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# CHAPTER 5

## Section 4(f) Evaluation

### PROCEDURES FOR PROTECTING SECTION 6(f) AND SECTION 4(f) RESOURCES

#### 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. §§ 460l-4 through 460l-11). 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. All Section 6(f) properties in the Study Area would be avoided and are, therefore, not discussed further.

#### SECTION 4(f)

Sections of this chapter are presented to focus on an overall understanding of Section 4(f) of the U.S. Department of Transportation Act and related legislation. It explains how properties afforded protection under Section 4(f) are addressed in the planning and

locating of the proposed action. Table 5-1 provides a summary of topics, content, and intended benefits of the chapter to the reader. Section 4(f) states that the Secretary of Transportation

may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if—(1) there is no prudent and feasible alternative to using [see text box, on this page, regarding the definition of “use” as it applies to the proposed action] that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. (49 United States Code [U.S.C.] § 303)

Not all properties eligible for listing in the National Register of Historic Places (NRHP) are afforded protection under Section 4(f). To be determined eligible for listing, Section 106 of the National Historic Preservation Act (NHPA) specifies four criteria of significance: Criterion A (association with an important event[s]), Criterion B (association with an important person[s] significant in the past), Criterion C

Section 4(f) Use	
<p>A “use” of a Section 4(f) resource, as defined in 23 Code of Federal Regulations (C.F.R.) § 774.17, occurs 1) when land is permanently incorporated into a transportation facility (a direct use), 2) when there is a temporary occupancy of land that is adverse in terms of the statute’s preservationist purpose (a direct use), as determined by the criteria in 23 C.F.R. § 774.13(d), or 3) when there is a constructive use of land as determined by the criteria in 23 C.F.R. § 774.15. 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 qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished (23 C.F.R. § 774.15). For example, a constructive use can result when one or more of the following occur:</p> <ul style="list-style-type: none"><li>• The projected noise level attributable to the proposed action substantially interferes with the use and enjoyment of a noise-sensitive facility of</li></ul>	<p>a resource protected by Section 4(f). The Federal Highway Administration (FHWA) has defined this noise level as 67 A-weighted decibels (dBA) or higher.</p> <ul style="list-style-type: none"><li>• The proximity of the proposed action substantially impairs aesthetic features or attributes [such as blocking the view from a Section 4(f) property] of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be locating a proposed transportation facility in such proximity that it obstructs or eliminates views that are considered part of an NRHP-eligible, architecturally significant, historical property’s Section 4(f) eligibility. Another example would be locating a proposed transportation facility in such proximity that it detracts from the setting of a park or historic site which derives its value in substantial part because of its setting.</li><li>• The proposed action results in a restriction on access that substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site.</li></ul>

(embodiment of a distinctive design of a given type, period, or method of construction), and Criterion D (have yielded, or are likely to yield, information important in prehistory or history). Generally, cultural resources eligible

Table 5-1 Section 4(f) Evaluation Content Summary, Chapter 5

Topic	Page	Highlights	Reader Benefit
Procedures for Protecting Section 6(f) and Section 4(f) Resources	5-1	<ul style="list-style-type: none"><li>Definition of what properties qualify as having protection under Section 6(f) and Section 4(f)</li><li>Definition of “use” under Section 4(f), both through direct and proximity impacts (the latter constituting a “constructive use”)</li><li>Description of Section 4(f) in the EIS<sup>a</sup> process and the steps associated with a Section 4(f) evaluation</li></ul>	<ul style="list-style-type: none"><li>An understanding of protection provided to recreational facilities acquired with Land and Water Conservation Fund Act assistance</li><li>An understanding of the U.S. Department of Transportation Act governing USDOT<sup>b</sup> when planning the location of the action alternatives</li><li>An understanding of what USDOT can and cannot do in relation to resources afforded protection under Section 4(f)</li><li>An understanding of what constitutes avoidance of Section 4(f) resources</li><li>An understanding of what determinations have been made and what future determinations ADOT<sup>c</sup> and FHWA<sup>d</sup> must undertake</li><li>An understanding of actions already undertaken by ADOT and FHWA to avoid resources afforded protection under Section 4(f)</li><li>An understanding of how public, stakeholder, and Community<sup>e</sup> concerns and issues affect the evaluation</li></ul>
Presentation of Section 4(f) Resources, Impacts, and Measures to Minimize Harm	5-5	<ul style="list-style-type: none"><li>Presentation of all resources (including descriptions) located near the action alternatives (except on Community land)</li><li>Presentation of which resources would be used by the proposed action</li><li>Specific measures to minimize harm</li><li>Description of alternatives examined to avoid use of Section 4(f) resources of the South Mountains</li></ul>	<ul style="list-style-type: none"><li>Descriptions of all qualifying resources</li><li>An understanding of how the action alternatives may or may not affect the resources</li><li>An understanding of where direct use would occur, what the impacts would be, and what measures would be proposed to minimize harm to the resource(s)</li><li>An understanding of what future actions may be warranted to fully implement measures to minimize harm</li><li>A separate discussion of resources in the South Mountains afforded protection under Section 4(f)</li><li>Understanding of unique problems or unusual factors of extraordinary magnitude that would make avoidance of some affected Section 4(f) resources neither feasible nor prudent</li></ul>
Coordination	5-29	<ul style="list-style-type: none"><li>Summary of coordination to date with all vested agencies and parties</li><li>Summary of future coordination efforts</li></ul>	<ul style="list-style-type: none"><li>Illustration that Section 4(f)-related determinations involved stakeholder engagement</li></ul>
Conclusions	5-31	<ul style="list-style-type: none"><li>Summary of effort to avoid Section 4(f) resources</li><li>Documentation of use of the South Mountains as a park, NRHP<sup>f</sup>-eligible site, and TCP<sup>g</sup></li></ul>	<ul style="list-style-type: none"><li>An understanding of the efforts undertaken to avoid Section 4(f) resources</li><li>An understanding of the measures to minimize harm from use of the South Mountains as a park, NRHP-eligible site, and a TCP</li></ul>

<sup>a</sup> environmental impact statement   <sup>b</sup> U. S. Department of Transportation   <sup>c</sup> Arizona Department of Transportation   <sup>d</sup> Federal Highway Administration   <sup>e</sup> Gila River Indian Community  
<sup>f</sup> National Register of Historic Places   <sup>g</sup> traditional cultural property

for listing in the NRHP under Criterion D are not eligible for protection under Section 4(f).

If the evaluation concludes feasible and prudent avoidance of protected resources is not possible, FHWA may approve, from among the remaining alternatives that use resources afforded protection under Section 4(f), only the alternative that causes the least overall harm in light of the statute’s preservationist purpose [23 C.F.R. § 774.3(c)]. Least overall harm is established by balancing:

- ▶ the ability to mitigate adverse impacts on each resource afforded Section 4(f) protection (including any measures that benefit the resource)
- ▶ the relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) resource for protection
- ▶ the relative significance of each resource afforded Section 4(f) protection
- ▶ the views of the official(s) with jurisdiction over each resource afforded Section 4(f) protection
- ▶ the degree to which each alternative meets the purpose and need for the project
- ▶ after reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f)
- ▶ substantial differences in costs among the alternatives

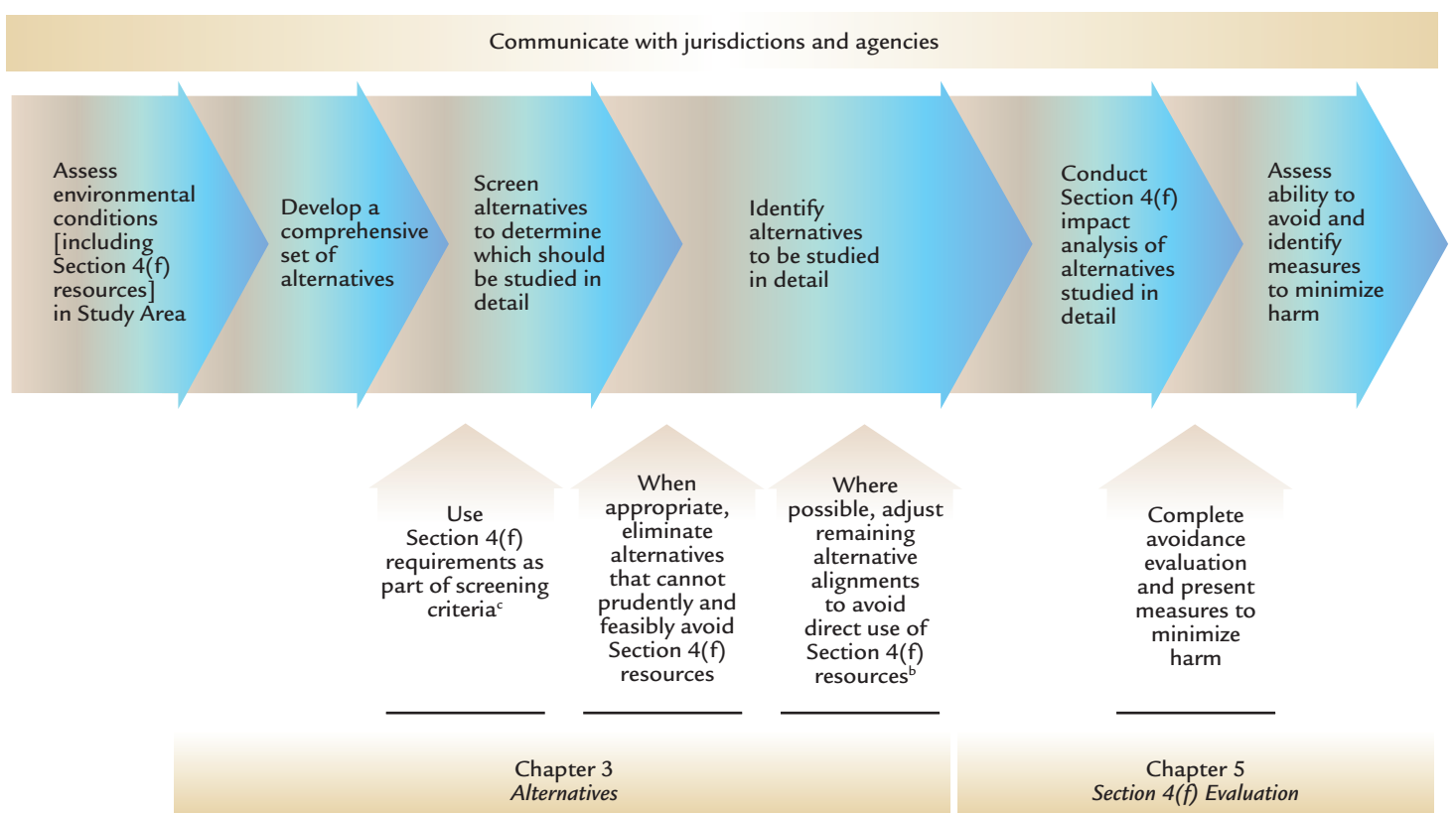
Process

This chapter presents results of an evaluation examining potential use of public recreational land, historic resources, and traditional cultural properties (TCPs); no designated wildlife or waterfowl refuges are within the Study Area. Figure 5-1 illustrates the process used to address analytical and procedural requirements of Section 4(f); the main body of text throughout the chapter extends the discussion of the process presented in Figure 5-1.

The chapter contains:

- ▶ A presentation of resources and properties afforded protection under Section 4(f) within ¼ mile of the

Figure 5-1 Section 4(f) in the EIS<sup>a</sup> Process as Applied to the Proposed Action



<sup>a</sup> environmental impact statement  
<sup>d</sup> assumes avoidance of resources located in the South Mountains afforded protection under Section 4(f) has been determined not to be prudent and feasible

Consideration of Section 4(f) begins at the start of the EIS process. A clear benefit of the iterative EIS process is recognition that measures were taken early in the process to avoid or reduce impacts on resources afforded protection under Section 4(f).

- action alternatives. The ¼-mile distance is used because it is the approximate maximum distance from which traffic noise would be disruptive to human or wildlife uses. All other proximity impacts, such as those to the viewshed, would be detected at distances less than ¼ mile. Qualifying resources are presented in the following order:
- ▶ properties eligible for inclusion in the NRHP (not associated with the South Mountains or TCPs)
  - ▶ recreational trails
  - ▶ public school recreational facilities
  - ▶ public parkland (not associated with the South Mountains)
  - ▶ public parkland resources (Phoenix South Mountain Park/Preserve [SMPP]) associated with the South Mountains
  - ▶ NRHP-eligible historic resources associated with the South Mountains
  - ▶ NRHP-eligible TCP resources associated with the South Mountains
  - ▶ Appendix 5-1, beginning on page A583, presents properties initially considered for protection; however, based on further analysis, they were determined to be ineligible for Section 4(f) protection.
  - ▶ A demonstration of why proximity impacts associated with the action alternatives would not constitute constructive use of any resource afforded protection under Section 4(f).
  - ▶ Because prudent and feasible avoidance of direct use of some resources afforded Section 4(f) protection

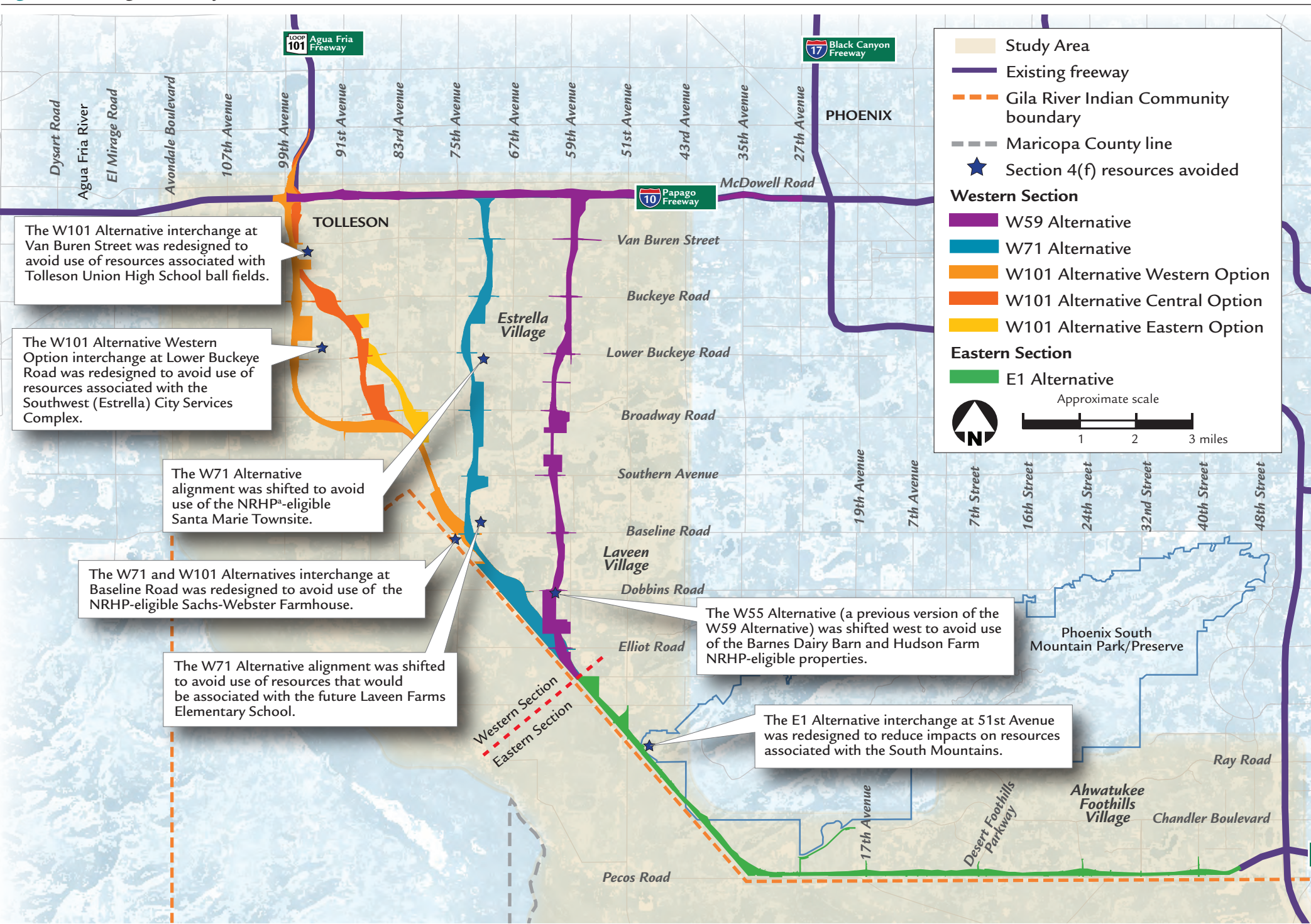
Why are some schools afforded protection under Section 4(f) while others are not?

