic forecasts and the existing and planned transportation infrastructure as identified by MAG members
- the anticipated average number of vehicle trips within the region (including those to and from the region's households) on a daily basis (this number is tracked regularly by MAG)
- the distribution of transportation modes used by travelers in the MAG region (also tracked regularly by MAG)
- the capacity of the transportation infrastructure to accommodate regional travel
- the future transportation infrastructure established using RTP-planned projects and improvements and from known arterial street network improvements assumed to be made by the County, Cities, and private developers

In June 2013, MAG approved new socioeconomic projections for Maricopa County. The purpose and need and analysis of alternatives were updated and reevaluated using these new socioeconomic projections and corresponding projections related to regional traffic. The conclusions reached in the DEIS were validated in the FEIS (see Chapter 3, *Alternatives*, in the FEIS).

ISSUE: PURPOSE AND NEED, TRUCK BYPASS

Frequent comment: *Commenters expressed a belief that the freeway will serve as a truck bypass.*

Response: Creating a truck bypass is not a goal of the freeway. The freeway is part of a transportation system developed to improve mobility in the region by increasing capacity and allowing traffic—including truck traffic—to access a segment of the "loop" system (see pages 1-21, 1-22, 3-1, and 3-3 of the FEIS) in the Phoenix metropolitan area. The South Mountain Freeway will be a commuter corridor, helping to move regional traffic. As with all other freeways in the region, trucks will use it for the through-transport of freight, for transport to and from distribution centers, and for transport to support local commerce. Nevertheless, the primary vehicles using the freeway will be automobiles. The MAG regional travel demand model projects that truck traffic will represent approximately 10 percent of the total traffic on the freeway, similar to what is currently experienced on other regional freeways such as I-10, SR 101L, and US 60. As disclosed in the FEIS, it is expected that "true" through-truck traffic (not having to stop in the metropolitan area) will continue to use the faster, designated, and posted bypass system of Interstate 8 (I-8) and SR 85 (see page 3-64 of the FEIS).

ISSUE: SECTION 4(f) AND SECTION 6(f), PHOENIX SOUTH MOUNTAIN PARK/PRESERVE

Frequent comment: *Commenters expressed concerns about the impacts the freeway will have on SMPP or expressed that the park should be protected.*

Response: The context and attributes of the South Mountains are described in the FEIS. The discussion of SMPP as a Section 4(f) resource recognizes that many prominent features of the park contribute to its value. These include its setting as one of the largest urban parks in the country, its function in the Phoenix Sonoran Preserve System, and many prominent features within the park, including its trails, which offer opportunities to over 3 million annual visitors for hiking, bicycling, horseback riding, and interacting with the natural Sonoran Desert adjacent to the metropolitan area. Sections of the freeway will be visible from certain vantage points within the park, such as along the Bursera Trail. As part of the planning to minimize harm to the park, measures to minimize the effects of altering the views include:

- reducing the freeway's footprint from the original 40 acres as proposed in 1988 to the 31.3 acres planned for under the current design
- skirting the park as much as possible to avoid bisecting the 16,000-acre park
- providing replacement lands to compensate for the use of 31.3 acres of the park
- using slope treatments, rock sculpting, native vegetation landscaping and buffering, and native vegetation transplanting to blend the appearance of the freeway and slope cuts with the surrounding natural environment, as feasible
- working with park stakeholders through the City of Phoenix in finalizing these improvements

The freeway will also generate noise that will be audible from certain points in the park, such as trails, as acknowledged in the FEIS; however, based on the distance of the freeway to the closest trail points, noise levels are not likely to be above the noise abatement criteria levels for recreational activities. Trail users located 2,000 feet or more away from the freeway will hear an increased hum, but the decibel levels will not be above noise abatement criteria levels for recreational activities. While noise mitigation was evaluated to minimize harm, the use of mitigation, such as noise barriers, would have little effect for receptors 2,000 feet or more away from the freeway (and at elevated positions). Even if it were shown that noise levels are higher on the trail, noise barriers would not be cost effective for trails given the relatively low usage and receptor benefits. Noise impacts would be temporary because trail users would be moving along the trail and because only a short portion of the trail is in a direct line to the freeway.

The acreage of parkland to be converted to a transportation use is reported in the FEIS on page 5-14 in the section, *Direct Use*. It is reported that 31.3 acres—or just less than 0.2 percent of the parkland—will be converted to a transportation use (this is a reduction in the amount of use planned for in 1988). The text goes on to point out other concerns associated with the direct use reported, and text in the FEIS on page 5-14, in the sidebar, "*The South Mountains in Phoenix's Sonoran Preserve System*," describes the importance of SMPP in the region. Beginning on page 5-23 in the section, *Measures to Minimize Harm*, measures are presented to be undertaken to address the use impacts, including land replacement, on properties adjacent to the park.

City of Phoenix planning efforts since the mid-1980s illustrate an awareness of the potential for the freeway to affect SMPP. In 1989, the South Mountain Park Master Plan was adopted by the Phoenix City Council. The master plan shows the freeway alignment as adopted by the State Transportation Board in 1988. In 1990, the Phoenix Mountain Preserve Act was ratified by the Arizona Legislature. The Act did not apply to roadways through a designated mountain preserve if the roadway was in the State Highway System prior to August 15, 1990. The freeway was in the State Highway System prior to 1990. Records prior to the Act suggest a primary reason for the exception was to allow the freeway to go through SMPP (see page 5-14 of the FEIS). The project team examined alternatives to avoid the park, but did not identify any feasible and prudent alternatives to avoid impacts. The proposed freeway was designed to skirt the edge of the 16,000-acre park without going on Community land. ADOT continues to work with park stakeholders to minimize impacts and address concerns. Measures to minimize harm to the park were developed (see FEIS, starting on page 5-23). These commitments are confirmed in Table 3, beginning on page 38.

The U.S. Department of the Interior reviewed the FEIS and commented, "The Department agrees that the South Mountain Park and Preserve (SMPP) is a Land and Water Conservation Fund (LWCF) assisted site that will be directly impacted by the subject project. These documents assess the direct use of park land for freeway purposes to be 31.3 acres. We agree with the conclusions stated. We note that the "*Measures to Minimize Harm*" on the Section 4(f) Statement pages 5-23, 5-24, and 5-25 have annotated a commitment to provide replacement land for the converted park land. The Department concurs with the assessment of the impacts to the LWCF-assisted resource and acknowledges the mitigation commitment."

ISSUE: SECTION 4(f) AND SECTION 6(f), TRADITIONAL CULTURAL PROPERTIES

Frequent comment: *Commenters expressed that the South Mountains are sacred to Native American communities and should be protected from impacts from the freeway.*

Response: Cultural and religious places of importance, such as the South Mountains, are acknowledged in the FEIS in several locations, notably on pages 4-141 and 5-26. Since the beginning of the EIS process, FHWA and ADOT have been carrying out cultural resource studies and engaging in an ongoing, open dialogue with the Community THPO and other Tribes regarding the identification and evaluation of places of religious and cultural importance to Native Americans that may be adversely affected by the freeway. This consultation will continue until all commitments in the ROD are completed. Such places are referred to as TCPs. As a result of these discussions and of studies conducted by the Community's Cultural Resource Management Program, the Community has identified TCPs that are eligible for listing in the NRHP and that could be affected by construction of the freeway. In certain cases, listing these properties on the NRHP may afford them

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protection under Section 4(f) of the Department of Transportation Act of 1966. The TCPs identified are culturally important to other Native American Tribes as well. For more discussion of TCPs, see the section, *Cultural Resources*, beginning on page 4-140 of the FEIS and pages 5-26 through 5-28.

While impacts on the South Mountains TCP will be substantial and unique in context, they will not prohibit ongoing access and the cultural and religious practices by Native American Tribes. Mitigation measures and measures to minimize harm have been developed through a process of extensive consultation, analysis of avoidance alternatives, and development of mitigation strategies to accommodate and preserve (to the fullest extent possible from the available alternatives) access to the South Mountains for religious purposes. Text relating to this mitigation can be found on pages 4-38, 4-42, and 4-44 of the FEIS. Additionally, the section, *Mitigation*, beginning on page 4-158, presents several measures (e.g., multifunctional crossings, contributing element avoidance) to mitigate effects on cultural resources. The section, *Measures to Minimize Harm*, beginning on page 5-27, presents several measures to reduce effects on the South Mountains TCP and other cultural resources. These commitments are confirmed in Table 3, beginning on page 38.

ISSUE: TITLE VI

Frequent comment: *Commenters expressed a belief that the proposed project constituted an illegal action with respect to Title VI.*

Response: ADOT and FHWA have engaged all population segments to ensure access to the EIS process. Assisted by this involvement, analytical results indicate the proposed action would benefit all populations in the Study Area in general by reducing traffic congestion, enhancing accessibility, and supporting local economic development plans. There were many targeted efforts to include members of populations protected under Title VI (with regard to race and national origin) in the conduct of the EIS process. In the FEIS, Chapter 6, *Comments and Coordination*, describes these efforts in detail and Chapter 2, *Gila River Indian Community Coordination*, describes the efforts to involve the Community.

To optimize the opportunity for public participation in the public hearing on the DEIS and, in particular, participation from identified populations protected under Title VI, ADOT offered free shuttle bus service to and from the public hearing located at the Phoenix Convention Center. Service was provided throughout the day (morning, noon, and evening trips) to and from 91st Avenue and Van Buren Street, 59th Avenue and I-10, Laveen Southern Ridge Golf Club, the Community's Komatke Boys and Girls Club, the Community Governance Center in Sacaton, and the 40th Street Park-and-Ride lot. In addition, parking vouchers and transit passes were provided at the public hearing for participants who drove or used transit services to attend the public hearing (see Chapter 6 of the FEIS for more detailed information). The public hearing was advertised in Spanish-language newspapers and radio stations, and public hearing handouts and comment forms were produced in English and Spanish. In addition, Spanish-speaking court reporters were present to take public comments in Spanish, and Native American language-speaking interpreters were available for those that requested this service. Following the public hearing, six community forums were held at the following locations: in the Estrella, Laveen, and Ahwatukee Foothills villages of Phoenix; within the Community; and in Chandler and Avondale.

In connecting the eastern, southeastern, and southwestern regions of the Phoenix metropolitan area, the Selected Alternative will provide improved access for all area residents to key employment areas to the north, south, and east along the I-10 corridor and in central Phoenix. Improvements will be especially important given the projected growth and development in the southwestern Phoenix metropolitan area. Along with the general population, populations protected under Title VI will benefit from these improvements. Accessibility to regional public and private facilities and services will be improved. Impacts in the Eastern Section of the Study Area will displace a largely nonminority population. Although the population in the Western Section of the Study Area is more diverse—with minority populations throughout—adverse impacts will not be predominantly borne by minority populations. Although no disparate adverse impacts on populations afforded protection under Title VI will occur, mitigation measures are nonetheless provided for impacts associated with displacements and relocations and cultural resources (see Table 3, beginning on page 38).

Land acquisition and relocation assistance services for the project shall be available to all individuals in accordance with the Uniform Act (49 C.F.R. Part 24). As part of the Uniform Act, ADOT and its consultants and contractors must prevent discrimination in all highway programs and must ensure compliance with Title VI, as amended (42 U.S.C. § 2000d, et seq.). Accordingly, no person can be excluded from participation in, be denied the benefits of, or in any other way be subjected to discrimination under any federally funded program or activity because of his or her race, color, or national origin. For this project, all eligible displaced people would receive the same opportunities with regard to services, benefits, and financial aid. To ensure participation, informational meetings would be scheduled in convenient, accessible locations and at various times to ensure all interested persons the opportunity to attend.

With regard to impacts on places of spiritual importance to certain population segments, such as the South Mountains TCP, that raise potential Title VI concerns with respect to Native American Tribes, in particular, the Community, extensive consultation, avoidance alternatives analyses, and mitigation measures are discussed throughout the FEIS. A sampling of these efforts is noted on page 4-38 of the FEIS. This consultation has been ongoing and will continue until all commitments in the ROD are completed. These mitigation measures and measures to minimize harm accommodate and preserve (to the fullest extent possible from the available alternatives) access to the South Mountains for religious practices (see Table 3, beginning on page 38).

ISSUE: TRUCKS

Frequent comment: *Commenters expressed a belief that the freeway will be the primary route for heavy trucks originating in Mexico and that this will result in air quality impacts not considered in the study.*

Response: Trucks crossing from Mexico to Arizona are restricted to the commercial zones within 25 miles of the border. The Federal Motor Carrier Safety Administration is administering a United States-Mexico cross-border, long-haul trucking pilot program. The program tests and demonstrates the ability of Mexico-based motor carriers to operate safely in the United States beyond the municipalities and commercial zones along the United States-Mexico border (see <fmcsa.dot.gov/intl-programs/trucking/trucking-program.aspx>).

Petróleos Mexicanos (better known as Pemex), the Mexican state-owned petroleum company that serves all of Mexico, provides 15 parts per million in its sulfur diesel fuel in the border region, which is consistent with EPA requirements for American diesel fuel (see <transportpolicy.net/index.php?title=Mexico:_Fuels:_Diesel_and_Gasoline>).

Arizona highways, as are most highways across the United States, are open to all kinds of traffic, so long as the cargo being carried is in accordance with U.S. Department of Transportation regulations for the specific type of cargo. The South Mountain Freeway will operate under the same rules as other similar facilities in the state; truck traffic will be permissible (see text box on FEIS page 4-166).

The CANAMEX and Phoenix truck bypass (I-8/SR 85) routes are not mandatory for truck traffic; they are recommended. ADOT does not enforce these routes. It is not anticipated that these routes would be enforced as mandatory in the future.

Currently, with commercial zone restrictions, Mexican truck carriers bring cargo to processing warehouses in the commercial zone. There they leave the trailer, and the truck returns to Mexico. A U.S. truck carrier then picks up the load and transports it to its final designation. So, whether it is a Mexican truck carrier or U.S. truck carrier who transports the cargo to the final destination, it is not anticipated that the total number of trucks would change even if the commercial zone restrictions are lifted. Further, because fuel sold by Pemex meets the same requirements for American diesel fuel (as noted previously), an increase of air pollutants is not anticipated should the restrictions be lifted. The air quality analysis included projected truck traffic (for more details on the results of the air quality analysis, see the previous response for *Air Quality*)

10. STATUTE OF LIMITATIONS

To facilitate certainty and predictability in the transportation decision-making process and in transportation program implementation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established a restriction on the statute of limitations regarding claims with respect to FHWA actions. This restriction was modified by Moving Ahead for Progress in the 21st Century by shortening the period during which such claims must be filed from 180 to 150 days.

Part A of Section 6002 of SAFETEA-LU makes clear that FHWA may publish a notice in the *Federal Register*, pursuant to 23 U.S.C. § 139(l), indicating that it and the cooperating federal agencies have taken a final action regarding the decision-making process for a proposed action. This final action (this ROD, for the South Mountain Freeway) pertains to all issues that have been addressed under the NEPA process, such as project alternatives, potential environmental effects of the proposed action, and the avoidance and minimization of impacts. Claims seeking judicial review of the FHWA action will be barred unless such claims are filed within 150 days after the date of publication of the notice regarding the statute of limitations for the proposed action. If no notice is published, then the period that would otherwise be provided by the federal laws governing such claims applies (typically 6 years).

11. DESIGN PHASE

ADOT will engage the public during design of the proposed action to address specific design-related issues as specified in the aforementioned commitment list. For projects like the South Mountain Freeway, ADOT, in the past, has held advertised public meetings to present design details—particularly to show where the freeway will be located, its profile, service traffic interchange configurations, noise barrier locations, and architectural treatments. Examples of this type of interaction can be found throughout Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, in the FEIS. During the design phase, the public will be able to contact ADOT through a project e-mail and telephone hotline.

12. CONSTRUCTION

During construction, ADOT typically holds information meetings at the beginning of construction activities regarding the upcoming improvements and work schedules. The public will be informed through construction updates/newsletters, project information hotlines, Web sites, periodic meetings, project offices, and radio and newspaper advertising.

13. POSTCONSTRUCTION

ADOT will be responsive to the general public when concerns arise regarding the freeway's operation. As an example, ADOT will respond to complaints regarding traffic-generated noise by monitoring postconstruction noise on request, as considered on a case-by-case basis. Examples of this type of interaction can be found throughout Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, in the FEIS.

14. DETERMINATIONS AND FINDINGS

The *South Mountain Freeway (Loop 202) Interstate 10 (Papago Freeway) to Interstate 10 (Maricopa Freeway) Draft Environmental Impact Statement and Section 4(f) Evaluation* and the *South Mountain Freeway (Loop 202) Interstate 10 (Papago Freeway) to Interstate 10 (Maricopa Freeway) Final Environmental Impact Statement and Section 4(f) Evaluation* are part of the environmental record for the South Mountain Freeway project and support this ROD. These documents constitute the detailed statements required by NEPA and Title 23 of the U.S.C. on the following:

- the project's environmental effects
- adverse environmental effects that cannot be avoided if the project is implemented
- alternatives to the proposed project
- irreversible and irretrievable effects on the environment that might be involved with the project if it is implemented

15. ENVIRONMENTALLY PREFERABLE ALTERNATIVE

CEQ regulations [40 C.F.R. § 1505.2(b)] require the ROD to identify the environmentally preferable alternative. The *environmentally preferable alternative* is defined as the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. Designation of the environmentally preferable alternative typically involves judgment and the balancing of some environmental values against others. CEQ notes that comments on draft environmental documents (such as the DEIS, FEIS, and errata for this project) can assist the lead agency in developing and determining environmentally preferable alternatives.

Although the No-Action Alternative would overall have less environmental impact, this alternative does not meet the project's purpose and need. Many mitigation measures have been added to the ROD based on comments received on the DEIS, FEIS, and errata. The Selected Alternative is the environmentally preferable alternative that satisfies the project's purpose and need. Although the Selected Alternative does not have the least impact in every environmental discipline, ADOT and FHWA believe that this alternative best balances environmental effects and benefits. The Selected Alternative will meet the project needs as well as or better than the other alternatives. The Section 4(f) evaluation demonstrated that no feasible and prudent avoidance alternatives to use of the South Mountains' Section 4(f) resources are available. Direct use of the resource is the same regardless of the combination of action alternatives in the Western and Eastern Sections (representing a range of reasonable alternatives). Relative to other action alternatives considered, the Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will cause less construction disruption overall to I-10 (Papago Freeway); will include measures to reduce impacts

and minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will allow regulatory permitting requirements to be met.

Clean Water Act

Pursuant to Section 404 of the CWA, USACE requires a permit for any discharge of dredged or fill material in waters of the United States (33 U.S.C. § 1344). Regulations and recent court decisions control which water bodies might be included under the jurisdiction of Section 404. USACE will not issue a permit until the project design is at an appropriate level of detail, compliance with the ESA and NHPA processes has been achieved, and ADEQ has issued a Section 401 Water Quality Certification.