Not all public schools are afforded protection under Section 4(f). To be considered a Section 4(f) resource, school recreational areas must be publicly owned and must be available for “walk-on” activity by the public. Walk-on activity implies individuals do not have to make arrangements with school officials prior to use of the school’s recreational amenities after school hours. School recreational amenities serving only school activities and functions are not subject to Section 4(f) protections. Policies to allow or not allow for walk-on use typically are set by individual schools or the school districts. The following two examples may help clarify how schools are determined to be Section 4(f) resources:

- King’s Ridge Preparatory Academy, located at 3650 S. 64th Lane in Phoenix, is a publicly owned school with several outdoor recreational facilities, including athletic fields, basketball courts, and play equipment. According to the Riverside Elementary School District, school grounds are fenced and locked after hours. Members of the public can use the facilities only if arrangements are made in advance. Such a policy/practice does not qualify as allowing walk-on activity; therefore, the school is not afforded protection under Section 4(f).
- Fowler Elementary School, located at 6707 W. Van Buren Street in Phoenix, is a publicly owned school with outdoor recreational amenities consisting of baseball fields, basketball courts, athletic fields, and covered playgrounds. While Fowler Elementary School is fenced, the gates remain open. Fowler Elementary School District indicated its recreational facilities are available for public use, without prior authorization, after school hours. This policy/practice qualifies as walk-on activity; therefore, the school is afforded protection under Section 4(f).



Figure 5-2 Alignment Adjustments, Action Alternatives, Western and Eastern Sections



<sup>a</sup> National Register of Historic Places

A result of the iterative alternatives development and screening process was that alignment adjustments were made early at numerous locations along the alignments to avoid use of existing and planned Section 4(f) resources.

would not be possible, measures to minimize harm are presented. Some measures to minimize harm require further coordination on the part of the Arizona Department of Transportation (ADOT) and FHWA with agencies, jurisdictions, the Gila River Indian Community (Community), and possibly major user groups. Those measures, as presented, will include a discussion of future additional steps needed to fully commit to the measures.

- A discussion of alternatives considered to avoid all Section 4(f) resources and why they were determined not to be “prudent and feasible.”
- Results of coordination with agencies, jurisdictions, the Community, and major user groups.

**Consideration of Alternatives Early in the EIS Process**

The action alternatives studied in detail in Chapter 3, *Alternatives*, are the result of an iterative process that began in 2001. Conducted to identify the range of reasonable action alternatives for detailed study, the process considered potential impacts, including direct or constructive use, on resources afforded protection under Section 4(f) (see Figure 5-1). During early development and screening of alternatives (see the section, *Alternatives Development and Screening*, beginning on page 3-1, to learn more about the screening process), several early alignments that would have directly used properties afforded protection under Section 4(f) were either eliminated from the process entirely or modified to avoid use of the resources.

Figure 5-2 illustrates where adjustments were made to avoid impacts on resources afforded protection under Section 4(f) early in the environmental impact statement (EIS) process.



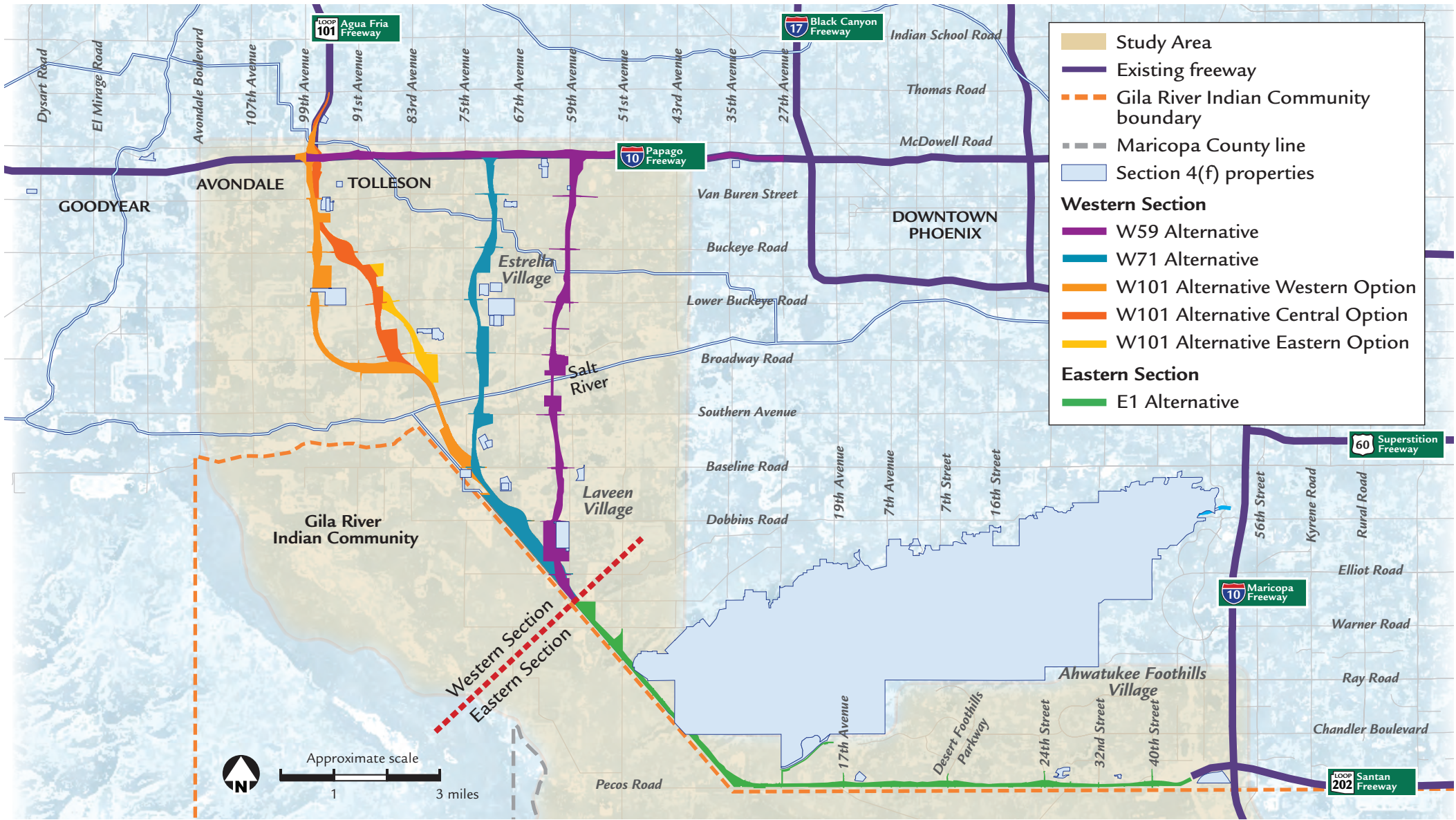
PRESENTATION OF SECTION 4(f) RESOURCES, IMPACTS, AND MEASURES TO MINIMIZE HARM

Resources afforded protection under Section 4(f) are located near the action alternatives and include properties eligible for the NRHP, recreational trails, public school recreational facilities, and public parks. Figure 5-3 shows all Section 4(f) resources in, or close

to, the Study Area. Figures 5-4 through 5-7 describe the resources, potential uses of the resources that would result from implementation of the proposed action, and measures to minimize harm to the resources, if needed. All action alternatives would use resources afforded protection under Section 4(f). Although no constructive

uses would occur, mitigation measures (see Table S-4, on pages S-18 through S-34) that address impacts on non-Section 4(f) properties would also contribute to incidental reductions in proximity impacts, where appropriate, on Section 4(f) resources.

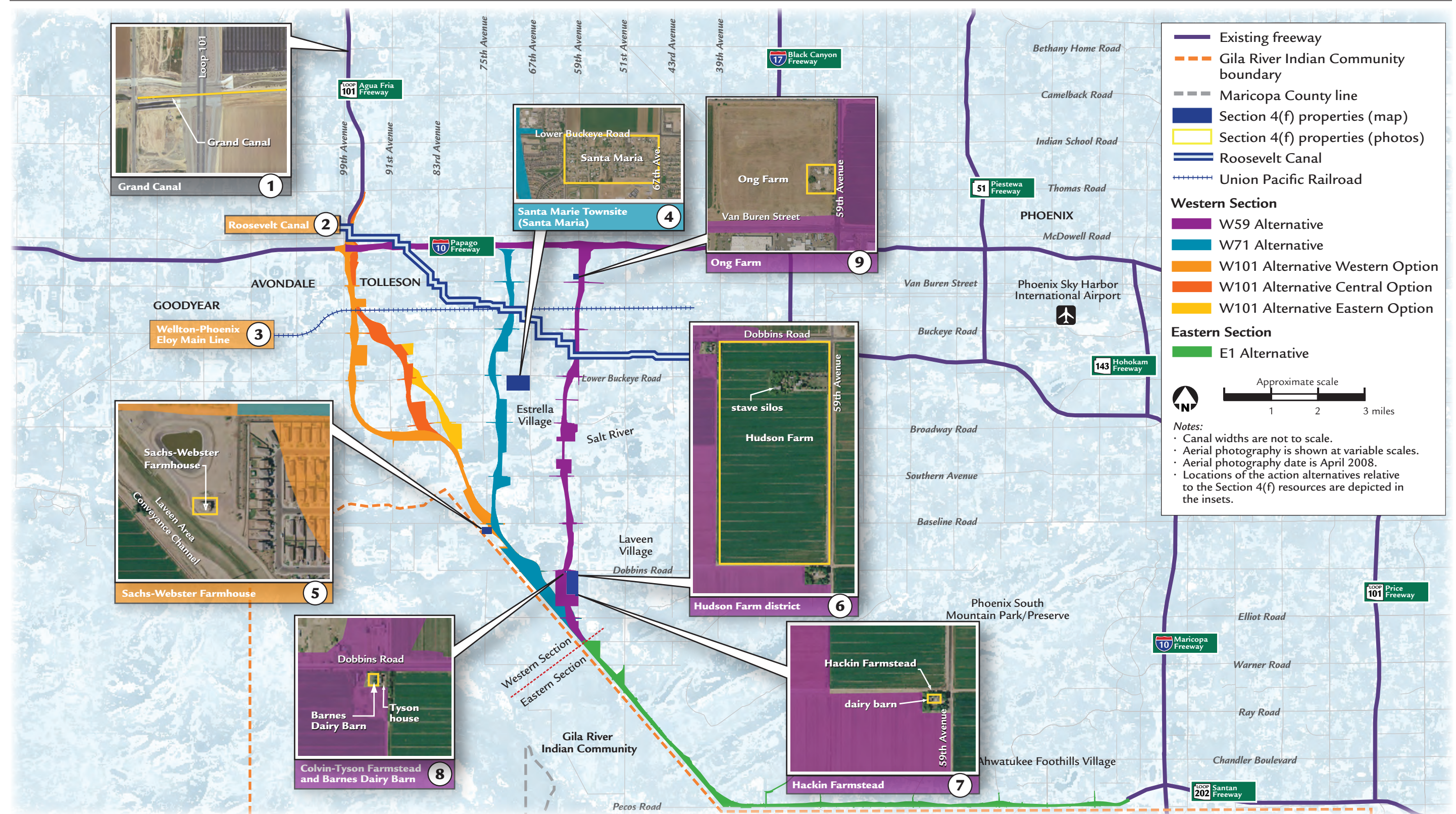
Figure 5-3 Section 4(f) Resources in the Study Area



Section 4(f) properties within or near the Study Area include recreational trails, historic properties, public school recreational facilities, and public parks. The alternatives development process for the proposed action included efforts to avoid affecting these properties.



**Figure 5-4** Properties Eligible for the National Register of Historic Places (not associated with the South Mountains or Traditional Cultural Properties)



*National Register of Historic Places (NRHP) eligibility of the resources is provided in the section, Cultural Resources, beginning on page 4-128. NRHP eligibility, which in turn affects Section 4(f) eligibility, is determined through the Section 106 consultation process prescribed by the National Historic Preservation Act. Circled numbers on the figure correspond to the Section 4(f) resources described on the facing page.*

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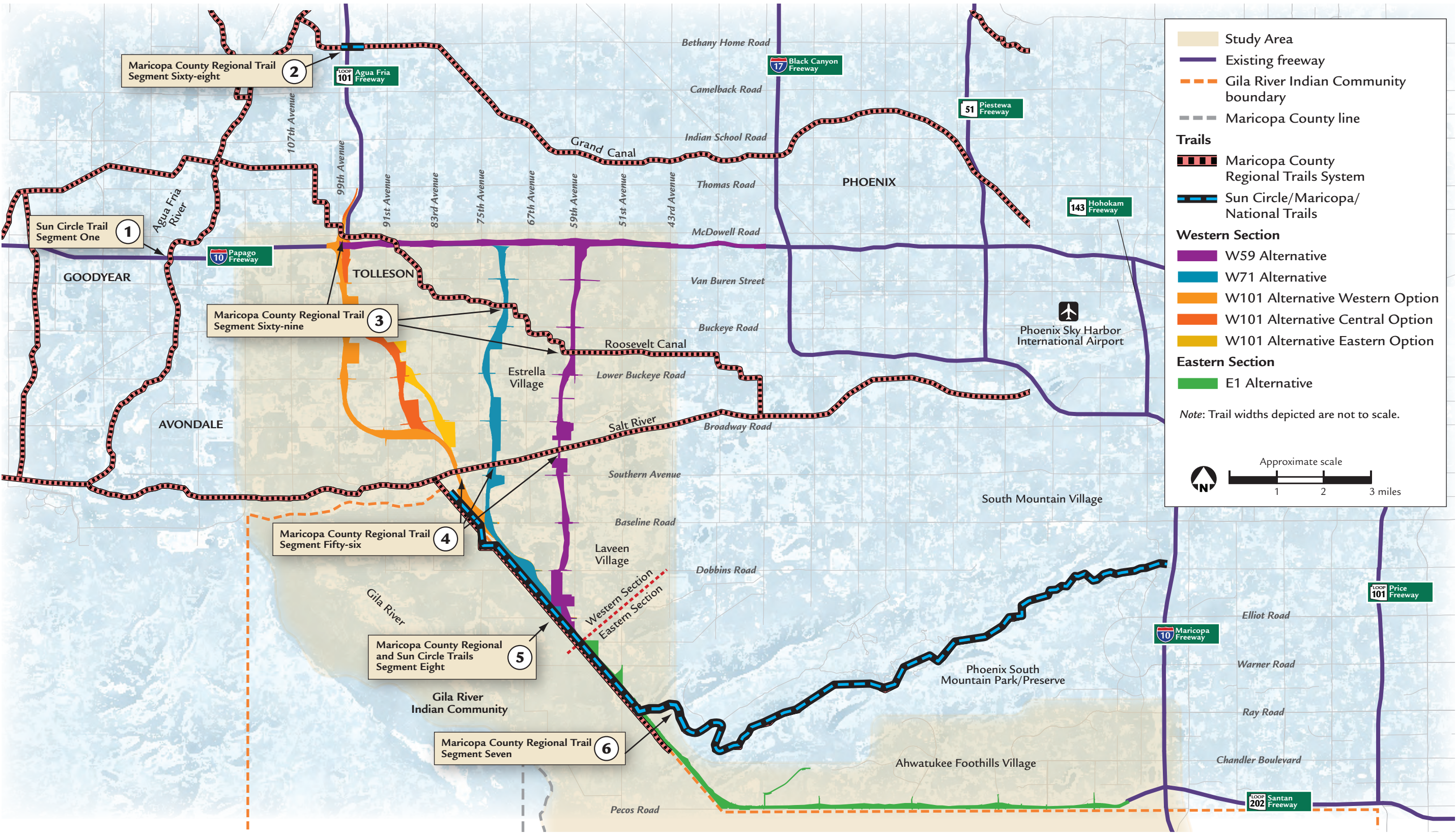
Figure 5-4 Properties Eligible for the National Register of Historic Places (not associated with the South Mountains or Traditional Cultural Properties) (continued)