The Selected Alternative is anticipated to affect less than 0.5 acre of jurisdictional waters in the vicinity of the Salt River and will be permitted under a nationwide permit; however, in the Eastern Section of the Study Area, the Selected Alternative will cross several jurisdictional waters. These washes receive runoff from the South Mountains that passes under Pecos Road through a series of culverts following natural drainages/washes. The design of the Selected Alternative will alter the drainage pattern through use of a series of drainage detention basins that will direct runoff to specific locations to discharge under the freeway and onto Community land (see the section, *Drainage*, beginning on page 3-58 of the FEIS). As committed to in the DEIS, a field delineation of jurisdictional waters for the Preferred Alternative (now Selected Alternative) was conducted in the summer of 2013 to identify jurisdictional waters and to define the jurisdictional limits for the CWA Section 404 permitting. A preliminary jurisdictional determination request was submitted to USACE in January 2014 in accordance with USACE and ADOT guidelines. USACE issued a preliminary jurisdictional determination in March 2014.

The Selected Alternative is anticipated to permanently affect between 1 and 2 total acres of jurisdictional waters (ephemeral washes), including potential disturbances of greater than 0.5 acre at individual wash crossings; CWA permitting will be determined during the project design phase, but permits will be required under Sections 404 and 401 of the CWA. ADOT has followed Section 404 Individual Permit requirements in addressing Section 404(b)(1) guidelines (see page 3-27 of the FEIS). USACE participated with FHWA and ADOT in the identification of the Selected Alternative. Under Section 404(b)(1), USACE is obligated to select the least environmentally damaging practicable alternative after considering cost, existing technology, and logistics, in light of overall project purposes. USACE will make this determination during the final design and permitting of the project (see the letter dated January 28, 2015, in Appendix D related to USACE's permitting strategy for the South Mountain Freeway). The general and special conditions of the Section 404 permits will minimize impacts on jurisdictional waters to the extent practicable.

National Historic Preservation Act, Section 106

Section 106 of the NHPA, as amended, requires that federal agencies take into account the effects of their undertakings on historic properties and implement a government-to-government relationship between the federal government and Native American Tribes as described beginning on page 4-140 of the FEIS (while the NHPA was previously codified at Title 16 of the U.S.C., effective December 19, 2014, it was moved to Title 54 [54 U.S.C. § 300101 et seq.]). This process requires consultation with tribal authorities, the SHPO, and other stakeholders. Consultation has occurred with Community government officials, the THPO, many different Native American tribal authorities, and SHPO. The consultation has resulted in concurrence from the Community THPO, other Native American tribal authorities, and SHPO on NRHP eligibility recommendations (including TCPs), project effects, and proposed mitigation and measures to minimize harm to historic properties. This consultation has been ongoing and will continue until all commitments in the ROD are completed.

Coordination efforts to assess possible impacts of implementation of the Selected Alternative on cultural resources have been extensive. As part of this coordination, adjustments have been made to the Selected Alternative to avoid and reduce impacts on known cultural resources in the Study Area. Avoidance of impacts entirely will not be possible; implementation of the Selected Alternative will affect prehistoric and historic cultural resources:

- The Selected Alternative will cross 16 archaeological sites; archaeological excavations and other forms of data collection will occur to determine the full extent of these sites and any others that may be discovered and mitigate the adverse effects of the undertaking.
- The Selected Alternative will adversely affect the South Mountains TCP and archaeological sites that contribute to its NRHP eligibility; a multifaceted program of tribal outreach and consultation, ethnographic studies, archival research, and archaeological documentation will be implemented to mitigate the adverse effects of the undertaking on the South Mountains TCP.

Impacts on these resources will be mitigated through use of strategies outlined in Table 3, beginning on page 38. In addition, implementation of the enhancement and management plan for the Villa Buena and Pueblo del Alamo TCPs will prevent adverse effects on these sites. Because effects on NRHP-eligible sites are not fully known, a programmatic agreement (PA) has been developed and executed. The PA describes the process for proper treatment and management of affected resources (see text box on page 4-159 of the FEIS). The PA was executed in 2006 with a 10-year term (see Appendix 4-6 on page A674 in Volume II of the FEIS).

Department of Transportation Act of 1966, Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 extends protection to significant publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, as well as significant historic sites, whether they are publicly or privately owned. This

protection stipulates that those facilities can be used for transportation projects only if there is no prudent and feasible alternative to using the land and the project includes all possible planning to minimize harm to the land [see FEIS, Chapter 5, *Section 4(f) Evaluation*].

The FEIS acknowledges the substantial value of the South Mountains as a Section 4(f) resource in terms of its parkland and historic and cultural importance. The discussion of the park as a Section 4(f) resource recognizes that many prominent features of the park contribute to its value. These include its setting as one of the largest urban parks in the country, its function in the Phoenix Sonoran Preserve System, and many prominent features within the park, including its trails, which offer opportunities to over 3 million annual visitors for hiking, bicycling, horseback riding, and interacting with the natural Sonoran Desert adjacent to the metropolitan area. Sections of the freeway will be visible from certain vantage points within the park, such as along the Bursera Trail. Figure 21 depicts the scale at which the freeway will likely be viewed.

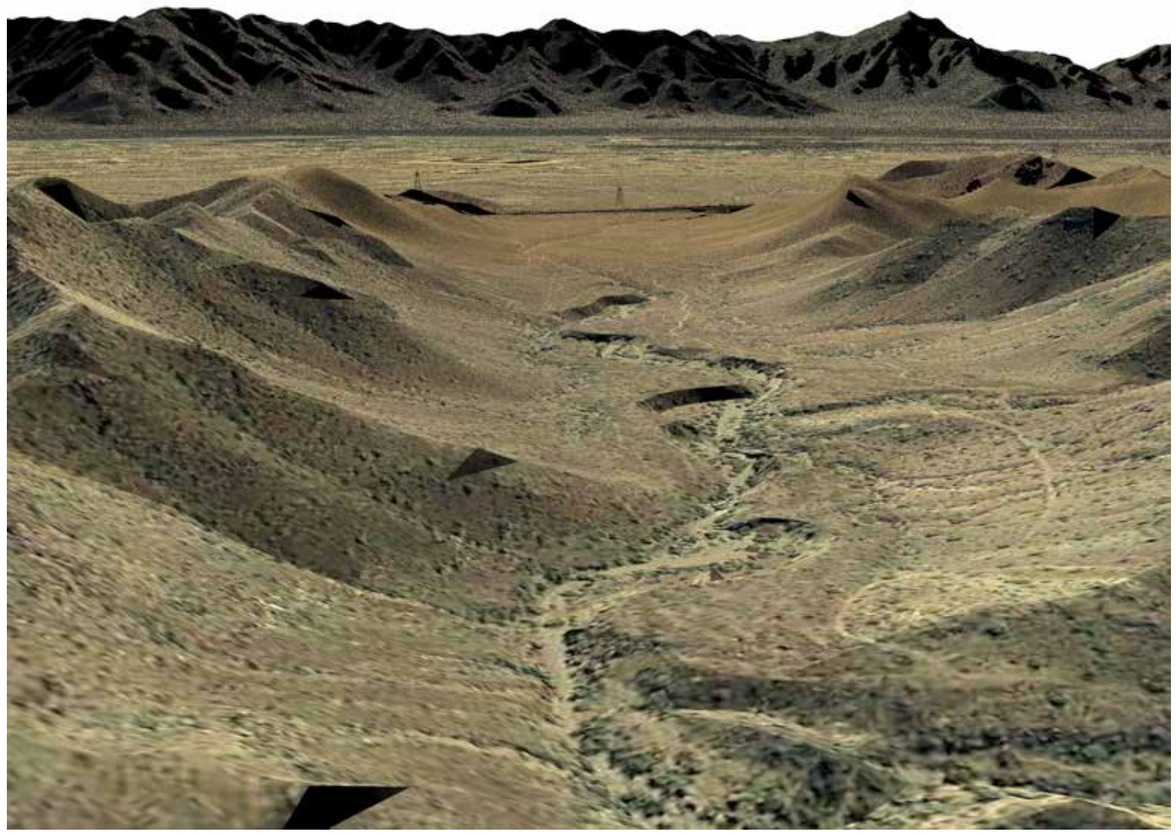
As part of the planning to minimize harm to the park, measures to minimize the effects of altering the views include:

- reducing the freeway's footprint from the original 40 acres as proposed in 1988 to the 31.3 acres planned for under the current design
- skirting the park as much as possible to avoid bisecting the 16,000-acre park
- providing replacement lands to compensate for the use of 31.3 acres of the park
- using slope treatments, rock sculpting, native vegetation landscaping and buffering, and native vegetation transplanting to blend the appearance of the freeway and slope cuts with the surrounding natural environment, as feasible
- working with park stakeholders through the City of Phoenix in finalizing these improvements

The freeway will also generate noise that will be audible from certain points in the park, such as trails, as acknowledged in the FEIS; however, based on the distance of the freeway to the closest trail points, noise levels are not likely to be above the noise abatement criteria levels for recreational activities. Trail users located 2,000 feet or more away from the freeway will hear an increased hum, but the decibel levels will not be above noise abatement criteria levels for recreational activities. While noise mitigation was evaluated to minimize harm, the use of mitigation, such as noise barriers, would have little effect for receptors 2,000 feet or more away from the freeway (and at elevated positions). Even if it were shown that noise levels are higher on the trail, noise barriers would not be cost effective for trails given the relatively low usage and receptor benefits. Noise impacts would be temporary because trail users would be moving along the trail and because only a short portion of the trail is in a direct line to the freeway.

The project team examined alternatives to avoid SMPP, but did not identify any feasible and prudent alternatives to avoid the use of the park. Use of a portion

Figure 21 Photo Simulation, View from Bursera Trail to South Mountain Freeway



View from the Bursera Trail southwest across the valley between Main Ridge North and Main Ridge South, with the Sierra Estrella in the background. The freeway passes through the far western end of the ridges and is represented by the dark shading next to the towers for the high-voltage overhead power lines.

of the mountains for the purposes of the proposed freeway represents two-tenths of 1 percent of the total mountain range (31.3 acres of the park's approximately 16,600 acres; see FEIS pages S-39 and 5-31). Since 1988, and as part of this EIS process, several measures have been undertaken and will be undertaken to further reduce effects on the mountains. These measures, including narrowing the design footprint and acquiring replacement land immediately adjacent to the mountains, are outlined in text beginning on page 5-23 of the FEIS. SMPP will remain one of the largest municipally owned parks in the United States. The activities that make the park a highly valued resource (recreational activities, interaction with the Sonoran Desert) will remain. Nine-tenths of a mile of the proposed freeway will pass through the park's southwestern edge (see FEIS page 5-13).

The South Mountains TCP will be affected by the Selected Alternative. The Pueblo del Alamo TCP is also within the area that will be affected by the Selected Alternative; however, implementation of the enhancement and management plan for the Pueblo del Alamo and the Villa Buena TCPs will prevent adverse effects. The South Mountains TCP is culturally important to Native American Tribes. For more discussion of TCPs, see the section, *Cultural Resources*, beginning on page 4-140 of the FEIS and pages 5-26 through 5-28. The Selected Alternative, after consultation and coordination efforts, will accommodate and preserve (to the fullest extent possible) access to the South Mountains for religious practices. Although the FEIS describes the impact on the South Mountains as adverse, Native Americans will not be prohibited from practicing their beliefs, access to the mountain will be maintained, and mitigation measures developed through consultation and coordination will be implemented.

FHWA's analysis for the Selected Alternative found that there is no prudent and feasible alternative to using the South Mountains and that the project includes all possible planning to minimize harm to the resource resulting from the use. This conclusion was supported by the U.S. Department of the Interior in its comment on the Final Environmental Impact Statement: "The Department agrees that the South Mountain Park and Preserve (SMPP) is a Land and Water Conservation Fund (LWCF) assisted site that will be directly impacted by the subject project. These documents assess the direct use of park land for freeway purposes to be 31.3 acres. We agree with the conclusions stated. We note that the "*Measures to Minimize Harm*" on the Section 4(f) Statement pages 5-23, 5-24, and 5-25 have annotated a commitment to provide replacement land for the converted park land. The Department concurs with the assessment of the impacts to the LWCF-assisted resource and acknowledges the mitigation commitment." The complete letter can be found in Volume II, Appendix A, on page A5.

Measures to minimize harm to the South Mountains TCP (and TCPs that contribute to the South Mountains TCP) were developed in consultation with the Community (and other Tribes with interest). During the design phase, ADOT will consult directly with the Community and other interested Tribes to identify and implement other design measures, when feasible, to further reduce land requirements needed for the proposed action. (See Table 3, beginning on page 38, for the discussion on measures to minimize harm.)

Land and Water Conservation Fund Act (LWCFA), Section 6(f)

Section 6(f) of the Land and Water Conservation Fund Act (LWCFA), administered by the Interagency Committee for Outdoor Recreation and National Park Service (NPS), pertains to projects that would cause impacts on or result in the permanent conversion of outdoor recreational property acquired with LWCFA assistance. The LWCFA established the Land and Water Conservation Fund (LWCF), a matching assistance program providing grants paying half the acquisition and development cost of outdoor recreational sites and facilities. Section 6(f) prohibits the conversion of property acquired or developed with these grants to a nonrecreational purpose without approval from the Interagency Committee for Outdoor Recreation and NPS. NPS must ensure replacement lands of equal value, location, and usefulness are provided as conditions of approval for land conversions (16 U.S.C. §§ 4601-4 through 4601-11, 36 C.F.R. § 59.3). Section 4(f) properties that have received LWCFA assistance are discussed in tables associated with Figures 5-6 and 5-7, beginning on page 5-10 of the FEIS. All recreational features developed with Section 6(f) funding in the Study Area would be avoided and are, therefore, not discussed further.

The U.S. Department of the Interior reviewed the FEIS and agreed that SMPP is a LWCF-assisted site that will be directly affected by the project. It agreed that the direct use of park land for freeway purposes was 31.3 acres and that a commitment to provide replacement land for the converted park land was provided in the measures to mitigate harm. The U.S. Department of the Interior concurred with the assessment of the impacts to the LWCF-assisted resource and acknowledged the mitigation commitment. The complete letter can be found in Volume II, Appendix A, page A5.

Endangered Species Act

The ESA, as amended, is intended to protect threatened and endangered species and the ecosystems on which they depend. When the federal government takes an action subject to the ESA, it must comply with Section 7 of the ESA:

> Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.

The project will not affect any currently listed threatened or endangered species. A Biological Evaluation was submitted to USFWS and the Community's Department of Environmental Quality and a copy was also provided to AGFD. The Biological Evaluation addressed threatened, endangered, and candidate species that may be affected by the South Mountain Freeway.

Since completion of the FEIS, USFWS removed the Tucson shovel-nosed snake from the candidate list; therefore, there is no intent to list the snake as threatened or endangered. As a result, mitigation measures that required preconstruction surveys for the snake have been omitted from the ROD. It is important to note, however, that FHWA and ADOT continue to commit to coordinate with USFWS, AGFD, and the Community's Department of Environmental Quality during the design phase, and this consultation will determine whether any additional species-specific mitigation measures will be required.

In addition to the removal of the Tucson shovel-nosed snake, the yellow-billed cuckoo, which was designated in the FEIS as "proposed threatened," is now listed as threatened with proposed critical habitat. Although proposed critical habitat for the cuckoo occurs within the Study Area, the proposed critical habitat does not occur within the action alternative corridors. The W101 Alternative, the farthest west of any of the action alternatives, is adjacent to the proposed critical habitat within the Salt River floodplain. The Selected Alternative is over 2 miles from the proposed critical habitat; therefore, the determinations in the FEIS and the Biological Evaluation completed for the project are still appropriate. FHWA determined that the Preferred Alternative (now the Selected Alternative) will not affect the yellow-billed cuckoo or its habitat because insufficient suitable habitat exists immediately adjacent to or within the action alternative alignments. USFWS reviewed the Biological Evaluation and provided technical assistance for minimizing impacts to the Tucson shovel-nosed snake and Sonoran desert tortoise. USFWS elected not to comment on the "no effect" findings in the Biological Evaluation.

Roadway Effects on Sonoran Desert Habitat

Roads have biological effects that extend beyond the immediate physical structure and operation of the roadway itself (Forman et al. 2003). The edge effect of roads is variable and can be affected by many roadway or natural factors (Coffin 2007). In general, effects will be more intense when a new road is constructed in a remote, relatively undisturbed habitat area than in areas with existing roads and development. The *Biological Resources* section in the FEIS, beginning on page 4-125, and the *Land Use* and *Secondary and Cumulative* Impacts sections, beginning on pages 4-3 and 4-179, respectively, describe the Sonoran Desert habitat in the Study Area and its surroundings. As discussed in that text as well as in Chapter 1, *Purpose and Need*, in the FEIS, the Study Area is transitioning from predominantly agricultural to suburban uses, with only about 10 percent of the corridor passing through desert habitat. Implementation of the Selected Alternative would be expected to have the greatest impact along the approximately 2.5-mile section that is directly adjacent to Sonoran Desert habitat. This section of roadway would be constructed at the southwestern boundary of SMPP in an area where natural desert vegetation and wildlife are present. This area is currently used for recreation, including hiking and occasional unapproved off-road vehicle use, as well as collection of reptiles as permitted by Arizona law. Additionally, residential developers have submitted plans to the City of Phoenix to construct over 100 homes in some of the remaining habitat located between the Selected Alternative and the boundary of SMPP.

Approximately 6.5 additional miles of the Selected Alternative would be constructed directly adjacent to other developed land uses (agricultural, industrial, residential) but would still be within 1 mile of Sonoran Desert habitat and could potentially result in indirect impacts to desert habitat located at a distance from the road. Although the freeway may not be the primary or sole introduced stressor along much of the project alignment where there are existing roads and development, the additional noise and disturbance related to the freeway may result in a wider zone of effects in those areas.

The negative effects of roads often outnumber the positive effects for biological resources (Fahrig and Rytwinski 2009). As acknowledged in the FEIS, negative road effects could include increases in local noise, light, pollution, and animal road mortality and could potentially result in lower densities of wildlife populations in the habitat adjacent to the road. Measures have been incorporated into the Selected Alternative to minimize these effects. The Selected Alternative will include construction of fencing designed to prevent wildlife access to the roadway in the section that crosses SMPP. Negative effects would likely remain for species that are able to move over or through large mammal and tortoise exclusion fencing, such as lizards and snakes. Road mortality could be a negative effect in other areas of the project if wildlife exclusion fencing is not provided; an analysis of other likely locations for wildlife to cross the road will be performed during final design to incorporate measures to minimize the potential effects. Native plant species composition in the habitat adjacent to the corridor is likely to be affected by the increased potential for the introduction of invasive species; accordingly, invasive species will be monitored and controlled throughout construction and operation of the Selected Alternative. The Selected Alternative will not jeopardize protected plants or species.