Resource	Description	Avoidance	Impact			Measure to Minimize Harm <sup>a</sup>	Conclusion
			Proximity to Proposed Action	Direct Use	Constructive Use		
① Grand Canal	<ul style="list-style-type: none"><li>Constructed between 1878 and 1886 by the Grand Canal Company</li><li>Primary delivery canal in the Salt River Project system; played important role in the development of Arizona’s early agricultural industry</li><li>NRHP<sup>b</sup>-eligible under Criteria A and C<sup>c</sup></li><li>Under the jurisdiction of the Bureau of Reclamation</li></ul>	Avoided	Would cross under the W101 Alternative	Action alternatives would be constructed as elevated spans to clear the properties	None	Not required	<p>1. None of the action alternatives would result in direct use of any of the NRHP-eligible properties shown on the corresponding map because the action alternatives would avoid the properties. Where action alternatives would cross NRHP-eligible properties (specifically, the Grand Canal, Roosevelt Canal, and the historic Southern Pacific Railroad [Wellton-Phoenix-Eloy Main Line]), the action alternatives would be constructed as elevated spans to clear the properties.</p> <p>2. Some action alternatives would be located closer to these properties than others, and these properties would be subject to proximity impacts. The impacts would not adversely alter characteristics that contribute to the resources’ importance as Section 4(f) resources. No constructive use of the NRHP-eligible properties afforded protection under Section 4(f) would occur.</p> <p>3. Because existing access to some of the NRHP-eligible properties afforded protection under Section 4(f) might be affected, alternative access would be provided. In those instances, access would not be restricted and utility of the resources would not be altered.</p> <p>4. None of the action alternatives or options would result in direct or constructive use; therefore, no measures to minimize harm are warranted.</p>
② Roosevelt Canal	<ul style="list-style-type: none"><li>Constructed by Roosevelt Irrigation District in 1928; still in use</li><li>Segments that would cross the W59 and W71 Alternatives retain integrity; recommended NRHP-eligible under Criterion A<sup>d</sup></li><li>Segments that are crossed by the Papago Freeway and Agua Fria Freeway lack historical integrity; not recommended as NRHP-eligible</li></ul>	Avoided	Would cross all action alternatives		None	Not required	
③ Wellton-Phoenix-Eloy Main Line	<ul style="list-style-type: none"><li>Built in 1910 and owned by Union Pacific Railroad since 1996</li><li>Originally a 39-mile branch line serving the West Valley; later extended to connect with Southern Pacific Railroad’s main line at Wellton and Eloy</li><li>Main line is NRHP-eligible under Criterion A<sup>c</sup></li><li>Spurs not eligible for NRHP</li></ul>	Avoided	Would cross all action alternatives		None	Not required	
④ Santa Marie Townsite (Santa Maria)	<ul style="list-style-type: none"><li>Officially established as an unincorporated townsite in 1945</li><li>Living example of a historic, rural Hispanic agricultural community in the region</li><li>NRHP-eligible under Criteria A and B<sup>c</sup></li><li>Access from Lower Buckeye Road and 67th Avenue</li><li>Multiple private ownerships</li></ul>	Avoided	650 feet from W71 Alternative	None	None	Not required	
⑤ Sachs-Webster Farmhouse	<ul style="list-style-type: none"><li>Constructed in 1909</li><li>NRHP-eligible under Criterion C<sup>c</sup> for architectural merit</li><li>Access from Baseline Road just west of 75th Avenue</li><li>Owned by FCDMC<sup>e</sup></li></ul>	Avoided	375 feet from W101 Alternative; 760 feet from W71 Alternative	None	None	Not required	
⑥ Hudson Farm district	<ul style="list-style-type: none"><li>Includes farmhouse, variety of associated outbuildings, and 80-acre agricultural field</li><li>NRHP-eligible under Criterion A<sup>c</sup>; stave silos NRHP-eligible under Criterion C<sup>c</sup></li><li>Access from 59th Avenue</li><li>Owned by ADOT<sup>f</sup></li></ul>	Avoided	Adjacent to the W59 Alternative	None	None	Not required	
⑦ Hackin Farmstead	<ul style="list-style-type: none"><li>Farmstead includes two houses, dairy barn, modified horse barn</li><li>Farmstead, houses, horse barn not NRHP-eligible</li><li>Dairy barn NRHP-eligible under Criterion C<sup>c</sup></li><li>Access from 59th Avenue</li><li>Private ownership</li></ul>	Avoided	1,300 feet from W59 Alternative	None	None	Not required	
⑧ Colvin-Tyson Farmstead and Barnes Dairy Barn	<ul style="list-style-type: none"><li>Circa-1950 farmstead with two farmhouses and dairy barn</li><li>Farmstead and farmhouses not eligible for NRHP</li><li>Dairy barn NRHP-eligible under Criterion C<sup>c</sup></li><li>Access to the Barnes Dairy Barn from Dobbins Road</li><li>Owned by ADOT</li></ul>	Avoided	Adjacent to W59 Alternative	None	None	Not required	
⑨ Ong Farm	<ul style="list-style-type: none"><li>Constructed in 1930</li><li>NRHP-eligible under Criterion A<sup>c</sup></li><li>Access from 59th Avenue</li><li>Private ownership</li></ul>	Avoided	Adjacent to W59 Alternative	None	None	Not required	

<sup>a</sup> Other mitigation proposed for other, non-Section 4(f) resources would contribute to reductions in proximity impacts (see text box regarding other measures contributing to reductions in proximity impacts on page 5-24). <sup>b</sup> National Register of Historic Places  
<sup>c</sup> State Historic Preservation Office concurrence, October 2005 <sup>d</sup> State Historic Preservation Office concurrence, July 19, 2006 <sup>e</sup> Flood Control District of Maricopa County <sup>f</sup> Arizona Department of Transportation



Figure 5-5 Recreational Trails System



Any of the action alternatives would cross one or more of the trails afforded protection under Section 4(f). The alternatives would bridge the trails. Circled numbers on the figure correspond to the Section 4(f) resources described on the facing page.

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Figure 5-5 Recreational Trails System (continued)

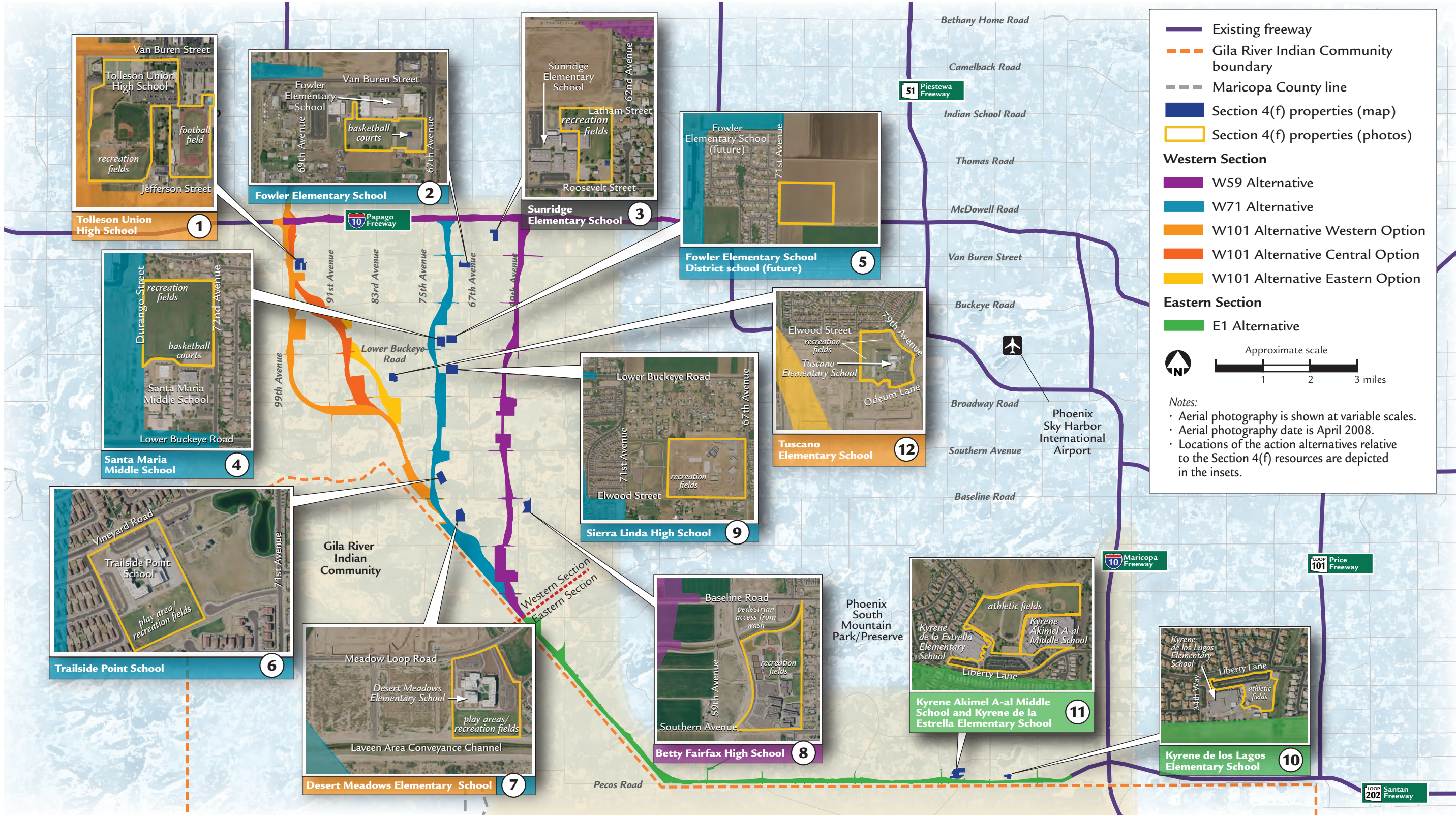
Resource	Description	Avoidance	Impact			Measure to Minimize Harm <sup>a</sup>	Conclusion
			Proximity to Proposed Action	Direct Use	Constructive Use		
① Sun Circle Trail Segment One	<ul style="list-style-type: none"><li>One of few segments of the Maricopa Trail that does not have a common alignment with the Sun Circle Trail</li><li>Maricopa County plans to move Segment One onto banks of the Agua Fria River; which side of the river would be determined through collaboration with the jurisdictions</li><li>Principal purpose is to create a regional planning framework for a 42-mile trail network</li><li>Under City of Avondale and FCDMC<sup>b</sup> jurisdiction</li></ul>	Avoided	Would be relocated along banks of the Agua Fria River and cross Interstate 10	Improvements to existing freeways associated with the W101 Alternative and Options would continue to span to clear the trail	None	Not required	<p>1. None of the action alternatives would result in direct impact on any of the trail segments shown on the corresponding map because the action alternatives would avoid impacts to the segments. Where action alternatives would 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 action alternatives would be constructed as elevated spans to clear the trail segments.</p> <p>2. None of the trail segments within ¼ mile of the action alternatives have noise-sensitive activities or viewshed characteristics that contribute to their importance as Section 4(f) resources. These trails are typically used for high-intensity recreational activities such as running, hiking, and biking, not noise- or viewshed-sensitive activities. While access to trails is typically from trailheads with accompanying parking areas, there are generally few restrictions to gaining access from anywhere along their lengths. Trails will remain open during construction, but some out-of-direction travel (i.e., a detour) may be necessary in some cases. Therefore, access to the resources would not be restricted and utility of the trails not altered as a result of the construction, operation, and maintenance of any of the action alternatives.</p> <p>3. No direct or constructive use of known recreational trails afforded protection under Section 4(f) would occur. However, if an action alternative were identified, trails near potential freeway construction would be closed for limited periods of time for safety reasons. Such closures would constitute a temporary occupancy of land so minimal as to not constitute a Section 4(f) use.</p>
② Maricopa County Regional Trail Segment Sixty-eight	<ul style="list-style-type: none"><li>Constructed between 1878 and 1886 by the Grand Canal Company</li><li>Existing trail located along the banks of the Grand Canal</li><li>Under City of Phoenix jurisdiction</li></ul>	Avoided	Would cross State Route 101L at Bethany Home Road	Improvements to existing freeways associated with the W101 Alternative and Options would continue to span to clear the trail	None	Not required	
③ Maricopa County Regional Trail Segment Sixty-nine	<ul style="list-style-type: none"><li>Runs along the Roosevelt Canal</li><li>Under City of Phoenix jurisdiction</li></ul>	Avoided	Would cross all Western Section action alternatives	All Western Section action alternatives would be constructed as an elevated span to clear the trail	None	Not required	
④ Maricopa County Regional Trail Segment Fifty-six	<ul style="list-style-type: none"><li>Planned trail</li><li>Would run east–west within the Salt River riverbed</li><li>Under City of Phoenix jurisdiction</li></ul>	Avoided	Would cross all Western Section action alternatives	All Western Section action alternatives would be constructed as an elevated span to clear the trail	None	Not required	
⑤ Maricopa County Regional and Sun Circle Trails Segment Eight	<ul style="list-style-type: none"><li>Begins at the Phoenix South Mountain Park/Preserve boundary about halfway between Ray and Pecos roads and includes both the Sun Circle and Maricopa trails</li><li>Located on the SRP<sup>d</sup> canal banks, but will be moved to the SRP transmission line easement along the northern boundary between the Gila River Indian Community and the city of Phoenix (Maricopa County 2004c)</li><li>Under SRP jurisdiction</li></ul>	Avoided	Adjacent to all action alternatives	None	None	Not required	
⑥ Maricopa County Regional Trail Segment Seven	<ul style="list-style-type: none"><li>Common to the Sun Circle, Maricopa, and National trails within Phoenix South Mountain Park/Preserve</li><li>Maricopa County and the City of Phoenix creating an intergovernmental agreement to extend the National Trail to Segment Eight</li><li>Extension of Segment Seven would serve to establish Sun Circle Trail as a continuous loop around the region</li><li>Under City of Phoenix jurisdiction</li></ul>	Avoided	Would cross and run adjacent to E1 Alternative	E1 Alternative would be constructed as an elevated span to clear the trail	None	Not required; however, coordinate design of trails with Maricopa County	

<sup>a</sup> Other mitigation proposed for non-Section 4(f) resources would contribute to reductions in proximity impacts (see text box regarding other measures contributing to reductions in proximity impacts on page 5-24)

<sup>b</sup> Flood Control District of Maricopa County   <sup>c</sup> Arizona Department of Transportation   <sup>d</sup> Salt River Project



Figure 5-6 Public School Recreational Facilities



None of the existing and planned schools afforded protection under Section 4(f) have noise-sensitive activities or viewshed characteristics that contribute to their importance as Section 4(f) resources. Not all public school recreational facilities are afforded protection under Section 4(f). See sidebar on page 5-3. Circled numbers on the figure correspond to the Section 4(f) resources described on the facing page.

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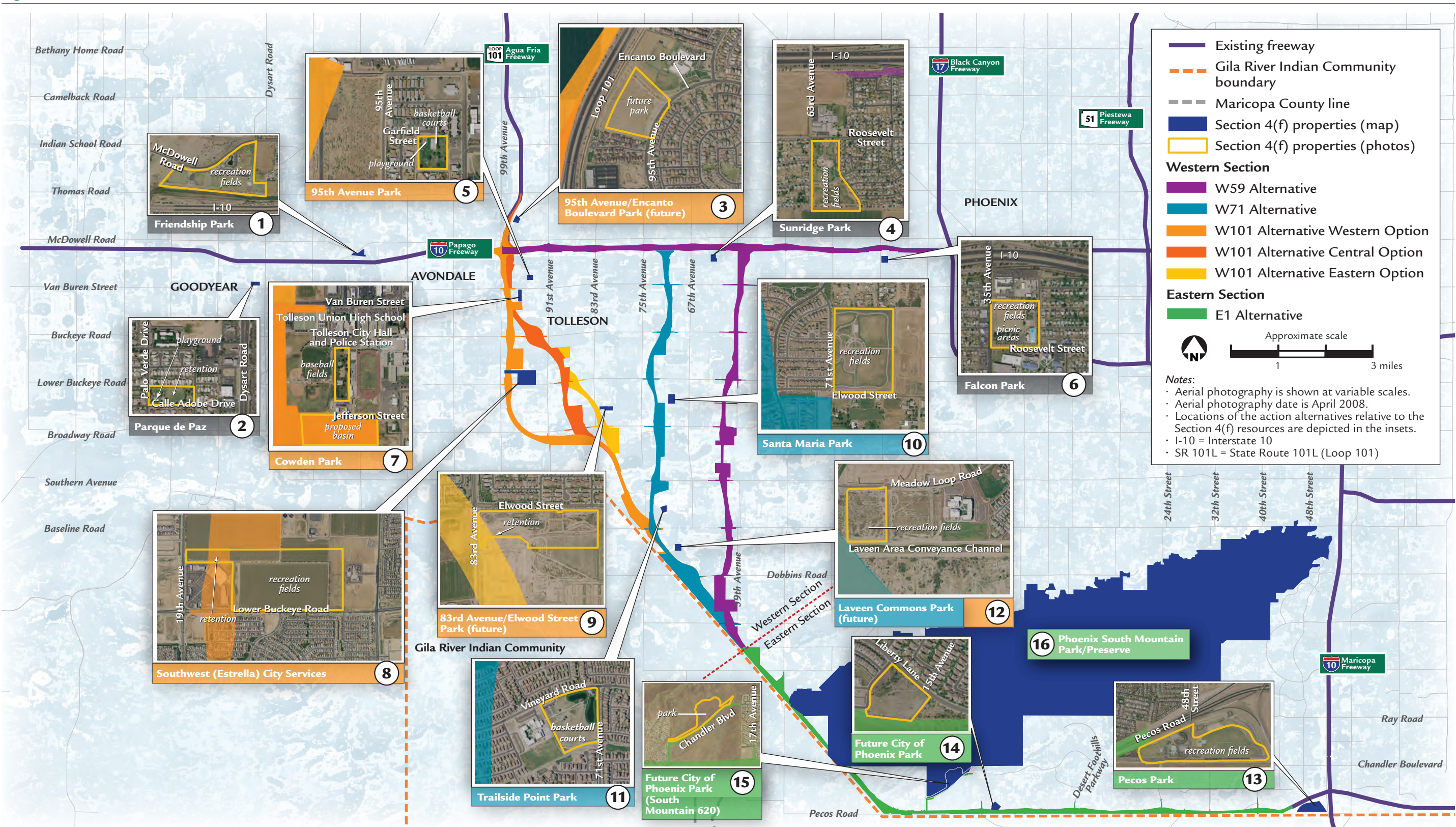
Figure 5-6 Public School Recreational Facilities (continued)