Habitat Connectivity

Roads in general reduce the movement of wildlife and can fragment habitat, isolate wildlife populations, and ultimately diminish landscape connectivity in addition to resulting in direct effects on wildlife such as increased noise levels, loss of habitat, and vehicle-wildlife collisions. ADOT has demonstrated national leadership in implementing measures to maintain landscape connectivity as it pertains to wildlife movement across the state. Beginning in 2003, wildlife experts from various agencies and organizations met to address wildlife habitation fragmentation within Arizona by developing a statewide map and summary

of priority wildlife linkages (Arizona Wildlife Linkages Workgroup 2006). In 2012, a report was released that summarized a workshop held to identify and map important wildlife linkages within Maricopa County (AGFD 2012). ADOT has received input from the Community and AGFD regarding important wildlife habitats and movement areas near the project. These sources and additional comments on the EIS have identified concerns with wildlife movement along the Salt River, between SMPP and habitat areas located on Community land, and between SMPP and the Sierra Estrella (see Figure 4-38 and the text box on page 4-137 of the FEIS and the Biological Evaluation). In addition, wildlife including the Sonoran desert tortoise, which is currently under consideration for listing as threatened under the ESA, occur in SMPP and could suffer increased genetic isolation if connectivity to other populations is further reduced from the current conditions.

ADOT considers several factors to prioritize use of transportation funding and in determining the appropriate approach to mitigate impacts to wildlife connectivity. For a particular project, ADOT considers factors including potential effects on driver safety, regulatory status of species, wildlife linkage priority, the size of wildlife populations in an area, and the likely frequency of use of the crossings. ADOT and FHWA have committed to mitigating the fragmenting effects of this project by enhancing bridges and drainage structures to promote wildlife connectivity between SMPP, the Sierra Estrella, and Community lands (see multiuse crossings and footnote on Figure 16). The enhancements will include providing fencing to guide wildlife to use the crossing structures. The wildlife crossing structures and associated fencing as well as additional design considerations for smaller drainage structures will be developed in coordination with AGFD, the Community, and USFWS. A bridge will span the Salt River supported by piers that will have minimal impacts to the floodplain and negligible effects on connectivity along the riparian corridor.

The freeway will be built in an area planned for urban growth as established in local jurisdictions' land use planning activities for at least the last 25 years (see the section, *Induced Growth*, beginning on page 4-182 of the FEIS). Additionally, the area in question has become much more fragmented during the EIS process and continues to experience fragmentation independent of the project. While using State transportation funding to provide wildlife overcrossings beyond those needed in the project design is not a priority of the project, both ADOT and FHWA have committed to enhancing the planned bridges and drainage structures to allow wildlife connectivity and to providing fencing to guide wildlife to use the crossing structures. ADOT and FHWA are willing to partner with other stakeholders to enhance wildlife connectivity across transportation facilities and would consider integrating additional connectivity enhancements into the project if such improvements were externally funded and did not negatively affect the freeway's operational characteristics.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Land acquisition and relocation assistance services for the project shall be available to all individuals in accordance with the Uniform Act, as amended. The implementing regulation for the Uniform Act on federally funded highway projects is 49 C.F.R. Part 24. The Uniform Act's objectives are to:

- provide uniform, fair, and equitable treatment of people whose property is acquired or who are displaced as a result of a federally funded project
- ensure relocation assistance is provided to displaced people to lessen the financial impact of being displaced
- ensure decent, safe, and sanitary housing will be made available to displacees within the person's financial means.
- encourage and expedite acquisition by agreement and without coercion

As part of the Uniform Act, ADOT and its consultants and contractors must prevent discrimination in all highway programs and must ensure compliance with Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. § 2000d, et seq.). Accordingly, no person can be excluded from participation in, denied the benefits of, or in any other way be subjected to discrimination under any federally funded program or activity because of his or her race, color, or national origin. For this project, all eligible displaced people will receive the same opportunities with regard to services, benefits, and financial aid. To ensure participation, informational meetings will be scheduled in convenient, accessible locations and at various times.

In the region, ADOT and FHWA consistently apply the required acquisition and relocation assistance program (Uniform Act) afforded to affected residents and businesses.

Executive Order on Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by the President on February 11, 1994, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. EPA and FHWA define environmental justice as "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." Environmental justice principles and procedures are followed to improve all levels of transportation decision making. The U.S. Department of Transportation Order 5610.2(a) requires that environmental justice principles be considered in all the Department's programs, policies, and activities. According to FHWA Order 6640.23A, three fundamental environmental justice principles apply to the transportation project development process:

- to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations
- to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- to prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

ADOT and FHWA have engaged all population segments to ensure access to the EIS study process. Assisted by this involvement, analytical results indicate the Selected Alternative will benefit all populations in the Study Area in general by reducing traffic congestion, enhancing accessibility, and supporting local economic development plans.

- As part of the approved RTP—which includes planned improvements to the Regional Freeway and Highway System, arterial street network, transit, and other aspects of the region's freeway system (see the text box, *What is the Regional Transportation Plan?*, on page 1-5 of the FEIS)—environmental justice populations will benefit from the RTP at approximately the same level or, in some cases, at a higher level than will populations in areas not considered to have environmental justice populations (MAG 2003). In connecting the eastern, southeastern, and southwestern regions of the Phoenix metropolitan area, the Selected Alternative will provide improved access for all area residents to key employment areas to the north, south, and east along the I-10 corridor, and in central Phoenix.
- The Selected Alternative will reduce congestion and improve the area transportation system. Improvements will be especially important given the projected growth and development in the southwestern Phoenix metropolitan area. Along with the general population, environmental justice populations will benefit from these improvements. Accessibility to regional public and private facilities and services will be improved.
- As is evident along existing freeways in the Phoenix metropolitan area, higher-density housing tends to be located along freeway routes, as can be seen along I-10 in the Study Area. The Phoenix *General Plan* identifies areas of higher-intensity land use along the route of the Selected Alternative, providing the potential benefit of affordable multifamily housing options in the future.

Households using Section 8 vouchers will be affected by the Selected Alternative. Housing units that participate in the program are not limited, except by the availability of vouchers; therefore, the availability of replacement housing is not easily quantified. Based on discussions with the City of Phoenix Housing Department, there is currently replacement housing in the area. The U.S. Department of Housing and Urban Development (HUD) reports that the "rental housing market in the City of Phoenix submarket is currently soft, with an estimated overall rental vacancy rate of 11 percent" (HUD 2013); therefore, replacement housing for residents of apartments potentially displaced by the Selected Alternative is currently available. The Eastern Section of the Study Area has a largely affluent, nonminority population. Although the population in the Western Section of the Study Area is more diverse—with minority populations throughout and low-income populations largely in the area along I-10—adverse impacts will not be predominantly borne by minority or low-income populations. Furthermore, any adverse effects experienced by minority or low-income populations will not be appreciably more severe or greater in magnitude than the adverse effects that will be experienced by other population segments or the general population.

Based on the above discussion and analysis, the Selected Alternative will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of Executive Order 12898 and U.S. Department of Transportation Order 5610.2(a). Even if one were to reach a contrary conclusion and determine that disproportionately high and adverse effects will occur as a result of the freeway, there is substantial justification for the 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*, of the FEIS). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, *Section 4(f) Evaluation*, of the FEIS. Mitigation measures as presented in Table 3, beginning on page 38, will result in reduction, minimization, and avoidance of impacts as well as overall benefits to all populations in the Study Area.

Title VI of the Civil Rights Act of 1964

Title VI prohibits discrimination based on race, color, and national origin. Specifically, 42 U.S.C. § 2000d states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Protections afforded under Title VI apply to everyone, regardless of whether the individual is lawfully present in the United States or is a citizen of the United States.

The minority groups addressed by Title VI are:

- Black (a person having origins in any of the black racial groups of Africa)
- Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race)
- Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands)
- American Indian and Alaskan Native (a person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition)
- some other race (a person who does not identify with one of the four previously listed races) or persons of more than one race

ADOT and FHWA have engaged all population segments to ensure access to the EIS process (see the section, *Agency and Tribal Coordination*, on page 68 and Chapters 2 and 6 in the FEIS for further details). Assisted by this involvement, analytical results indicate the Selected Alternative will benefit all populations in the Study Area in general by reducing traffic congestion, enhancing accessibility, and supporting local economic development plans. As part of the approved RTP—which includes planned improvements to the Regional Freeway and Highway System, arterial street network, transit, and other aspects of the region's freeway system (see the text box, *What is the Regional Transportation Plan?*, on page 1-5 of the FEIS)—Title VI populations will benefit from the RTP at approximately the same level or, in some cases, at a higher level than will populations in areas not considered to have Title VI populations (MAG 2003). In connecting the eastern, southeastern, and southwestern regions of the Phoenix metropolitan area, the Selected Alternative will provide improved access for all area residents to key employment areas to the north, south, and east along the I-10 corridor, and in central Phoenix. Improvements will be especially important given the projected growth and development in the southwestern Phoenix metropolitan area. Along with the general population, Title VI populations will benefit from these improvements.