Resource	Description	Avoidance	Impact			Measure to Minimize Harm <sup>a</sup>	Conclusion
			Proximity to Proposed Action	Direct Use	Constructive Use		
① Tolleson Union High School	<ul style="list-style-type: none"><li>• Under jurisdiction of Tolleson Union High School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Land and Water Conservation Fund grant awarded</li><li>• Primary access to the facilities from Van Buren Street; additional access would be at three other locations from Van Buren Street and one from Jefferson Street</li></ul>	Avoided	Adjacent to the W101 Alternative and Options	None	None	Not required	<div>1. None of the schools afforded protection under Section 4(f) have noise-sensitive activities or viewshed characteristics that contribute to their importance as Section 4(f) resources.</div> <div>2. No constructive or direct use of the school sites afforded protection under Section 4(f) would occur.</div> <div>3. Because access to existing school sites or planned access to planned school sites afforded protection under Section 4(f) would not be altered, access to and utility of any of the resources would not be impaired. Therefore, none of the action alternatives or options would result in direct or constructive use and no measures to minimize harm are warranted.</div>
② Fowler Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Fowler Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities from 67th Avenue</li></ul>	Avoided	325 feet from W71 Alternative	None	None	Not required	
③ Sunridge Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Fowler Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities from Roosevelt Street</li></ul>	Avoided	650 feet from Papago Freeway; 725 feet from W59 Alternative	None	None	Not required	
④ Santa Maria Middle School	<ul style="list-style-type: none"><li>• Under jurisdiction of Fowler Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities from 72nd Avenue</li></ul>	Avoided	Adjacent to W71 Alternative	None	None	Not required	
⑤ Fowler Elementary School District school (future)	<ul style="list-style-type: none"><li>• Under jurisdiction of Fowler Elementary School District</li><li>• Outdoor recreational facilities would be available for public use after school hours</li><li>• Site plans and planned access unavailable</li><li>• Access to be determined</li></ul>	Avoided	900 feet from W71 Alternative	None	None	Not required	
⑥ Trailside Point School	<ul style="list-style-type: none"><li>• Under jurisdiction of Laveen Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from Vineyard Road; additional access would be provided west of the school</li></ul>	Avoided	200 feet from W71 Alternative	None	None	Not required	
⑦ Desert Meadows Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Laveen Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from Meadow Loop Road</li></ul>	Avoided	1,300 feet from W71 and W101 Alternatives	None	None	Not required	
⑧ Betty Fairfax High School	<ul style="list-style-type: none"><li>• Under jurisdiction of Phoenix Union High School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from 59th Avenue; pedestrian access would be from south of Baseline Road</li></ul>	Avoided	1,300 feet from W59 Alternative	None	None	Not required	
⑨ Sierra Linda High School	<ul style="list-style-type: none"><li>• Under jurisdiction of Tolleson Union High School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from 67th Avenue</li></ul>	Avoided	1,100 feet from W59 Alternative	None	None	Not required	
⑩ Kyrene de los Lagos Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Kyrene Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from Liberty Lane</li></ul>	Avoided	70 feet from E1 Alternative	None	None	Not required	
⑪ Kyrene Akimel A-al Middle School and Kyrene de la Estrella Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Kyrene Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facilities would be from Liberty Lane</li></ul>	Avoided	50 feet from E1 Alternative	None	None	Not required	
⑫ Tuscano Elementary School	<ul style="list-style-type: none"><li>• Under jurisdiction of Fowler Elementary School District</li><li>• Outdoor recreational facilities are available for public use after school hours</li><li>• Primary access to the facility would be from 79th Avenue</li></ul>	Avoided	1,200 feet from W71 Alternative	None	None	Not required	

<sup>a</sup> Other mitigation proposed for other, non-Section 4(f) resources would contribute to reductions in proximity impacts (see text box regarding other measures contributing to reductions in proximity impacts on page 5-24).



Figure 5-7 Public Parkland



Other than Phoenix South Mountain Park/Preserve (addressed separately in the next section), none of the action alternatives would result in direct impacts on any of the existing or planned public parks or their recreational components. None of the parks afforded protection under Section 4(f) have noise-sensitive activities or viewshed characteristics that contribute to their importance as Section 4(f) resources. Because access to these parks would not be altered, access to and the utility of the resources would not be impaired. Circled numbers on the figure correspond to the Section 4(f) resources described on the facing page. (figure continues in tabular format on next page)



Figure 5-7 Public Parkland (continued)

Resource	Description	Avoidance	Impact			Measure to Minimize Harm <sup>a</sup>	Conclusion
			Proximity to Proposed Action	Direct Use	Constructive Use		
① Friendship Park	<ul style="list-style-type: none"><li>55-acre park owned and operated by the City of Avondale</li><li>Primary access from McDowell Road</li></ul>	Avoided	Adjacent to I-10 <sup>b</sup> (Papago Freeway)	None	None	Not required	<p>1. Except for the South Mountains, none of the action alternatives would result in direct impacts on any of the existing or planned public parks or their recreational components. Some of the properties have recreational amenities funded through LWCF<sup>c</sup> grants.</p> <p>2. Although the W101 Alternative Western Option would pass through a portion of Southwest (Estrella) City Services complex, it would not constitute a direct use of a resource afforded protection under Section 4(f) because the alternative would cross only the retention area within the complex. No constructive or direct use of the properties afforded protection under Section 4(f) would occur.</p> <p>3. None of the parks afforded protection under Section 4(f) have noise-sensitive activities or viewshed characteristics that contribute to their importance as Section 4(f) resources.</p> <p>4. Because all existing and planned resources protected under Section 4(f) would remain accessible, utility of the resources would not be impaired.</p> <p>5. Except for the South Mountains, none of the action alternatives or options in the Western Section would result in direct or constructive use of existing or planned public parks; therefore, no measures to minimize harm are required.</p>
② Parque de Paz	<ul style="list-style-type: none"><li>4-acre park owned and operated by the City of Goodyear</li><li>Primary access from Palo Verde Drive</li></ul>	Avoided	1,200 feet from I-10 (Papago Freeway)	None	None	Not required	
③ 95th Avenue/ Encanto Boulevard Park (future)	<ul style="list-style-type: none"><li>10-acre park to be owned and operated by the City of Phoenix</li><li>Site plan unavailable</li><li>Primary access would be from Encanto Boulevard and/or 95th Avenue</li></ul>	Avoided	Adjacent to SR 101L <sup>d</sup> (Agua Fria Freeway)	None	None	Not required	
④ Sunridge Park	<ul style="list-style-type: none"><li>15-acre park owned and operated by the City of Phoenix</li><li>LWCF grant awarded for site preparation, including grading, utilities, irrigation, landscaping, and lighting</li><li>Primary access is from Roosevelt Street</li></ul>	Avoided	1,300 feet from I-10 (Papago Freeway)	None	None	Not required	
⑤ 95th Avenue Park	<ul style="list-style-type: none"><li>2-acre park owned and operated by the City of Tolleson</li><li>LWCF grant awarded for parking lot improvements and bench and ramada installation</li><li>Primary access from Garfield Street</li></ul>	Avoided	900 feet from W101 Alternative Partial Reconstruction (all Options)	None	None	Not required	
⑥ Falcon Park	<ul style="list-style-type: none"><li>14.5-acre park owned and operated by the City of Phoenix</li><li>Primary access from Roosevelt Street</li></ul>	Avoided	500 feet from I-10 (Papago Freeway)	None	None	Not required	
⑦ Cowden Park	<ul style="list-style-type: none"><li>3-acre park owned and operated by the City of Tolleson</li><li>Primary access from Van Buren Street</li></ul>	Avoided	200 feet from W101 Alternative and Options	None	None	Not required	
⑧ Southwest (Estrella) City Services	<ul style="list-style-type: none"><li>100-acre park to be owned and operated by the City of Phoenix</li><li>Primary access would be from Lower Buckeye Road/99th Avenue</li></ul>	Avoided	Adjacent to W101 Alternative Western Option	None	Alternative access would be provided	Not required	
⑨ 83rd Avenue/ Elwood Street Park (future)	<ul style="list-style-type: none"><li>8.5-acre park to be owned and operated by the City of Phoenix</li><li>Noncontributing portion of property would be in right-of-way</li><li>Primary access would be from 83rd Avenue and/or Elwood Street</li></ul>	Avoided	Adjacent to W101 Alternative Eastern Option	None	None	Not required	
⑩ Santa Maria Park	<ul style="list-style-type: none"><li>15-acre park to be owned and operated by the City of Phoenix</li><li>Primary access would be from 71st Avenue</li></ul>	Avoided	Adjacent to W71 Alternative	None	None	Not required	
⑪ Trailside Point Park	<ul style="list-style-type: none"><li>15-acre park owned and operated by the City of Phoenix</li><li>Primary access from Vineyard Road</li></ul>	Avoided	1,000 feet from W71 Alternative	None	None	Not required	
⑫ Laveen Commons Park (future)	<ul style="list-style-type: none"><li>15-acre park to be owned and operated by the City of Phoenix</li><li>Site plan unavailable</li><li>Primary access would be from Meadow Loop Road</li></ul>	Avoided	500 feet from W71 and W101 Alternatives	None	None	Not required	
⑬ Pecos Park	<ul style="list-style-type: none"><li>66-acre park owned and operated by the City of Phoenix</li><li>Primary access from 48th Street</li></ul>	Avoided	Adjacent to E1 Alternative	None	None	Not required	
⑭ Future City of Phoenix Park	<ul style="list-style-type: none"><li>7.2-acre park to be owned and operated by the City of Phoenix</li><li>Site plan unavailable</li><li>Primary access would be from Liberty Lane</li></ul>	Avoided	Adjacent to E1 Alternative	None	None	Not required	
⑮ Future City of Phoenix Park (South Mountain 620)	<ul style="list-style-type: none"><li>75-acre park to be owned and operated by the City of Phoenix</li><li>Primary access would be from Chandler Bouelvard</li></ul>	Avoided	Adjacent to E1 Alternative	None	None	Not required	
⑯ Phoenix South Mountain Park/ Preserve	<ul style="list-style-type: none"><li>16,600-acre park operated and maintained by the City of Phoenix</li><li>Primary access from Central Avenue, south of Dobbins Road</li><li>LWCF grant applied to expand park boundary at eastern side of the park, to develop Park Drive, and to improve restrooms and ramadas</li></ul>	Not prudent and feasible	0.9 mile of freeway would pass through the southwestern edge of SMPP <sup>e</sup>	Approximately 31.3 acres (less than 0.2 percent of SMPP)	Not applicable	See page 5-22	The E1 Alternative would directly use resources afforded protection under Section 4(f) located in the South Mountains.

Note: Information regarding the Land and Water Conservation Fund grant to Sunridge Park is from personal communications with P. Dutrack, February 10, 2005.

<sup>a</sup> Other mitigation proposed for other, non-Section 4(f) resources would contribute to reductions in proximity impacts (see box regarding other measures contributing to reductions in proximity impacts on page 5-24).

<sup>b</sup> Interstate 10   <sup>c</sup> Land and Water Conservation Fund   <sup>d</sup> State Route 101L (Loop 101)   <sup>e</sup> Phoenix South Mountain Park/Preserve



*The South Mountains in Phoenix’s Sonoran Preserve System*

The City of Phoenix operates and maintains over 27,000 acres of mountain preserves and desert parks. The preserved natural land provides visual relief to life in an urban setting and can benefit the urban economy. In 1998, the City of Phoenix adopted the *Sonoran Preserve Master Plan*, which sets forth strategies to protect the natural settings while allowing access to them. SMPP has been called the centerpiece of the preserve system.

Through the course of preparing the DEIS, many documented public comments pertaining to SMPP have been received. Comments ranged from strong preferences to not go through the park at all (e.g., the City of Phoenix Parks Board, the Phoenix Mountain Preservation Council, and the Arizona State Horsemen’s Association have opposed use of SMPP for the proposed action) to strong recommendations to undertake all possible measures to mitigate impacts on SMPP if there is no action alternative to avoid use of the park.

*Section 4(f) resources in the South Mountains*

- Detailed discussions of resources afforded protection under Section 4(f) located in the South Mountains can be found in:
- *Public Parkland Resources (SMPP) Associated with the South Mountains (this page)*
  - *NRHP-Eligible Historic Resources (SMPP) Associated with the South Mountains (page 5-24)*
  - *The South Mountains (Muhadagi Doag) as a Traditional Cultural Property (page 5-25)*

**PUBLIC PARKLAND RESOURCES (SMPP) ASSOCIATED WITH THE SOUTH MOUNTAINS**

SMPP is a highly valued resource to the region’s communities. Through the course of preparing the Draft Environmental Impact Statement (DEIS)/Section 4(f) Evaluation, the participating public has regularly expressed to ADOT its concerns about the freeway going through SMPP and possible impacts from the proposed action (see sidebar on this page for related information).

SMPP is afforded protection as a publicly owned park. SMPP is approximately 16,600 acres in size and is operated and maintained by the City of Phoenix (City of Phoenix 1989, 2005a). Figure 5-8 illustrates major features of the park/preserve. The following points suggest the value of SMPP as a resource afforded protection under Section 4(f):

- SMPP is arguably one of the largest city parks in the United States and a centerpiece of the Phoenix Sonoran Preserve System.
- SMPP offers over 3 million visitors per year opportunities for hiking, bicycling, horseback riding, and interaction with the natural Sonoran Desert immediately adjacent to a major metropolitan area (City of Phoenix 2009c).

City of Phoenix planning activities since the mid-1980s illustrate an awareness of the possible interaction between SMPP and the proposed action. On April 11, 1989, the South Mountain Park Master Plan, prepared by the City’s Parks, Recreation, and Library Department, was adopted by the Phoenix City Council. The master plan shows the freeway alignment (designated as “planned southwest loop”) as adopted by the State Transportation Board (STB) in 1988. While the plan acknowledges the interrelationship between the park and the proposed freeway, a recommendation in the plan identifies the underlying conflict leading to the passage of the Phoenix Mountain Preserve Act (see text box on this page). Specifically, the recommendation states that “the Southwest Loop be realigned around South Mountain Park.” The selected alternative would have all possible environmental mitigation measures implemented to lessen the impact on the park (City of Phoenix 1989).

**The Phoenix Mountain Preserve Act and the Proposed Freeway**

Events leading to the City of Phoenix’s eventual adoption of the Phoenix Mountain Preserve Act started as a grass-roots effort when a group of concerned citizens decided the city’s mountains needed protection from increasing encroachment from ongoing development.

In 1990, the Arizona Legislature ratified the City’s requirement that approval by the city’s voters was necessary for the construction of a roadway through a mountain preserve under Arizona Revised Statutes (A.R.S.) § 28-7047. Although this may suggest that construction of the proposed action through SMPP would be subject to voter approval, such is not the case. Provisions in the Act clearly indicate voter approval is not applicable to a state route proposed to be constructed within a designated mountain preserve if the state route was in the State Highway System on August 15, 1990.

The proposed action was in the State Highway System plan prior to 1990 and is thus exempt from voter approval requirements under this statute. Records prior to adoption of the statute suggest a primary reason for

the exception was to allow the proposed freeway to go through SMPP because the importance of the freeway to the region’s economy and transportation system was clearly recognized. Known legislative history of this statute does not mention a specific alignment for the proposed action because it is the purview of the STB, not the Legislature, to determine the precise alignment of State highways. It was the intent of the Legislature to allow the proposed action to go through SMPP; the precise alignment was to be determined through the collaborative project development process. The mountain preserve boundary as established for SMPP under the Phoenix Mountain Preserve Act set aside a 200-foot-wide corridor through the park as a utility corridor. However, the right-of-way (R/W) easement also allows the use of this corridor for other purposes (including roads). The corridor, although not wide enough to accommodate a modern freeway, is in approximately the same location as the South Mountain Freeway alignment adopted in 1988.

In the City of Phoenix *General Plan*, the Circulation Element (Goal 1, Policy 7) clearly supports the timely construction of the proposed action (City of Phoenix 2005b). Supporting *General Plan* maps show the proposed action in the general location as planned in the mid-1980s with a portion of it passing through SMPP.

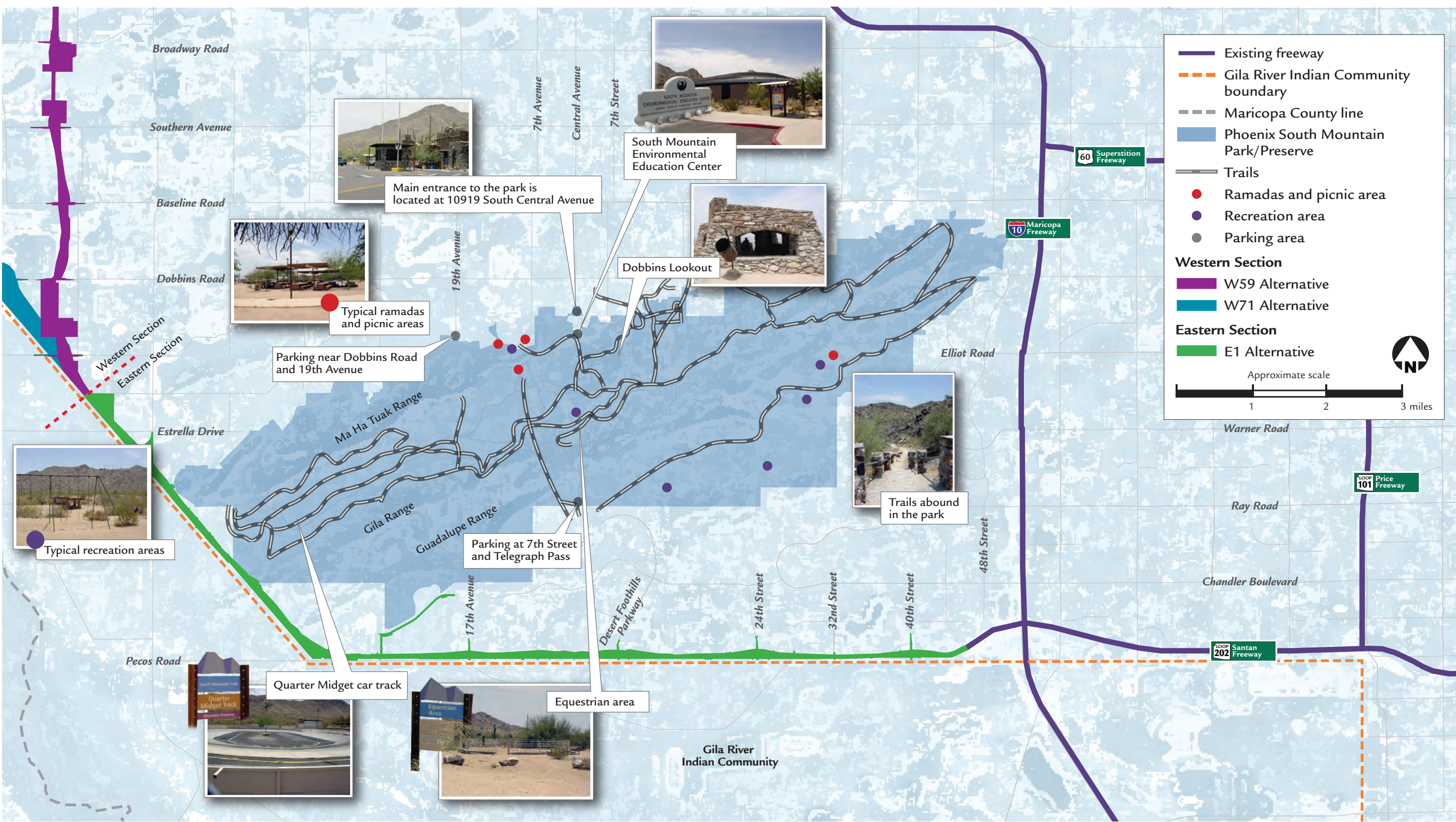
**Direct Use**

- All action alternatives would result in direct use of SMPP. The impact would be the same for all action alternatives because all action alternatives would be on a common alignment through SMPP; 0.9 mile of freeway alignment would pass through the southwestern edges of the park bordering Community land. Land area directly used would be approximately 31.3 acres, which represents less than 0.2 percent of total SMPP parkland.
- Members of the public and stakeholders expressed concern for other direct use-related impacts of the proposed action, such as:
- **Landscape alteration** – The proposed action would cross three mountain ridgelines (two of which are

- located in SMPP). To do so, the proposed action would cut through the ridges. Figure 5-9 is two visual simulations of what the cuts might look like through the ridgelines. Figure 5-10 conveys the size of the cuts through the park. Without mitigation, the cuts could create substantial visual scars by replacing a natural setting with unweathered subsurface rock exposure.
- **Intrusion** – The proposed action would introduce an intensive human-made use into an otherwise passive, natural setting as evidenced by the remainder of SMPP to the north and the Community land to the south.
  - **Access** – The proposed action could alter access to SMPP. While there are no formal trailheads or staging areas for access into SMPP where the proposed action would pass through the park, uncontrolled access to the park does occur in the affected area by hikers, equestrians, and Community members [see the discussion regarding the South Mountains as afforded protection under Section 4(f) as a TCP, beginning on page 5-25].



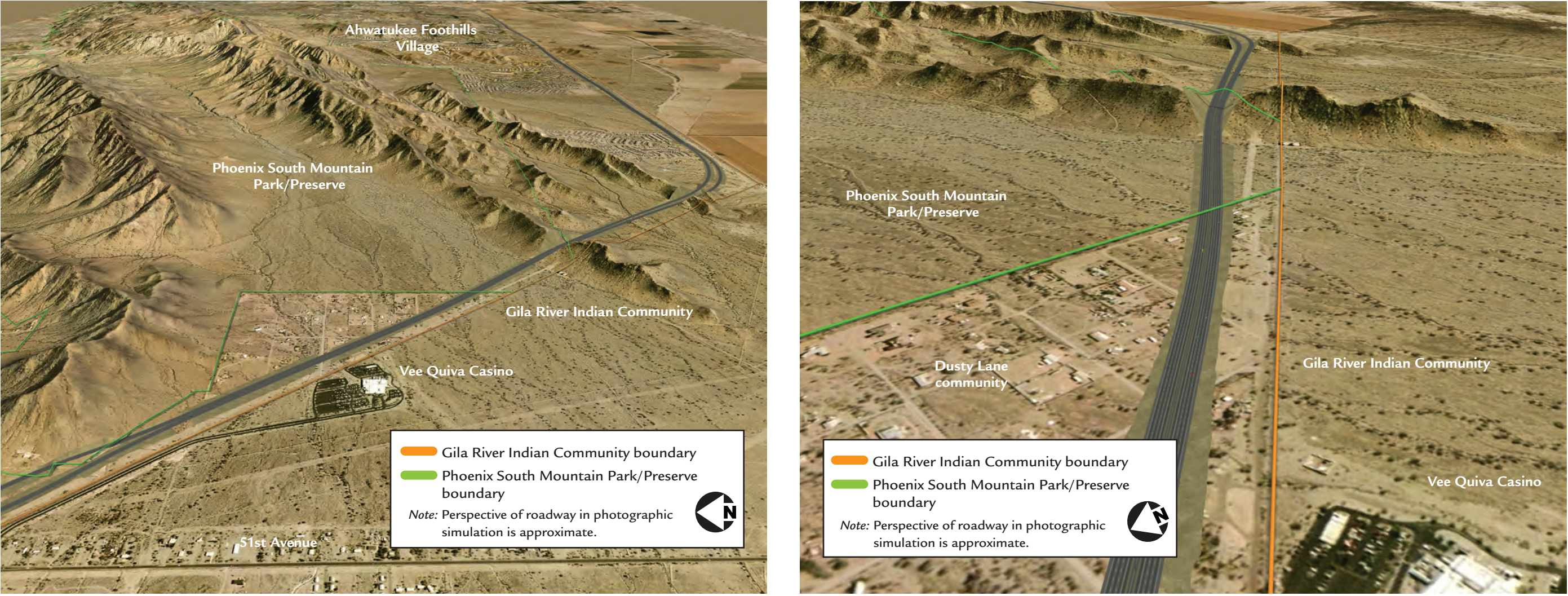
**Figure 5-8** Public Parkland Resources (Phoenix South Mountain Park/Preserve) Associated with the South Mountains



As a publicly owned public park, the Phoenix South Mountain Park/Preserve is a 16,600-acre desert preserve park operated and maintained by the City of Phoenix.



**Figure 5-9** Photo Simulations, Proposed Roadway Cuts through Ridges of the South Mountains



The cuts shown to accommodate the proposed freeway include no slope treatments or other mitigation measures. The perspective is drawn from a point above the west end of Phoenix South Mountain Park/Preserve near the Dusty Lane community southeast through the main ridges of the South Mountains. See Figure 5-10 for an “engineered” view of the proposed cuts.

► **Habitat connectivity** – While the Study Area is urbanizing and there are no documented major wildlife dispersal/migration routes, there is a continued interest from the commenting public, vested park stakeholders, the Community, and State and federal agencies to address the issue (see the section, *Biological Resources*, beginning on page 4-117, to learn more about habitat connectivity). Unmitigated, the proposed action could create a physical impediment for the movement of wildlife to and from the Sierra Estrella, the Gila River lowlands, and the South Mountains.

**Constructive Use**

All of the action alternatives would result in a direct use of SMPP. As a rule, and applicable in this case, when direct use of a Section 4(f) resource would occur, analysis to determine whether proximity impacts would result in constructive use is no longer applicable (23 C.F.R. § 774.15).

**Avoidance Alternatives for Public Parkland Resources of the South Mountains Afforded Protection under Section 4(f)**

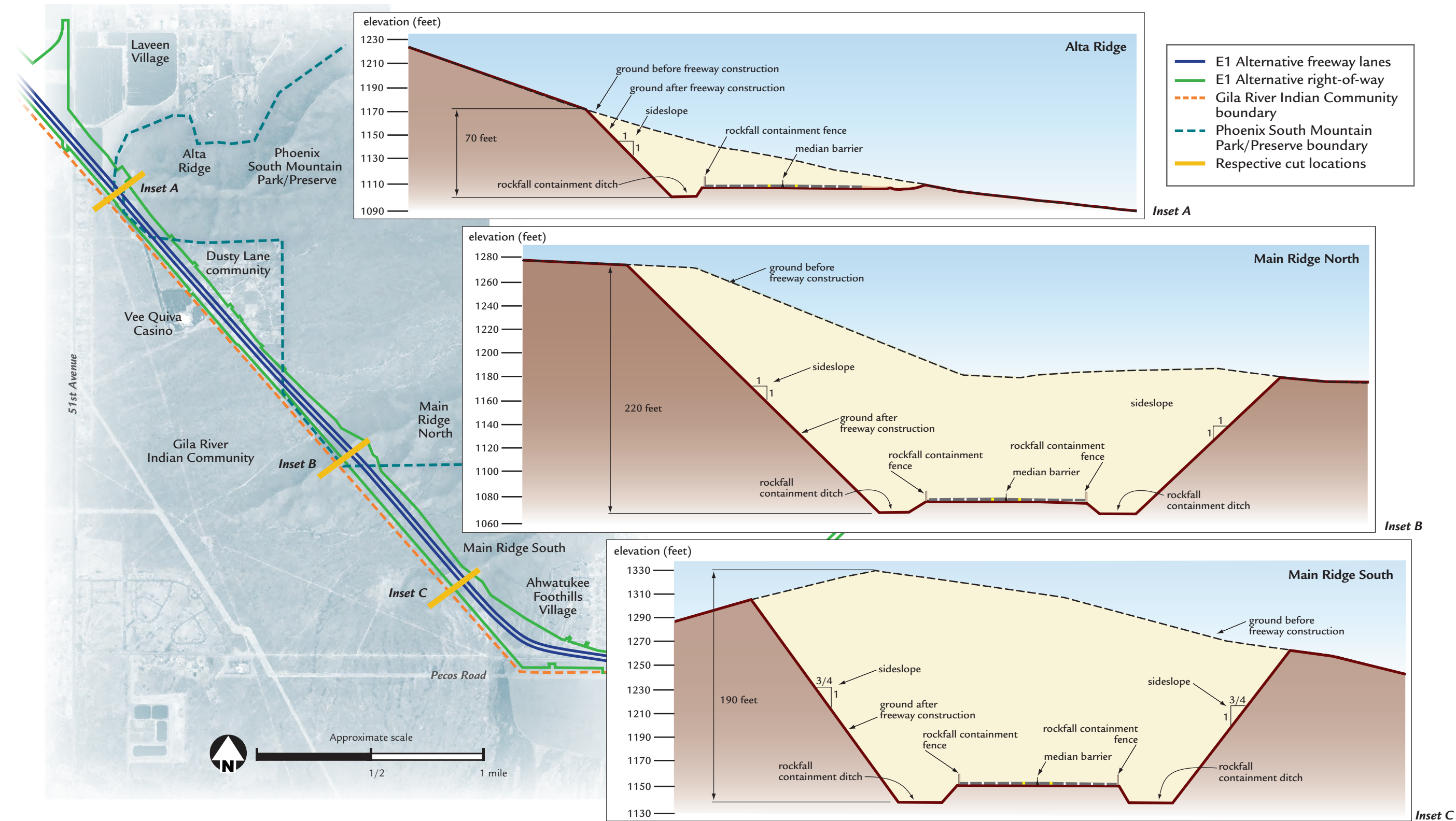
To avoid impacts on Section 4(f) resources, alignments within and outside of the Study Area were investigated.

The viability of the new alignments and the modifications to the action alternatives and options currently under consideration as prudent and feasible were then evaluated to determine whether there would be unique problems or unusual factors associated with the revised action alternatives or whether the cost; social, economic, and environmental impacts; or community disruption resulting from avoiding the Section 4(f) resource would be of extraordinary magnitude (23 C.F.R. § 774.31).

The results of this evaluation are presented on page 5-18.



**Figure 5-10** Cross Sections, Proposed Roadway Cuts through Ridges of the South Mountains



The proposed roadway cuts to the ridges of the South Mountains could substantially alter the visual setting by replacing natural terrain with subsurface rock exposure, unless mitigated. The final determination of sideslopes and treatments would be made after extensive sampling and geotechnical analysis of rock conditions.



No-Action Alternative

The No-Action Alternative would not result in proposed action-related effects on properties afforded protection under Section 4(f). However, the No-Action Alternative would not prevent nonfederal projects (e.g., private developments, locally and State-funded infrastructure projects) from adversely affecting properties afforded protection under Section 4(f). The No-Action Alternative would also not meet the project’s stated purpose and need as described in Chapter 3, *Alternatives* (see page 3-40). Therefore, the No-Action Alternative is not prudent.

Gila River Indian Community Alternatives

All action alternatives under study lie outside the Community. The Community has not granted permission to ADOT and FHWA to develop alternatives within the Community boundary that may avoid SMPP. As a sovereign nation, the Community must rescind Resolution GR-126-00 before any alternatives crossing Community land could be planned.

Coordination among ADOT, FHWA, and the Community regarding the development of alternatives on Community land has been ongoing since project inception. While the Community Governor allowed the study of an alignment on Community land, this alignment was ultimately not supported by the Community as a whole and was voted down by Community referendum in February 2012. This outcome is consistent with resolution GR-126-00 that strongly opposed any alignment on Community land. Therefore, ADOT and FHWA have determined that an alternative alignment on Community land is not feasible.

See Chapter 2, *Gila River Indian Community Coordination*, for additional information regarding coordination with the Community.

US 60 Extension Alternative

The US 60 Extension Alternative (see Table 3-5 on page 3-12) was developed to avoid use of SMPP, site AZ T:12:112 (ASM), and the South Mountains TCP. The US 60 Extension Alternative, however, would

not meet the project’s stated purpose and need criteria and would be coupled with adverse impacts, specifically:

- would not address needs based on regional travel demand and existing and projected transportation system capacity deficiencies
- would cause substantial traffic performance impacts on I-10 (Maricopa Freeway) between State Route (SR) 202L (Santan Freeway) and US 60 (Superstition Freeway)
- would increase undesirable congestion on US 60 (Superstition Freeway) and SR 101L (Price Freeway)
- would result in unintended underuse of SR 202L (Santan Freeway)
- would have substantial impacts on existing residences, including thousands of residential displacements
- would not be consistent with local or regional planning, which includes a freeway alternative that completes the loop system as part of SR 202L

For these reasons, the US 60 Extension Alternative would not be prudent and feasible and was eliminated from further consideration.