Accessibility to regional public and private facilities and services will be improved. Impacts in the Eastern Section of the Study Area will displace a largely nonminority population. Although the population in the Western Section of the Study Area is more diverse—with minority populations throughout—adverse impacts will not be predominantly borne by minority populations. Furthermore, any adverse effects experienced by minority populations will not be appreciably more severe or greater in magnitude than the adverse effects that will be experienced by other population segments or the general population. The Selected Alternative will displace minority families, but all eligible displaced people will receive the same opportunities with regard to services, benefits, and financial aid regardless of his or her race, color, or national origin. The environmental justice conclusion that there will not be a disproportionately high and adverse effect on minority and low-income populations also supports a determination that there is no disparate impact on minority groups protected by Title VI. Although no disparate adverse impacts on populations afforded protection under Title VI will occur, mitigation measures are nonetheless provided for impacts associated with displacements and relocations and cultural resources (see Table 3, beginning on page 38). As part of the Uniform Act, ADOT and its consultants and contractors must prevent discrimination in all highway programs and must ensure compliance with Title VI. For this project, all eligible displaced people will receive the same opportunities with regard to services, benefits, and financial aid. For additional detail, see page 4-51 of the FEIS.

Additionally, since the beginning of the EIS process, FHWA and ADOT have been carrying out cultural resources studies and engaging in ongoing, open consultation with Community government officials, the THPO, the Cultural Resource Management Program, many different tribal authorities, and SHPO. The consultation has resulted in concurrence from the THPO and the SHPO on NRHP-eligibility recommendations (including TCPs), project effects, and proposed mitigation and measures to minimize harm. This consultation has been ongoing and will continue until all commitments in the ROD are completed. These proposed mitigation measures and measures to minimize harm accommodate and preserve (to the fullest extent possible from the available alternatives) access to the South Mountains for religious purposes. For additional detail, see the section, *Project Commitments*, on page 37.

With regard to impacts on places of spiritual importance to certain population segments, such as the South Mountains TCP, that raise potential environmental justice concerns with respect to Native American Tribes, in particular, the Community, extensive consultation, avoidance alternatives analyses, and mitigation measures are discussed throughout the FEIS. A sampling of these efforts is noted on page 4-38 of the FEIS. Even if one were to reach a contrary conclusion and determine that disparate adverse impacts will occur as a result of the Selected Alternative, there is substantial justification for the 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*, of the FEIS). There is no feasible and prudent alternative to the use of the South Mountains, as discussed in Chapter 5, *Section 4(f) Evaluation*, of the FEIS. All populations will benefit from the Selected Alternative's implementation through improved regional mobility and reduced local arterial street traffic.

Air Quality

ADOT and FHWA received more public comments related to air quality than on any other single issue. Early in the EIS process, members of the public informed ADOT and FHWA that air quality was an area of major concern. In response, the original draft of the DEIS, prepared in 2006, included one of the first MSATs analyses conducted for any highway project in the country. It also included more extensive background discussion on air toxics and other air pollutants than is typically incorporated in a NEPA document.

The DEIS was published in 2013. In addition to the MSAT emissions analysis, it included a CO hot-spot analysis, comparing concentrations of CO near the highway with EPA's standards for this pollutant; a qualitative discussion of likely impacts on EPA's PM_{10} standard; and an analysis of the project's likely impact on statewide greenhouse gas emissions (the first time that this type of analysis had been conducted for a highway project in Arizona).

In response to the many comments on air quality submitted on the DEIS, significant upgrades were made to the air quality analysis for the FEIS. The MSAT emissions analysis and CO hot-spot analysis were updated with EPA's newer MOVES emissions model, even though this was not required (the project qualifies for an EPA grace period for use of the older MOBILE6.2 model relied on in the DEIS). The

qualitative PM_{10} hot-spot analysis was replaced with a modeled PM_{10} hot-spot analysis, the first time this had been completed for any highway project in the United States, and also not required (because of the same EPA grace period). In response to comments about health impacts, FHWA developed a summary of past health risk assessments for highway projects and presented this information in the FEIS (again, a first for any highway project in the United States), and the FEIS also includes a new discussion of children's health impacts.

Finally, development of the new PM_{10} analysis included extensive consultation with EPA, involving discussion of and concurrence on many technical issues and EPA's review of draft documents and modeling files. In August 2014, EPA confirmed that all of its comments on this analysis had been addressed.

In short, this project has undergone an unprecedented amount of air quality analysis and coordination with EPA, far beyond any project of a similar size in the Phoenix metropolitan region. The findings of these analyses are summarized below.

Criteria Pollutants (Carbon Monoxide, Particulate Matter, and Ozone)

EPA has established NAAQS for six "criteria" pollutants: CO, particulate matter ($PM_{2.5}$ and PM_{10}), ozone (O_3), nitrogen dioxide, sulfur dioxide, and lead. These standards are required by law to protect public health, including sensitive populations such as children and the elderly, with an adequate margin of safety. Analysis of these pollutants for highway projects is governed by the Clean Air Act transportation conformity requirements and EPA's transportation conformity regulations. The Clean Air Act and EPA's regulations require projects to demonstrate that they will not contribute to any new local violations of the NAAQS, increase the frequency or severity of any existing violation, or delay timely attainment of the NAAQS or any required interim emissions reductions or other milestones. For the South Mountain Freeway project, these regulations required a project-specific analysis for CO and PM_{10} and compliance with regional emissions requirements for O_3.

The roadside CO and PM_{10} analyses used the latest traffic estimates and emissions and pollutant dispersion models and were reviewed by EPA. The FEIS includes analysis at three different locations along the proposed project (I-10 interchange, Broadway Road interchange, and 40th Street interchange), including worst-case locations based on traffic volumes, and additional locations to ensure coverage of all areas along the corridor. All locations meet the PM_{10} NAAQS and are well below the CO NAAQS, and the receptor diagrams in Figure 22 show that concentrations decrease rapidly as distance from the roadway increases. At the worst-case locations, nearly all of the concentrations reported are attributable to background concentrations; at the location with the absolute highest concentration for PM_{10}, 145 micrograms per cubic meter is the background concentration and only 3.8 micrograms per cubic meter will be added by the project. The modeling results also seem reasonable compared with real-world air quality monitoring. ADEQ's Greenwood monitoring station is located near the interchange of I-10 and I-17 in central Phoenix, one of the highest-traffic locations in Arizona, and it is recording values that demonstrate attainment of the CO and PM_{10} NAAQS. For O_3, MAG has included the project in the regional emissions analysis for its long-range transportation plan and has complied with all tests related to compliance with standards for O_3 and the other applicable pollutants.

Therefore, using the latest EPA-approved models and procedures, and after undergoing EPA review, FHWA has identified no health impacts from the proposed project related to the NAAQS.

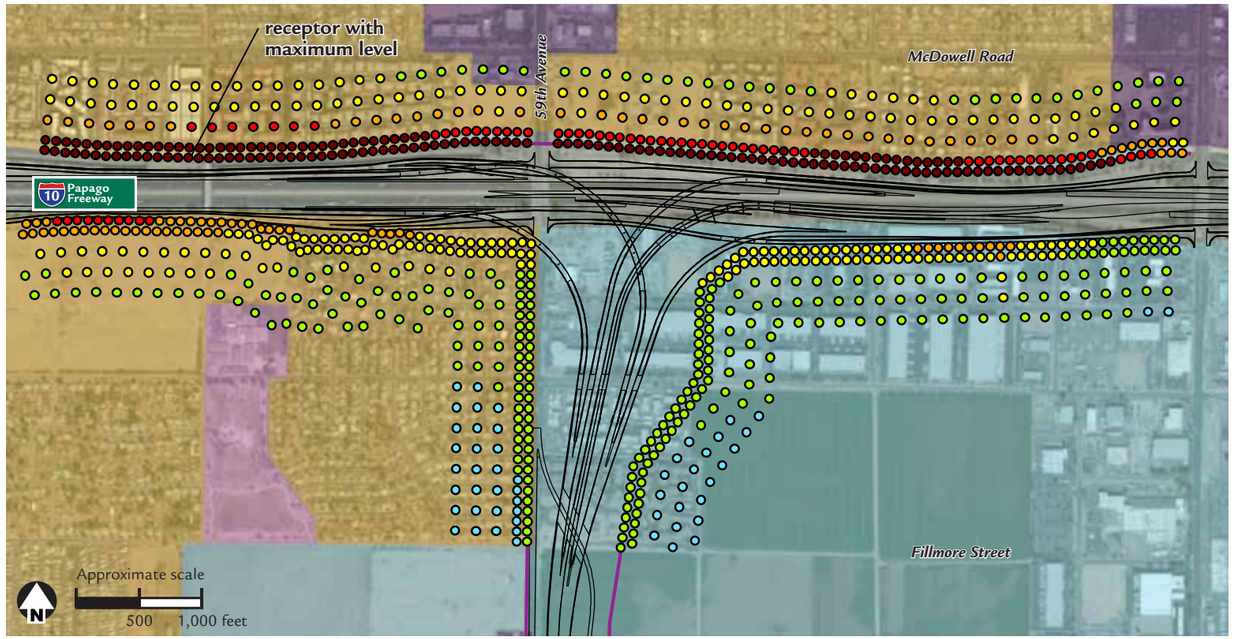
Mobile Source Air Toxics

Unlike the criteria pollutants, there are no NAAQS for MSATs. While the NAAQS in the Phoenix area are associated with short-term exposure (8 hours for CO and O_3, 24 hours for PM_{10}), EPA's risk estimates for MSATs are based on 70-year lifetime exposure. Because of this, FHWA analyzes changes in MSATs emissions for a study area consisting of the roadway in question plus all other roadways where traffic is affected by the proposed project. As explained in the FEIS, this is the best way to estimate changes in 70-year lifetime exposure, as opposed to looking at changes immediately adjacent to the roadway, as was done for CO and PM_{10}. (While it is reasonable to assume that someone may be located at one spot next to a roadway for 8 hours or 24 hours, it is not likely that he or she will be at one spot next to a roadway 24 hours a day for 70 continuous years.)