I-10 Spur Alternative (and Options)

The I-10 Spur Alternative (see Table 3-5 on page 3-12) and its options are a variation of the US 60 Extension Alternative and would connect with it near Baseline Road. The alternative would have all of the adverse impacts associated with the US 60 Extension Alternative. Differences, however, include:

- would also require reconstruction of the I-10/I-17 system traffic interchange
- would result insubstantial disruption to community character and cohesion, splitting South Mountain Village

For these reasons, the I-10 Spur Alternative (and Options) would not be prudent and feasible and, therefore, was eliminated from further consideration.

Riggs Road Alternative

Nearly two-thirds of the Riggs Road alternative would be on Community land. While the Riggs Road

Alternative would serve regional mobility needs, particularly of those living in the Maricopa area, meeting this travel demand would not address any specifically identified planning goals for an integrated regional transportation network. The RTP identifies the proposed action as a critical link in the Regional Freeway and Highway System, both in completing it and in optimizing overall system performance as well as that of specific existing links such as SR 202L (Santan Freeway). The Riggs Road Alternative would not complete the loop system as part of SR 202L, thereby causing substantial out-of-direction travel for motorists. The alternative would not be prudent and feasible because it would not meet the proposed action purpose and need and, therefore, was eliminated from further consideration.

SR 85/I-8 Alternative

The SR 85/Interstate 8 (I-8) Alternative would begin at I-10 approximately 32 miles west of downtown Phoenix and would require replacement or widening of I-8 for approximately 63 miles east before reconnecting with I-10 at Casa Grande, approximately 56 miles south of downtown Phoenix. SR 85 is currently being reconstructed as a four-lane, divided highway with limited-access control, and I-8 is a four-lane, divided interstate freeway with full access control. Existing signs at each terminus designate the route as a truck bypass of downtown Phoenix. The alternative would not be prudent and feasible because it would not meet the proposed action purpose and need as part of the regional transportation network and, therefore, was eliminated from further consideration.

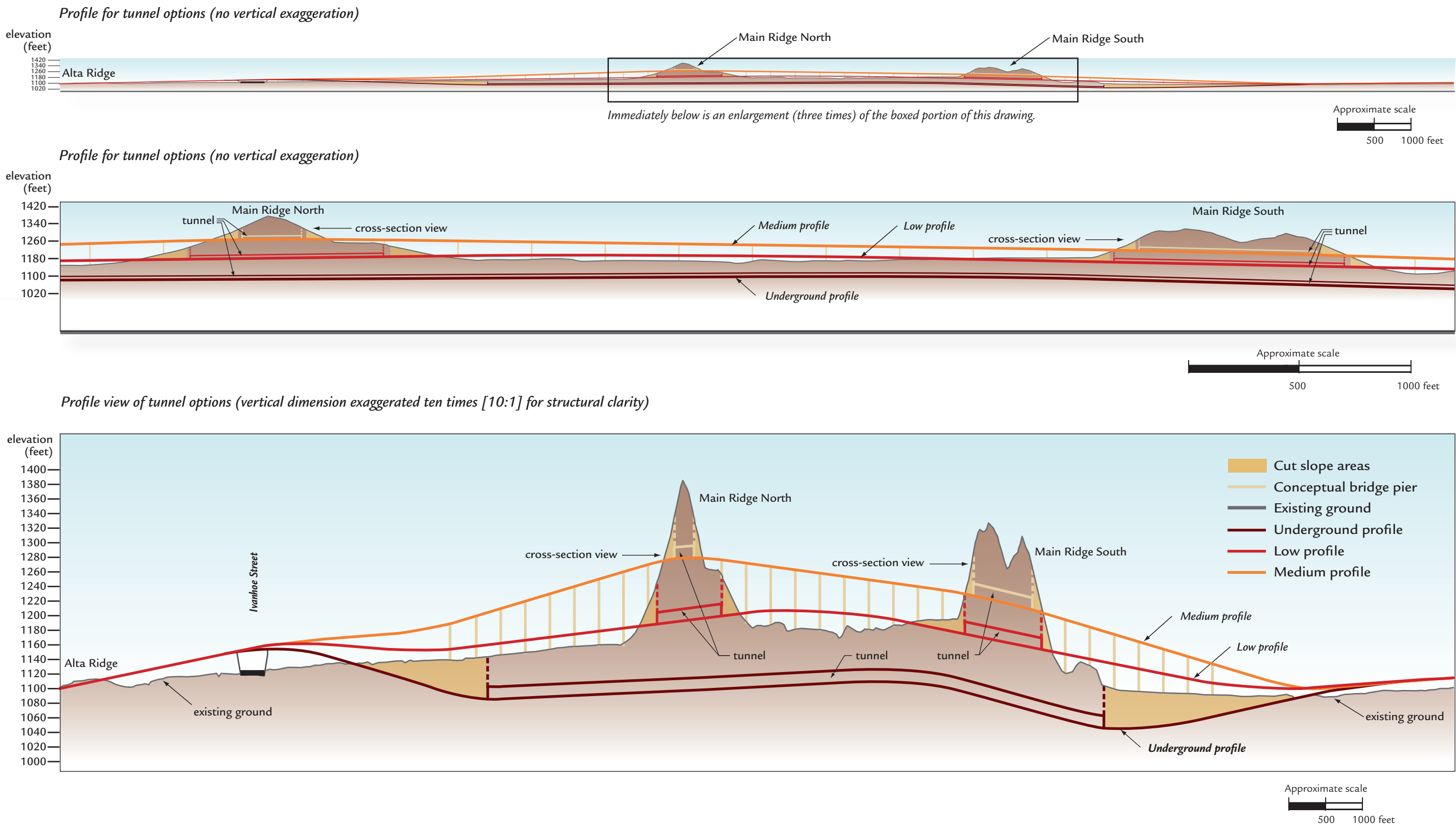
Tunnel Alternatives

Tunnel alternatives were investigated as design options (Figure 5-11). To summarize, they were studied to:

- avoid the use of SMPP
- avoid use-related impacts [as described in the section, *Public Parkland Resources (SMPP) Associated with the South Mountains*, beginning on page 5-14] of landscape alteration, visual intrusion, access, and habitat connectivity



Figure 5-11 Profile, Tunnel Alternatives



Three tunnel depths were examined. In all cases, the profiles would not completely avoid the use of resources of the South Mountains afforded protection under Section 4(f). Further, none of the options for tunnel depths would achieve the desired outcome of avoiding use-related impacts such as visual and noise intrusion.



Based on the analyses, the options were eliminated from detailed study. The alternatives would not be prudent and feasible because:

- The desired effects from the tunnel alternatives—to avoid access and other use-related impacts such as landscape alteration and visual intrusion—would not be achieved. Necessary bridges, cut slopes for the tunnel entrances, retaining walls, fill slopes for the approaches, and potential ventilation shafts would all cause use-related impacts.
- There are security concerns regarding tunnels on urban freeways being considered potential terrorist targets (American Association of State Highway and Transportation Officials [AASHTO] 2003).
- ADOT and FHWA have determined the tunnels, at a minimum, must accommodate the three general purpose lanes; desirably, they would accommodate four lanes (see the text box regarding tunnel constraints and potential configurations on pages 3-16 and 3-17). This requirement is based on safety concerns of diverging or splitting freeway-speed traffic going in a single direction. Current construction techniques would allow for tunnels that accommodate only three lanes in one direction.
- The inclusion of a tunnel could result in hazardous materials restrictions along the entire proposed action. Therefore, hazardous cargo carriers would have to continue to use existing routes.
- Costs to construct the tunnels—estimated to be between approximately \$215 million (20 percent of the project’s total construction cost) and \$1.9 billion (1.7 times the project’s total construction cost) (depending on length and excavation method)—were determined to be not prudent (see page 3-59 for information on the project’s estimated total construction cost).
- Costs to maintain and operate the tunnel—estimated to be between \$1.5 million and \$2 million a year—are not prudent. Costs include full-time staffing of ventilation buildings, major equipment repairs, and tunnel rehabilitation.

- Incident management would be constrained on the tunnel alternatives because of the confined space, limited accessibility, and lack of graded side slopes.

The Tunnel Alternatives do not avoid direct use of a resource afforded protection under Section 4(f), the desired outcome of this alternative development. Although the Tunnel Alternatives would have less visual, noise level, and habitat acreage impacts than would the open cut design of the proposed action, total avoidance of such impacts would not be possible. Constructible tunnel configuration options (see text box regarding tunneling options on page 3-16 for further discussion) would require tunnel construction at the known maximum feasible width. It is not possible at this time to determine if the maximum width could be accommodated based on the site-specific geology of the South Mountains. Furthermore, because of the constructability and operational challenges, and unacceptable safety concerns, the substantially higher costs associated with tunnel construction and maintenance would not be warranted. For these reasons, FHWA and ADOT have determined that the Tunnel Alternatives are not prudent and feasible and were, therefore, eliminated from further consideration

Bridge Alternatives

In an effort to achieve results comparable to those proposed for the tunnel alternatives, bridge alternatives were also investigated. As with the tunnel alternatives, various designs were analyzed. Figures 5-12 and 5-13 illustrate bridge concepts considered. Based on the analysis, bridge alternatives were determined to not be prudent and feasible because:

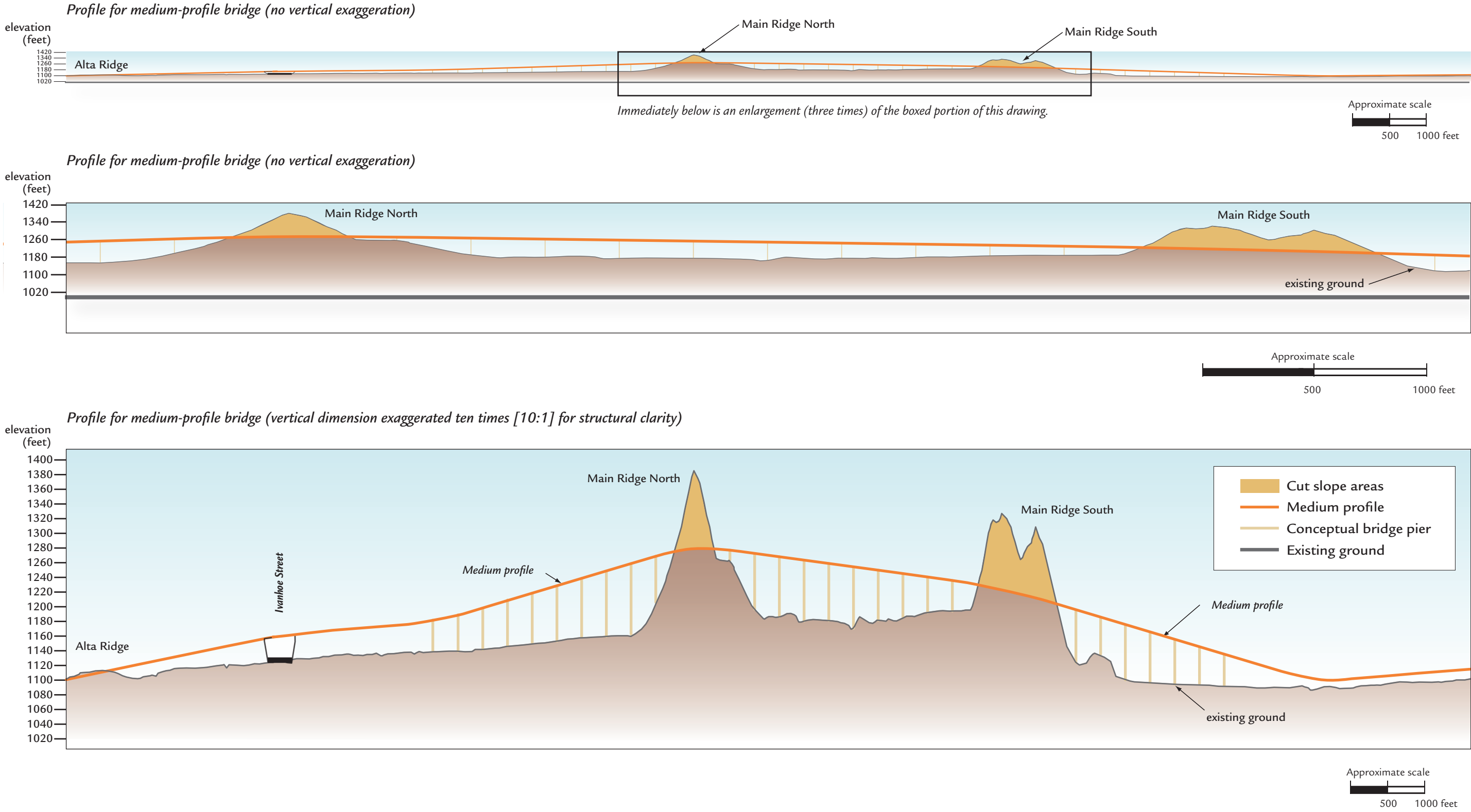
- Complete avoidance of the resources afforded protection under Section 4(f) would not be achieved.
- The desired effects from the bridge alternatives—avoidance of use-related impacts such as landscape alteration and visual intrusion—would not be achieved. Necessary bridge piers, bridge foundations, fill slopes for approaches, and cut slopes would cause use-related impacts.

- Costs to construct the bridges—estimated to be between approximately \$232 million (21 percent of the project’s total construction cost) and \$323 million (29 percent of the project’s total construction cost)—were determined to not be prudent.
- Construction of the bridge alternatives would require drilling and blasting for the numerous pier foundations, which would result in permanent scarring and excavation of the ridges.
- The bridge alternatives would increase visual impacts for views from the South Mountains to adjacent land and from adjacent land to the South Mountains.
- The inclusion of a bridge could result in hazardous materials restrictions along the entire proposed action. Therefore, hazardous cargo carriers would have to continue to use existing routes.
- Incident management would be constrained on the bridge alternatives because of the height above existing ground, lack of graded side slopes, and the distances between access points.
- Perceived driver safety might be impaired because the bridge height and length and steepness of the grades would be unique to an urban freeway in the Phoenix area.

The desired outcome of developing the Bridge Alternative is to avoid use of a property protected under Section 4(f) or reduce use-related impacts. Not only do the Bridge Alternatives not avoid use of a Section 4(f) property, but they would increase visual impacts and introduce incident management and homeland security concerns, constructability and maintenance issues, future expansion limitations, and undesirable intrusion-related impacts. Because the Bridge Alternatives do not achieve avoidance or meaningfully reduce use-related impacts, the substantially higher construction cost is not warranted. For these reason, FHWA and ADOT have determined that the Bridge Alternatives are not prudent and feasible and were, therefore, eliminated from further consideration.



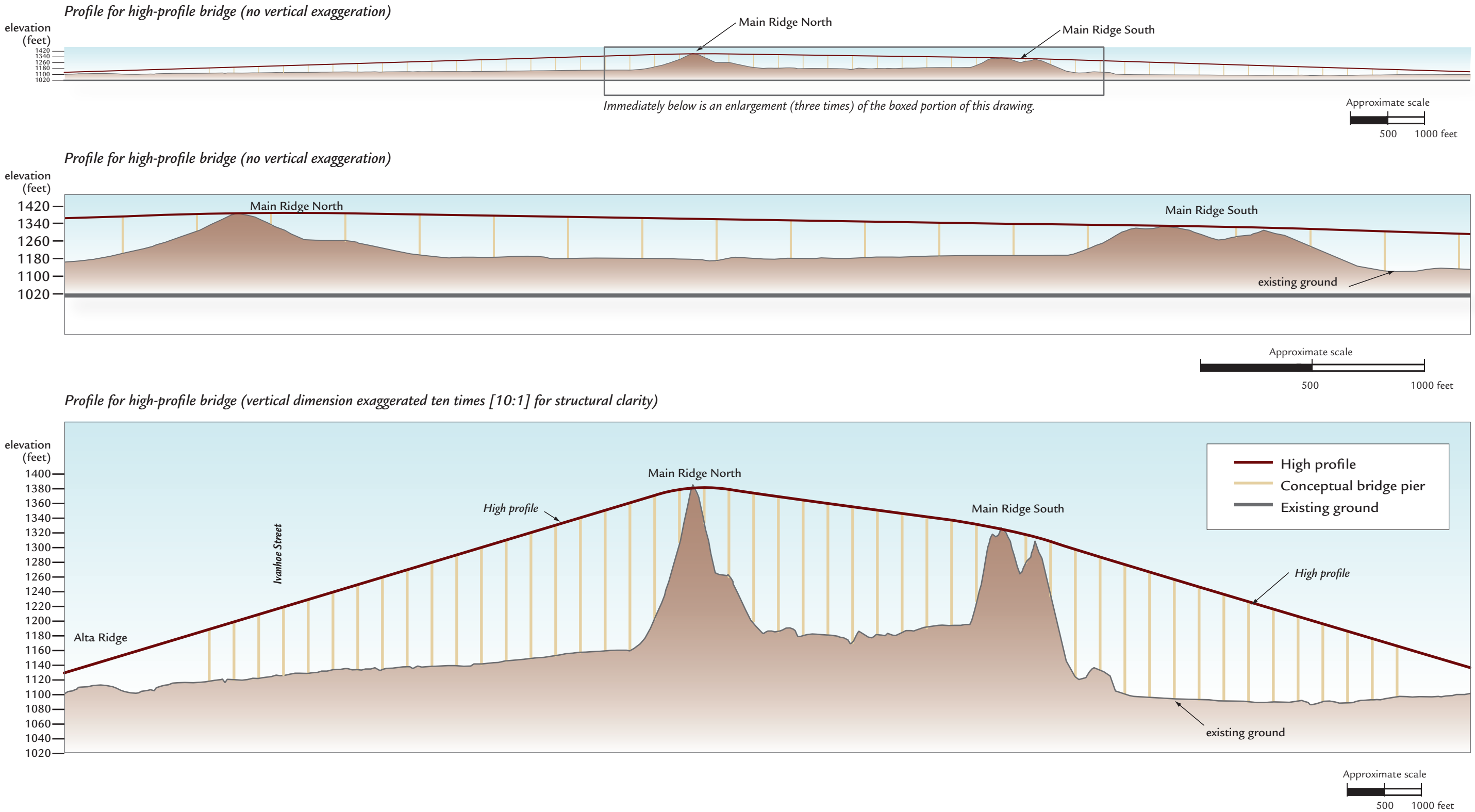
Figure 5-12 Profile, Medium Bridge Alternatives



Two medium-profile bridge options were examined. The goal of the bridge alternative was to completely avoid the use of resources of the South Mountains afforded protection under Section 4(f). In all cases, the profiles would not completely avoid direct impacts on the resources. Further, none of the options would achieve the desired outcome of avoiding use-related impacts such as visual and noise intrusion.



Figure 5-13 Profile, High Bridge Alternatives



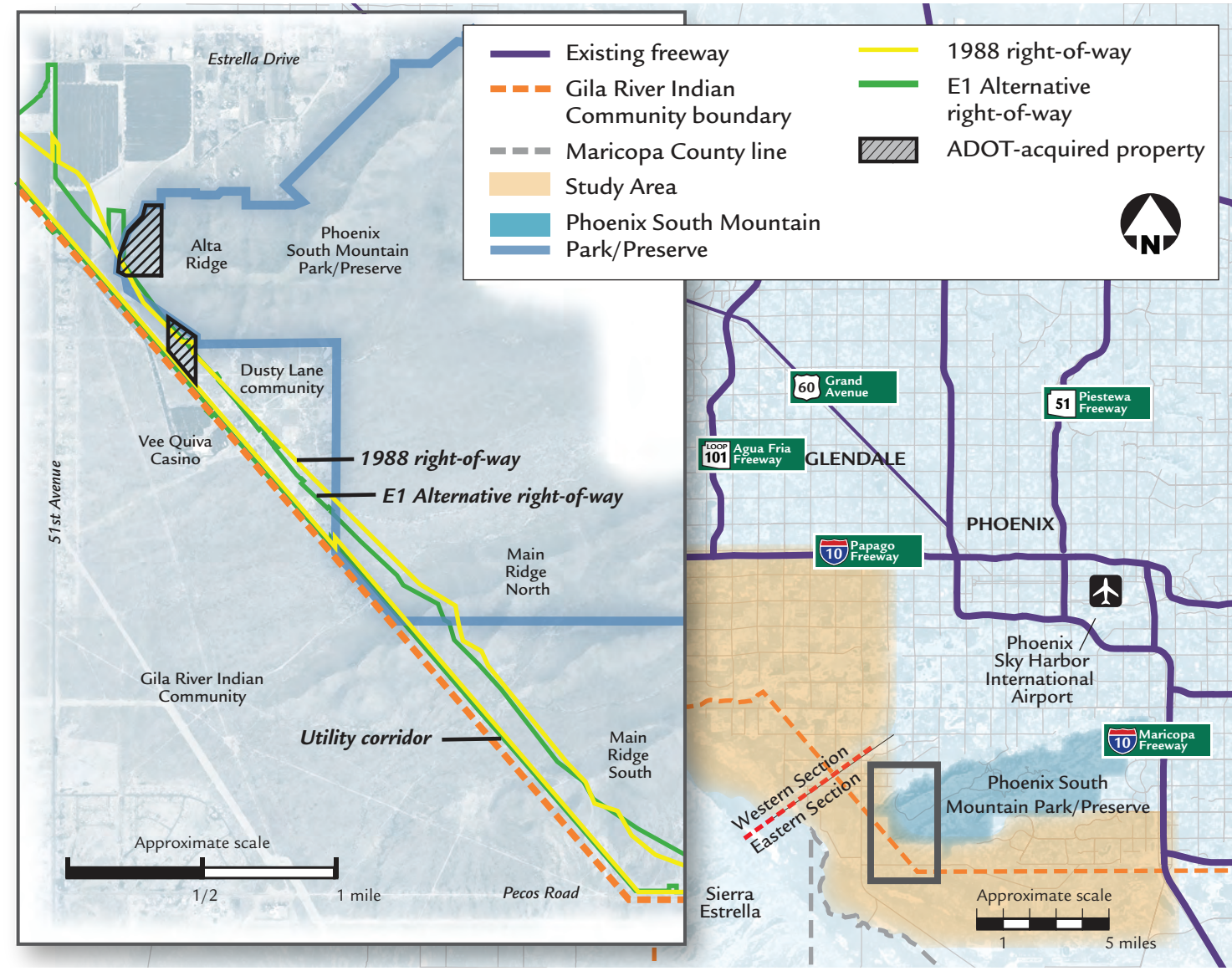


Measures to Minimize Harm

Measures to minimize harm to SMPP are presented below. Some measures require further coordination on the part of ADOT and FHWA with agencies, jurisdictions, and possibly major user groups (see the section, *Coordination*, beginning on page 5-29). Those measures, as presented, will include a discussion of future additional steps needed to commit to the measures.

- Some measures have already been undertaken to reduce impacts on the park. These measures were undertaken as a result of design determinations or of past, related actions.
- The South Mountain Freeway, as proposed in 1988, would have resulted in a direct use of just over 40 acres of SMPP (ADOT 1988a). Using approximately the same alignment as planned in 1988, the R/W requirements of the proposed action through the park/preserve would result in an actual use of approximately 31.3 acres; the design as planned in the DEIS would use approximately 9 fewer acres than what was planned in 1988 (Figure 5-14).
- The alignment of the South Mountain Freeway, as planned in 1988, was located to avoid bisecting SMPP and to avoid the creation of remnant parcels of parkland. As such, the alignment was placed on SMPP and Community boundary lines (Figure 5-14).
- In the mid-1980s, as plans progressed to design and construct the South Mountain Freeway, ADOT purchased land adjacent to the then-SMPP boundary and turned a remnant over to the City of Phoenix; this acreage was incorporated into SMPP. The intent was to replace parkland that would be converted to freeway use. The approximately 16-acre property is located on the western side of the current SMPP boundary (see Figure 5-14).
- Excess property associated with future South Mountain Freeway R/W acquisitions, where appropriate, could be used as replacement land for parkland taken by the freeway.

Figure 5-14 Comparison, 1988 South Mountain Freeway Alignment and Proposed Freeway Alignment



*Through enhanced design (steeper slopes, a redesigned 51st Avenue service traffic interchange, and optimized horizontal and vertical alignments), the project team was able to “tighten up” right-of-way limits, resulting in a lesser use of the Phoenix South Mountain Park/Preserve (SMPP) when compared with what was considered in 1988. Since the original study, ADOT has acquired property associated with the 1988 right-of-way limit. Property outside of the 1988 limits was given to the City of Phoenix and incorporated into SMPP.*

- Measures to address the conversion of SMPP land to a transportation use would include:
  - During the design phase, ADOT would consult directly with the Phoenix City Manager’s office to identify and implement other design measures, when possible, to further reduce land needed for the proposed action. The City Manager’s office represents its constituents, including the

Sonoran Preserve Advisory Committee, Phoenix Mountains Preservation Council, Mountain Bike Association of America, and Arizona Horsemen’s Association.

- During the design phase, ADOT would consult directly with the Phoenix City Manager’s office in representing City of Phoenix interests to enter into an intergovernmental agreement (IGA) to identify



Measures Contributing to Incidental Reduction of Proximity Impacts

Many of the mitigation measures presented in Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, that address impacts on non-Section 4(f) properties would also contribute to incidental reductions in proximity impacts, where applicable, on resources afforded protection under Section 4(f). To clarify conclusions in this chapter, no proximity impacts from the proposed action would cause a constructive use of a Section 4(f) resource; Section 4(f) properties, however, would still benefit from secondary, incidental reduction of proximity impacts. Consider the following examples:

- Visually, the proposed action would introduce forms, lines, colors, and textures distinctly different from the existing landscape. To reduce the visual intrusion, the proposed action could be designed to blend the color, line, and form of

the freeway with the surrounding environment as would be allowable. Ancillary freeway structures (e.g., noise barriers) could also be visually treated through architectural treatments or landscaped buffers. The visual treatment would reduce similar types of proximity impacts that would occur on resources afforded protection under Section 4(f) (see the section, *Visual Resources*, beginning on page 4-153, to learn more about visual impacts and related mitigation).

- Barriers would be constructed to mitigate noise from the proposed action on noise-sensitive developments near certain resources afforded protection under Section 4(f). The noise barriers would provide incidental reduction in proximity impacts for the resources. Specific incidental noise reduction benefits are shown in the table below.

Incidental Noise Reduction Benefits <sup>a</sup>		
Section 4(f) Resource <sup>b</sup>	Noise Level <sup>c</sup> without Noise Barriers	Noise Level <sup>c</sup> with Noise Barriers
Hackin Farmstead	64	58
Hudson Farm	65	58
Santa Marie Townsite	64	59
Trailside Point School	73	63
Tolleson Union High School	70	63
83rd Avenue/Elwood Street Park (future)	68	60
Cowden Park	70	63
Kyrene Akimel A-al Middle School and Kyrene de la Estrella Elementary School	74	62
Future City of Phoenix Park	71	64

<sup>a</sup> Refer to the section, *Noise*, beginning on page 4-78, to learn more about impacts on noise levels and related mitigation. Noise-level predictions are based on projected, modeled traffic volumes and speeds for the design year of 2035. For a noise-related constructive use to occur, the mitigated noise level must exceed 67 dBA.

<sup>b</sup> Examples of reductions in impacts on noise-sensitive Section 4(f) properties are representative, and do not constitute a comprehensive list of properties that would benefit from incidental reductions in noise or in other impacts.

<sup>c</sup> dBA (decibels, A-weighted)

- and purchase replacement land. Replacement land would 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 would be in the best interests of both parties. Pursuant to State law, ADOT cannot purchase land for the sole purpose of transferring it to other ownership. Therefore, under provisions set forth in the IGA entered into by both ADOT and the City of Phoenix, the City would be responsible for identification of replacement land. Once agreed upon under the terms of the IGA, ADOT would issue payment to the City of Phoenix for the acquisition of replacement land. Provisions of the IGA would ensure commitment of the transaction would be solely for the purposes of timely acquisition of parkland for public use within Phoenix.
- The City of Phoenix, under the provisions set forth in the Phoenix Mountain Preserve Act, would not be able to sell SMPP land to ADOT for the proposed action. Therefore, ADOT would undertake the condemnation process to obtain the land for the proposed action. Because replacement land would be provided as a measure to minimize harm, ADOT would request City of Phoenix-written and published support prior to beginning the condemnation process.
  - Several measures were analyzed to entirely avoid or further reduce impacts associated with the cuts through the three ridgelines (two of which are located within SMPP). After careful deliberation, these measures were dropped from further consideration as discussed in the previous section, *Avoidance Alternatives for Public Parkland Resources of the South Mountains Afforded Protection under Section 4(f)*, beginning on page 5-16. Other measures to minimize the alteration of the SMPP landscape would include:
    - Because of the potential for the ridgeline cuts to introduce forms, lines, colors, and textures distinctly different from the existing ridgelines, design measures would be implemented to blend the appearance of the cuts with the surrounding natural environment, as feasible. The degree of

- slope treatment would depend on the interaction of two primary factors:
- the angle of the cut slope
  - 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. As an example, if the cut rock were not conducive to desired slope treatments, flattening the slopes could increase the receptiveness of the cut rock; this would, however, increase the land necessary for the proposed action.
- Figure 5-10 illustrates the proposed slope angles for the cuts through the mountain ridgelines. ADOT would undertake additional geotechnical investigation during the design phase to determine, in part, how receptive the proposed slope angles would be to slope treatments. During this period, ADOT would consult directly with the Phoenix City Manager’s office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee 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 would be possible the cut slopes with the South Mountains’ natural setting.
  - Measures to minimize intrusion on SMPP would include:
    - Barriers proposed to mitigate noise impacts on neighboring residential developments (near the Foothills Reserve residential development and Dusty Lane residential area), while not specifically intended to mitigate noise intrusion into SMPP, would provide incidental noise mitigation (see the section, *Noise*, beginning on page 4-80, regarding the general location of proposed barriers).
    - Visual intrusions caused by the introduction of the built aspects of the proposed action on the natural setting of SMPP would be reduced by a number of measures where appropriate:
      - Vegetation buffers would be used to screen views of the freeway from SMPP.



- Saguaros, mature trees, and larger shrubs likely to survive the transplanting and settling-in period would be transplanted in relatively natural areas near the proposed action to blend with the existing landscape (see the section, *Biological Resources*, beginning on page 4-117, regarding native plant salvaging requirements for the proposed action).
- Clustering or grouping plant material in an informal pattern to break up the linear form of the freeway would be undertaken 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 would be installed where appropriate.
- Aesthetic treatments and patterning would be applied to noise barriers and other structures (lighting standards, overpasses, abutments, retaining and screening walls).
- As general practice, ADOT’s Roadside Development team would work with a local jurisdiction to develop a theme for landscaping and structures from the standard approved ADOT applications. Once a theme were determined, Roadside Development would design the aesthetic treatment. However, for the proposed action through SMPP, ADOT would consult directly with the Phoenix City Manager’s office in representing City of Phoenix interests and on behalf of the Sonoran Preserve Advisory Committee and the Phoenix Mountains Preservation Council and with Community representatives to develop the aesthetic treatment of landscaping and structures through the park/preserve. Treatments may or may not include ADOT standard applications (see page 4-159 to learn more about standard applications).
- To set clear parameters defining the scope of the mitigation measures to be implemented and for determinations, an IGA would be created between ADOT and the City of Phoenix. Planning for visual treatment of the portion of the proposed

action through SMPP would be undertaken during the design phase. (See the section, *Visual Resources*, beginning on page 4-153, to learn more about measures and processes to mitigate visual impacts from the proposed action.)

- Measures to reduce impacts on SMPP access and habitat connectivity include:
  - The design of proposed crossings of existing natural washes in and adjacent to SMPP was investigated to determine the feasibility of modifying the design to create opportunities for wildlife to cross and to enhance park access. Eleven crossings were investigated. Based on locations, likelihood/effectiveness as multifunctional crossings, and on preliminary cost estimates, preliminary designs of some crossings would be enhanced to accommodate the movement of wildlife and provide access to SMPP for hiking, equestrian, Community, and bicycling use (see Figure 3-25 on page 3-47). Some of the crossings would provide direct access to SMPP; all would permit wildlife to move unimpeded in and out of the park at the crossing locations (see the section, *Biological Resources*, beginning on page 4-117, to learn more about the proposed multipurpose bridge structures and perceived conflicts between human and wildlife use of the crossings).
  - During the design phase, ADOT would consult directly with the Phoenix City Manager’s office (which represents its constituents, including the Sonoran Preserve Advisory Committee, Phoenix Mountains Preservation Council, Mountain Bike Association of America, and Arizona Horsemen’s Association), Community delegates, Maricopa County, and assigned staff from the Arizona Department of Public Safety and the Arizona Game and Fish Department (AGFD) to finalize design features and locations of the crossings.

In summary, the visual impacts from roadway cuts to the South Mountains as a park would be perceived by some to be severe. The measures to minimize harm recounted above could serve to diminish the intrusion of the cuts into the park experience for the majority of users. The cuts would be located in a remote portion of SMPP, not

near any trails and barely visible from any of the more readily used trails. Comments from some members of the public have indicated that effects of the cuts extend beyond changing the physical nature of the park and strike an emotional chord as compromising the park’s integrity.