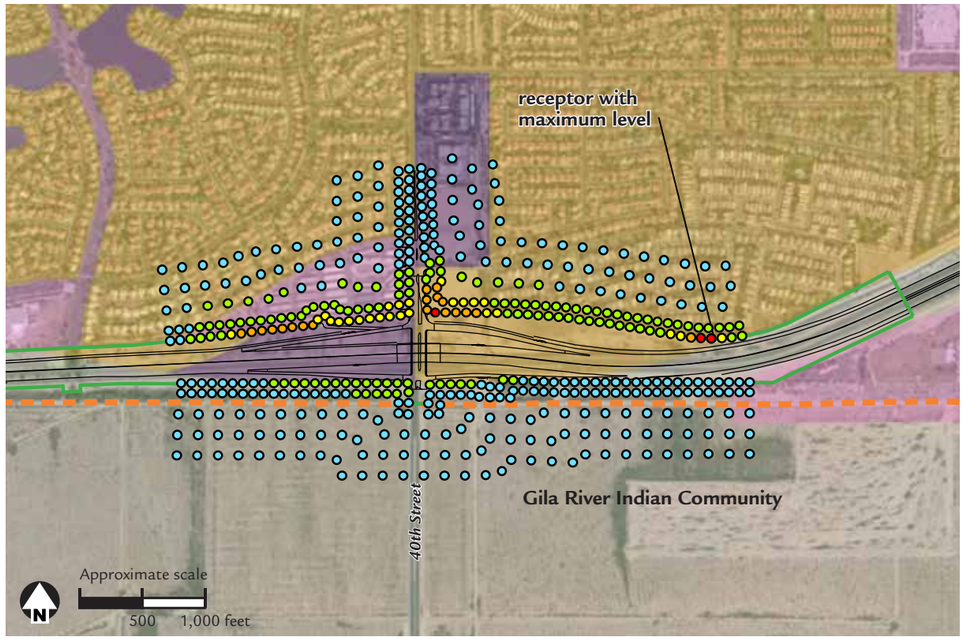
The MSATs analysis showed that emissions will decline dramatically over time regardless of which alternative is selected. Specifically, emissions in the Study Area are projected to decline by 83.98 percent between 2012 and 2035 if the project is built, and by 84.03 percent if the project is not built. While emissions will increase along the project corridor under the Selected Alternative (compared with the No-Action Alternative), they will also decrease elsewhere in the Study Area, offsetting most of the increase. The *Traffic Overview* report includes tables of traffic volume changes on existing regional freeways and arterial streets; nearly all locations show a decrease in traffic volumes under the Selected Alternative, which would lead to a decrease in congestion and MSATs emissions at those locations. But while there will be increases in emissions in some specific locations and decreases in emissions at others, there is virtually no change in emissions in the larger geographic area that applies for assessing 70-year lifetime MSATs exposure risk.

Finally, since some commenters are still concerned about the health risks from the proposed freeway, the FEIS includes a summary of health risk studies for past highway projects. Even assuming long-term continuous exposure at a fixed location (30 years in one study, 70 years in the other three studies), the estimated cancer risk ranged from 0.08 to 2 cases per million people. EPA considers a cancer risk of 1 in a million to be negligible; EPA has established an "action level" of 100 in a million, above which actions are considered appropriate to reduce risk. (For example, EPA's national emissions standards for industrial benzene sources are designed to reduce risk to a level of no more than 100 in a million.) By comparison, the lifetime risk of cancer from any cause is

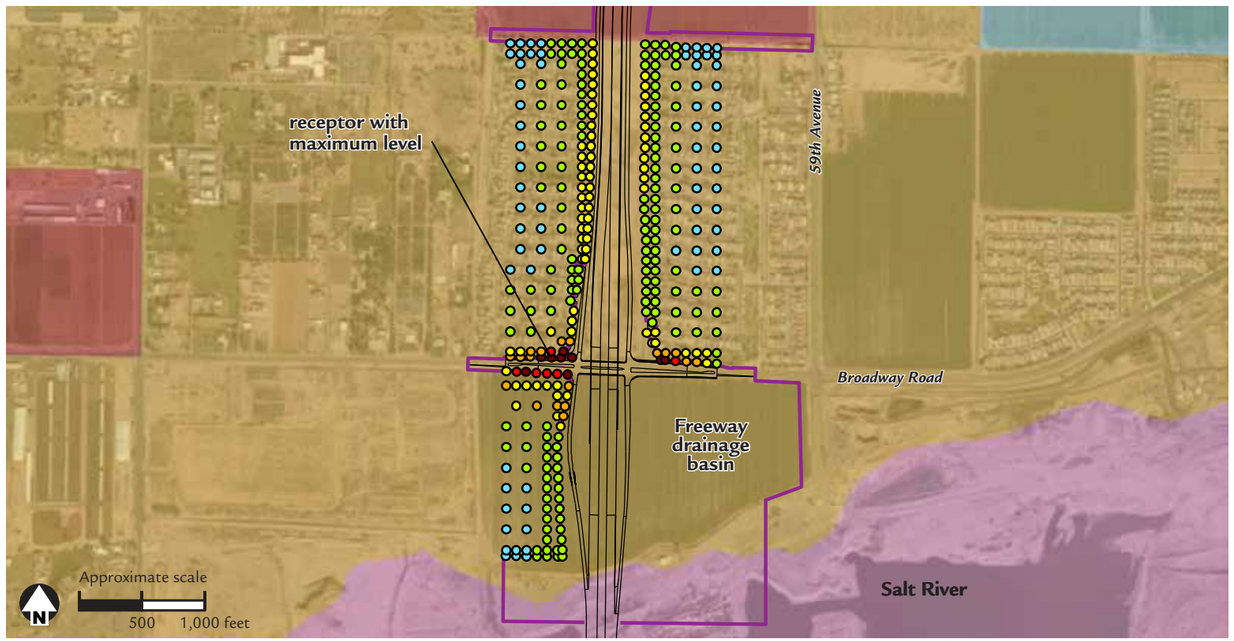
Figure 22 Particulate Matter Hot-spot Analysis Receptor Locations and Maximum Levels



Interstate 10 interchange



40th Street interchange



Broadway Road interchange

- Gila River Indian Community boundary
- W59 Alternative right-of-way
- E1 Alternative right-of-way
- Proposed alignment interchange

Receptor Location and Maximum PM_{10}[a] Level ($\mu g/m^3$)[b]

- 0.00–1.00 $\mu g/m^3$
- 1.01–2.00 $\mu g/m^3$
- 2.01–3.00 $\mu g/m^3$
- 3.01–4.00 $\mu g/m^3$
- 4.01–5.00 $\mu g/m^3$
- >5.01 $\mu g/m^3$

Future Land Use

- Agricultural
- Commercial
- Industrial
- Mixed use
- Public/Quasi-public
- Residential

[a] particulate matter of 10 microns or less in diameter
[b] micrograms per cubic meter

about 330,000 in a million, and the lifetime risk of being killed in a traffic accident is about 7,400 in a million. The worst lifetime cancer risk estimated in any of the highway studies (2 in a million) is about the same as the risk of a fatal accident during 180 miles of driving, which many people accumulate in less than a week.

In summary:

- All of the NAAQS that EPA required FHWA to evaluate are met in the vicinity of the project.
- MSATs emissions decline dramatically over the life of the project, and there is almost no difference between the alternatives.
- Even assuming unreasonable exposure timeframes, the potential health risk from MSATs borders on negligible, as defined by EPA.

Conformity with Air Quality Plans

The project area lies within the boundaries of the Phoenix nonattainment area for the NAAQS criteria pollutants O_3 and PM_{10}, and the Phoenix maintenance area for the NAAQS criteria pollutant CO (see Figure 23).

The air quality effects of the Selected Alternative are described beginning on page 4-69 of the FEIS.

A project-level conformity determination was made in the FEIS (see page 4-87), released on September 26, 2014. In accordance with the transportation conformity rule at 40 C.F.R. § 93.104(d), FHWA/Federal Transit Administration projects must be found to conform prior to being adopted, accepted, approved, or funded. Project-level conformity does not need to be redetermined unless one of the following occurs: there is a significant change in the project's design concept and scope, 3 years have elapsed since the most recent major step to advance the project, or a supplemental EIS is initiated for air quality purposes. None of those cases apply here. Therefore, consistent with the transportation conformity regulations, project-level conformity was made in the FEIS and it does not need to be redetermined in the ROD.

On December 23, 2014, the U.S. Court of Appeals for the District of Columbia Circuit issued a ruling on a challenge brought by the Natural Resources Defense Council to EPA's regulations implementing the 2008 O_3 NAAQS. Part of those regulations revoked the 1997 O_3 standard for transportation conformity purposes, thereby providing that transportation conformity no longer needed to be determined for the 1997 O_3 standard after July 20, 2013. In its decision, the Court vacated that portion of the regulation that had revoked transportation conformity requirements for the 1997 O_3 standard. However, the decision did not affect the project-level conformity determination that was made in September 2014.

As discussed in the FEIS project-level conformity determination, since O_3 is a regional pollutant, the analysis is done as part of regional air quality conformity. The regional conformity analysis, which includes the South Mountain Freeway, was most recently updated in January 2014. There are no additional project-level requirements to analyze potential impacts and no possibility of localized violations of O_3 occurring under the transportation conformity regulations at 40 C.F.R. Part 93.

The CO and PM_{10} hot-spot analyses demonstrated that the Selected Alternative will not contribute to any new local violations, increase the frequency or severity of any existing violation, or delay timely attainment of the NAAQS or any required interim emissions reductions or other milestones.

The project is included in MAG's fiscal year 2014-2018 Transportation Improvement Program and the 2035 RTP, which were found to conform to the O_3, CO, and PM_{10} State Implementation Plan by the U.S. Department of Transportation on February 12, 2014. The project is identified in these documents using several different project identification numbers by construction segment (47518, 43086, 43087, 11305, 15671, 19029, 17193, 6458, 1790, 6919, and 47857). The design concept and scope of the Selected Alternative is consistent with that used in the regional emissions analysis for the RTP and Transportation Improvement Program conformity determinations.

The project contractor shall comply with all local PM_{10} air quality and dust control rules, regulations, and ordinances referenced in the State Implementation Plan that apply to any work performed pursuant to the contract.

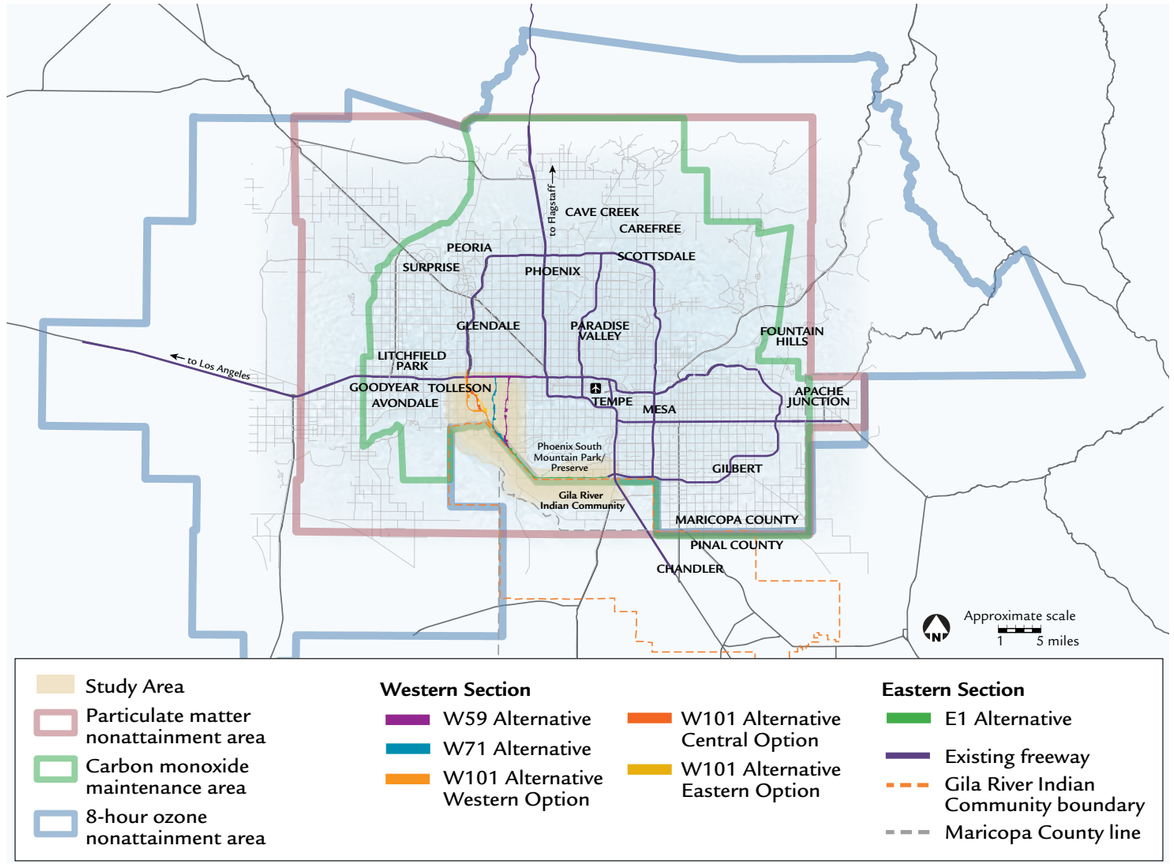
In response to EPA's comments on the FEIS, FHWA is clarifying that since the 40th Street interchange location was found to have the highest total PM_{10} concentrations, when combining project-level impacts and background concentrations, it is also being analyzed for conformity purposes, not solely for NEPA purposes as stated in the FEIS. All of the locations analyzed (I-10, 40th Street, and Broadway Road), resulted in total concentrations below the NAAQS, so this clarification requested by EPA does not affect the project's conformity determination.

Therefore, FHWA finds that the project-level conformity determination was made in the FEIS and does not need to be redetermined in the ROD.

Agency and Tribal Coordination

Since the beginning of the EIS process, FHWA and ADOT completed cultural resources studies and engaged in ongoing, open consultation with the Community THPO and other interested Tribes regarding the identification and evaluation of places of religious and cultural importance to the Tribes that may be adversely affected by the proposed freeway. As determined through consultation and studies conducted by the Community's Cultural Resource Management Program, the Community has identified TCPs that are eligible for listing in the NRHP and that could be affected by construction of the Selected Alternative. The other Tribes concurred with the determinations of project effect, NRHP eligibility, and management recommendations. In certain cases, listing these properties on the NRHP may afford them protection under Section 4(f). Through consultation, it was

Figure 23 Nonattainment and Maintenance Areas for Particulate Matter[a], Carbon Monoxide, and Ozone, Maricopa County



Source: Arizona Department of Environmental Quality, 2015

[a] particulate matter of 10 microns or less in diameter

determined that the TCPs identified are culturally important to other Native American Tribes as well.

FHWA and ADOT provided equal access to the public participation process to the Community and its members. FHWA and ADOT solicited input from the Community and other Native American Tribes and tribal members and fully considered input and comments that were received.

Chapter 2, *Gila River Indian Community Coordination*, of the FEIS is dedicated to explaining the Community outreach undertaken for the project. Chapter 6, *Comments and Coordination*, of the FEIS further describes Community outreach throughout the process. The Community was provided equal opportunities to participate in the project as all other populations and agencies. This outreach was undertaken, in part, to ensure all populations had equal access to the process and, in part, to ensure that disparate or disproportionate and highly adverse impacts will not result from construction and operation of the Selected Alternative.

In addition, FHWA and ADOT have coordinated with the appropriate resource and jurisdictional agencies to comply with environmental regulations governing the quality of the human environment as codified in 42 U.S.C. § 4332 and 40 C.F.R. Part 1501. Chapter 6 of the FEIS describes agency coordination that has occurred for the project.

Farmland Protection Policy Act

The Farmland Protection Policy Act of 1981 (FPPA) (7 U.S.C. Chapter 73 §§ 4201–4209), administered by the Natural Resources Conservation Service (NRCS), states that the purpose of the Act is "to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses …" In addition, the FPPA states that federal programs shall be administered in a manner that, as practicable, will be compatible with State and local government and private programs and policies to protect farmland. Coordination with NRCS is necessary when prime and unique farmlands will be affected.

The Selected Alternative will not convert the least amount of farmland to transportation use; however, the Selected Alternative will closely follow the freeway alignment as it has been planned for over 20 years. Much of the Western Section of the Study Area features commercial and industrial land uses (more compatible with a freeway use). As a result, the impacts on prime and unique farmlands from the Selected Alternative will be negligible. Coordination with the NRCS has been conducted since the initiation of the EIS process.

Executive Order on Floodplain Management

The Executive Order requires that impacts on floodplains be evaluated for all federal actions and directs agencies to reduce impacts on floodplains, minimize flood risks on human safety and well-being, and restore and preserve floodplain values. Floodplains are delineated and managed by the Federal Emergency

Management Agency. A floodplain is land subject to periodic flooding from an adjacent body of water. FHWA policies and procedures for the location and hydraulic design of encroachments on floodplains are set forth in 23 C.F.R. § 650.

The Selected Alternative will affect floodplains. Two 100-year floodplains will be affected: one associated with the Salt River and one north of the Roosevelt Irrigation District canal. However, impacts on the overall natural and beneficial values of the floodplain will be negligible. Impacts from floodplain encroachment by the Selected Alternative will be effectively mitigated through an elevated crossing (on piers) of the floodplain, using appropriate bridge design.

16. CONCLUSIONS

Based on the evaluation of information presented above and in the FEIS, the project's purpose and need, input from the public on the DEIS and FEIS, and interagency and tribal coordination, FHWA has decided to identify the W59/E1 Alternative as the Selected Alternative. The Selected Alternative will meet the project needs as well as or better than the other alternatives. The Section 4(f) evaluation demonstrated that no feasible and prudent avoidance alternatives to use of the South Mountains' Section 4(f) resources are available. Direct use of the resource is the same regardless of the combination of action alternatives in the Western and Eastern Sections (representing a range of reasonable alternatives). Relative to other action alternatives considered, the Selected Alternative will have similar environmental effects on natural resources, cultural resources, hazardous materials, and noise; will displace fewer residences; will have the lowest impact on total tax revenues of local governments; will have lower construction costs; will cause less construction disruption overall to I-10 (Papago Freeway); will include measures to reduce impacts and minimize harm; represents all possible planning to minimize harm to resources afforded protection under Section 4(f); is favored by the majority of local governments; and will allow regulatory permitting requirements to be met. FHWA, in consultation with ADOT, arrived at this decision based on information presented in the FEIS and the factors and commitments presented above.

FHWA selects the Preferred Alternative (W59/E1 Alternative) for the South Mountain Freeway (Loop 202) project. FHWA finds that ADOT has incorporated all practicable measures to minimize environmental harm into the project. FHWA and ADOT will ensure that the commitments outlined herein and in the FEIS will be implemented as part of the project design, construction, and postconstruction monitoring.

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