### NRHP-ELIGIBLE HISTORIC RESOURCES (SMPP) ASSOCIATED WITH THE SOUTH MOUNTAINS

Background data to support the property as eligible for the NRHP are highlighted below:

- The park’s origins began in 1924 when prominent local citizens, aided by then-Congressman Carl Hayden, started a process to obtain 13,000 acres from the federal government (see Appendix 5-2, beginning on page A561).
- In 1927, the Bureau of Land Management (BLM) conveyed 9,200 acres of land to the City of Phoenix through a grant under the Recreation and Public Purposes Act. Over the years since the transfer, the City acquired additional properties to bring SMPP to its present 16,600 acres.
- In 1934, NPS developed the original master plan for the park, which represented the largest municipal park planning effort in the United States.
- The development of the park from 1933 to 1942 was the direct result of President Franklin D. Roosevelt’s New Deal programs, which provided relief from the Great Depression by employing the Civilian Conservation Corps (CCC).
- Today, the park retains many of its original CCC-constructed buildings, structures, and facilities, and its master-planned layout and design.

In 1989, the City of Phoenix listed SMPP in the City of Phoenix Historic Property Register as a Nonresidential Historic District. After initiation by the City of Phoenix Historic Preservation Office, SHPO concurred on July 19, 2006, that SMPP is eligible for listing in the NRHP under Criteria A, B, C, and D as set forth under Section 106 of the NHPA (see sidebar on page 4-130 for further details associated with NRHP eligibility criteria).



Direct Use

Implementation of the E1 Alternative would result in direct use of SMPP as an NRHP-eligible historic resource. The characteristics of the 80-year-old SMPP that make it eligible for listing in the NRHP would not be compromised by construction and operation of the proposed action. SMPP’s CCC legacy and features would be unaffected; the park’s proximity to downtown Phoenix would remain unchanged; the Sonoran Desert features that make the park unique because of its major urban metropolitan area location would remain unchanged; and the size of the park would be decreased by 31.3 acres out of 16,600 (0.2 percent).

Constructive Use

The E1 Alternative would result in direct use of SMPP. When direct use of a Section 4(f) resource would occur, analysis to determine whether proximity impacts would result in constructive use is no longer applicable (23 C.F.R. § 774.15).

Avoidance Alternatives

Alternatives to avoid use of SMPP were evaluated and determined to be not prudent and feasible. Information pertaining to avoidance alternatives for all Section 4(f) resources is presented in the section, *Avoidance Alternatives for Public Parkland Resources of the South Mountains Afforded Protection under Section 4(f)*, beginning on page 5-16.

Measures to Minimize Harm

Measures to minimize harm to SMPP are presented below. Some measures require further coordination on the part of ADOT and FHWA with agencies, jurisdictions, and possibly major user groups (see the section, *Coordination*, beginning on page 5-29). The measures described for SMPP as a parkland resource afforded protection under Section 4(f) would have direct application and are not repeated here. These measures would, when implemented, minimize harm to those characteristics of SMPP that make it eligible for listing in the NRHP. These are set forth in Section 106 of the NHPA, specifically Criterion A (association with an

important event[s]), Criterion B (association with an important person[s] significant in the past), and Criterion C (embodiment of a distinctive design of a given type, period, or method of construction). None of the elements of SMPP related to protection under Criteria A–C would be adversely affected by the proposed action. The integrity of SMPP would not be endangered by commitment to transportation use of 31.3 acres (0.2 percent of total SMPP area). The far western periphery of the park, where the use would occur, has no association with the CCC legacy or any other feature associated with Criteria A–C. Generally, cultural resources eligible for the NRHP under Criterion D are not eligible for protection under Section 4(f).

THE SOUTH MOUNTAINS (MUHADAGI DOAG) AS A TRADITIONAL CULTURAL PROPERTY

The South Mountains are highly valued by Native American communities. The Community—encompassing Akimel O’odham (Pima) and Pee Posh (Maricopa) tribes—and other Native American communities, including the Salt River Pima-Maricopa Indian Community and the Ak–Chin Indian Community, both of which include Akimel O’odham and Pee Posh peoples, the Tohono O’odham Nation (formerly known as Papago, or Desert People), and the Colorado River Indian Tribes consider the South Mountains sacred, playing a role in their culture, identity, history, and oral traditions. Because of their importance in the history and cultural identity of Native American communities, the South Mountains are NRHP-eligible as a TCP under Criteria A and B. The South Mountains TCP boundary is currently undefined (see the section, *Cultural Resources*, beginning on page 4-128, to learn more about the South Mountains in this context).

The Community has expressed to ADOT and FHWA its concerns about an alignment through the South Mountains and the irreversible impacts on the South Mountains from the proposed action.

To the Community, the South Mountains are part of a continuum of life and not an individual entity that can be isolated and analyzed. The area designated as a TCP

is inclusive and extends beyond the boundary of SMPP (Figure 5-8). The full extent of the TCP boundary would be studied as part of the measures to minimize harm to the South Mountains TCP (see *Measures to Minimize Harm*, beginning page 5-27). For reasons of cultural resources sensitivity, boundaries of contributing elements/sites are not presented in this document.

The South Mountains continue to be a focus for tribal tradition and ceremony. The South Mountains are a source of upland plants and animals important in various Native American cultures and traditions.

The portions of the South Mountains on Community land are at the western end: the Main Ridge North and Main Ridge South. These ridges serve as the Community’s main, direct physical link to the mountains.

Two contributing components to the TCP are located within the Study Area, one of which is considered NRHP-eligible under Criterion A. The first site is of unknown age and function, but its position on the landscape is unique and possibly associated with traditional religious and ceremonial activities associated with the South Mountains. The second site is situated within the South Mountains TCP. These sites continue to function in the living Akimel O’odham and Pee Posh communities and often serve as spiritual places (Tribal Historic Preservation Officer [THPO] response [not concurrence] regarding NRHP-eligibility of the South Mountains as a TCP and its contributing components was received on August 17, 2011; consultation is ongoing).

Direct Use

The E1 Alternative would result in direct use of the TCP. Approximately 3 miles of freeway alignment would pass through the mountains and would affect the southern and southwestern portions of the TCP. The E1 Alternative was designed to avoid a site that is a contributing element to the South Mountains TCP, resulting in no direct use of this TCP element. A R/W fence would limit access to the site by freeway users, but Community members would continue to gain access to the site as they currently do. Freeway construction along



the E1 Alternative would completely remove the other site from the landscape.

While the conversion and permanent loss of part of the mountains to a transportation use by the proposed action is a concern, related Community-expressed concerns focus on impacts on history, culture, traditions, and the ability to maintain and continue the cultural identity of the communities. The conversion and permanent loss caused by any of the action alternatives would lead to other impacts on the TCP similar to those impacts described for SMPP (e.g., alteration of landscape, intrusion into a natural setting, effects on access, and effects on habitat connectivity). The related impacts, without mitigation, would directly affect the traditional uses and spiritual places on the mountains. Within the context of the TCP, the proposed action would be a physical barrier on the landscape, altering traditional access to sacred sites, disrupting traditional cultural practices, and degrading the overall integrity of the cultural tradition and identity.

Even with mitigation, implementation of the proposed action would alter the direct physical connection Community members have between their homeland and the South Mountains and would restrict the ability to visit or use these locations in a traditional cultural manner.

**Constructive Use**

The E1 Alternative would result in a direct use of the South Mountains TCP. As a rule, and applicable in this case, when direct use of a Section 4(f) resource would occur, analysis to determine whether proximity impacts would result in constructive use is no longer applicable (23 C.F.R. § 774.15).

**Avoidance Alternatives**

Alternatives to avoid use of the South Mountains TCP were evaluated and determined to be not prudent and feasible. See the section, *Avoidance Alternatives for Public Parkland Resources of the South Mountains Afforded Protection under Section 4(f)*, beginning on page 5-16; Chapter 2, *Gila River Indian Community Coordination*;

and Chapter 3, *Alternatives*, to learn more about the status of avoidance alternatives.

**Measures to Minimize Harm**

Measures to minimize harm to the South Mountains TCP are presented below and duplicate some measures presented under the section, *Measures to Minimize Harm*, on page 5-23. ADOT, FHWA, Western Area Power Administration (Western), the U.S. Bureau of Indian Affairs (BIA), and SHPO, with other consulted parties, have developed a Programmatic Agreement (PA) that addresses mitigation to avoid, reduce, or otherwise mitigate impacts on NRHP-eligible resources on a case-by-case basis. Consultation with Native American groups as it pertains to impacts and resulting mitigation would occur through the Section 106 consultation process.

Some measures have already been undertaken to reduce impacts on the TCP. These measures were undertaken as a result of design determinations or of past, related actions.

- Measures to address the conversion of the South Mountains TCP to a transportation use would include those previously described measures implemented in prior years and these listed below:
  - During the design phase, ADOT would consult directly with the Community to identify and implement other design measures, when feasible, to further reduce land requirements for the proposed action. The consultation would likely include the City of Phoenix for reasons stated under the measures to minimize harm pertaining to SMPP (see page 5-23).
  - The E1 Alternative was designed in such a way as to avoid a site that is a contributing element to the South Mountains TCP, resulting in no direct use of this TCP element. A R/W fence would limit access to the site by freeway users, but Community members would continue to gain access to the site as they currently do.
  - The City of Phoenix is undertaking an NRHP-eligibility study of the archaeological and historical sites within SMPP. The City and

Community have expressed interest in expanding the study to include an evaluation of the TCP.

As a measure to minimize harm to the TCP, ADOT and FHWA would provide funds for the Community to conduct the TCP evaluation.

- Several measures were analyzed to entirely avoid or further reduce the impacts associated with the cuts through the three ridgelines (all of which are located within the TCP). After careful deliberation, some measures were dropped from further consideration for reasons cited in the section, *Avoidance Alternatives for Public Parkland Resources of the South Mountains Afforded Protection under Section 4(f)*, beginning on page 5-16. Other measures to minimize the alteration of the South Mountains landscape resulting from the ridgeline cuts are presented beginning on page 5-22. ADOT would 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 slopes with the South Mountains’ natural setting.
- Measures to minimize intrusion on the TCP would be the same as those described for SMPP (see page 5-23). ADOT would 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 TCP.
- To reduce impacts on TCP access and habitat connectivity, the multipurpose crossings proposed as a measure to minimize harm to SMPP (see measure outlined in the section, *Measures to Minimize Harm*, beginning on page 5-23) would provide access from the Community to the mountains.
- During the design phase, ADOT would invite the Community to participate in direct consultation with the City of Phoenix, Maricopa County, and assigned staff from the Arizona Department of Public Safety and AGFD to finalize design features and locations of the crossings.



**AZ T:12:112 (ASM) AS A TRADITIONAL CULTURAL PROPERTY**

AZ T:12:112 (ASM) is used by contemporary Community members actively exercising their traditional religious and ceremonial practices and beliefs. The site and its use are part of a broad pattern of traditional religious and ceremonial practices and beliefs that defined the cultural identity, continuity, and traditions of the Akimel O’odham. Therefore, the site is eligible for listing in the NRHP under Criterion A as a TCP.

**Direct Use**

The E1 Alternative was designed to avoid site AZ T:12:112 (ASM), resulting in no direct use of this TCP.

**Constructive Use**

The E1 Alternative was designed to avoid site AZ T:12:112 (ASM) and would not result in proximity impacts on this Section 4(f) resource. ADOT R/W fencing would limit access to the site by freeway users, but Community members would continue to gain access to the site as they currently do.

In discussions with the Community, the Section 4(f) resource does not have noise-sensitive activities or viewshed characteristics that contribute to its importance as a Section 4(f) resource. Therefore, according to 23 C.F.R. § 774.15, no further analysis of these proximity impacts to determine whether they would substantially impair the resource is necessary.

**Measures to Minimize Harm**

Measures to reduce impacts on this TCP have already been undertaken as a result of design determinations. The E1 Alternative was designed to avoid site AZ T:12:112 (ASM), resulting in no direct use of this TCP element. A R/W fence would limit access to the site by

freeway users, but Community members would continue to gain access to the site as they currently do.

In summary, the intrusion of the proposed freeway into the South Mountains, including especially the cuts into three ridgelines, would likely be perceived as severe by many members of the Community. The above measures have been and/or would be undertaken to avoid, reduce, or otherwise mitigate impacts on the South Mountains TCP and on AZ T:12:112 (ASM). The proposed freeway would be located in an area used frequently by members of the Community, one that provides direct access to the South Mountains. Thus, the proposed action would adversely affect physical access to the TCP and adversely affect another TCP within the South Mountains TCP. Perhaps more important to members of the Community, the proposed action might be perceived as severing the Community’s spiritual connection to the mountains.

**OTHER TRADITIONAL CULTURAL PROPERTIES**

Villa Buena is the remains of an approximately 537-acre prehistoric Hohokam village. The majority of Villa Buena is located on Community land; however, the site extends outside the Community onto private land. The Community, Akimel O’odham, and Pee Posh tribes consider Villa Buena an important site that plays a role in their culture, identity, history, and oral traditions. Because of its importance in the Native American community’s history and cultural identity, Villa Buena is considered a TCP and is NRHP-eligible under Criterion A.

Pueblo del Alamo is a Hohokam village site from the Colonial to Classic period. It is located north of the Salt River. Pueblo del Alamo has been subject to several archaeological excavations as well as substantial disturbance through agricultural development, road construction,

house and power line construction, trash dumping, and erosion. The Community, Akimel O’odham, and Pee Posh tribes consider Pueblo del Alamo an important site that plays a role in their culture, identity, history, and oral traditions. Because of its importance in the Native American community’s history and cultural identity, Villa Buena is considered a TCP and is NRHP-eligible under Criterion A. The W101 and W71 Alternatives would cross Villa Buena. The W59 Alternative would cross Pueblo del Alamo.

TCPs can be the physical manifestation of knowledge, information, and belief in communities where the perpetuation of culture and the transmission of information are maintained through oral tradition and its connection with specific cultural places. These qualities relate to the event associations of these TCPs under Criterion A. Direct alteration of Villa Buena and Pueblo del Alamo through freeway development has the potential to adversely affect the cultural landscape through loss or alteration of these “knowledge sites” unless specific, proactive measures were undertaken to prevent such loss. Therefore, the Community prepared a proposal to develop a TCP enhancement and management plan for the sites to prevent adverse effects. FHWA and ADOT have committed to implementing this plan.

Section 4(f) does not apply if FHWA determines, after consultation with SHPO, that the archaeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place and that SHPO does not object to this determination [23 C.F.R. § 774.13(b)]. SHPO has concurred (October 25, 2012), and FHWA has, therefore, determined that the Villa Buena and Pueblo del Alamo TCPs are not Section 4(f) properties.



COORDINATION

Coordination efforts pertinent to the interaction of the proposed action with properties afforded protection under Section 4(f) have been continuous since the start of the EIS process (see Table 5-2). Three major points can be taken from Table 5-2:

- Coordination efforts pertaining to Section 4(f)-related topics have been extensive and continuous.
- A strong desire to avoid use of those affected properties afforded protection under Section 4(f) remains, although no prudent and feasible avoidance alternatives for all resources are available.
- Additional coordination is warranted and will continue to fully address satisfactory measures to minimize harm to those affected properties.

Table 5-2 Documented Coordination Associated with Section 4(f) Resources

Summary of Topics Discussed <sup>a, b, c</sup>		
Agency/Group	Date of Coordination	Action Taken
Coordination pertinent to Phoenix South Mountain Park/Preserve (SMPP)		
City of Phoenix Parks Board	September 22, 2005, Meeting	Letter sent and/or meetings held to: <ul style="list-style-type: none"><li>• Introduce action alternatives</li><li>• Describe requirements of Section 4(f)</li><li>• Describe potential impacts on SMPP</li><li>• Introduce concepts to minimize harm</li><li>• Request feedback on materials presented</li></ul>
City of Phoenix Parks and Recreation Department	January 19, 2006	
Sonoran Preserve Advisory Committee	November 21, 2005, Meeting	
Phoenix Mountains Preservation Council	November 7, 2005, Meeting	
Phoenix Mountains Preservation Council	January 19, 2006	Summary of September 22, 2005, meeting sent to the Council requesting confirmation of meeting results
Mountain Bike Association of America	November 18, 2005	Letter received stating opposition to the project
	January 19, 2006	Letter sent to groups to: <ul style="list-style-type: none"><li>• Introduce action alternatives</li><li>• Describe requirements of Section 4(f)</li><li>• Describe potential impacts on SMPP</li><li>• Introduce concepts to minimize harm</li><li>• Request feedback on materials presented</li></ul>
		Letter received stating opposition to the project
Coordination pertinent to the South Mountains Traditional Cultural Property (TCP) and related sites <sup>d</sup>		
Coordination regarding the status of the South Mountains as a TCP has been ongoing with the Community, <sup>e</sup> State Historic Preservation Office (SHPO), and jurisdictions (see Chapter 2, <i>Gila River Indian Community Coordination</i> ; the section, <i>Cultural Resources</i> , beginning on page 4-126; and Appendix 2-1 to learn more about coordination with the Community regarding the South Mountains TCP and other related sites).		
Coordination pertinent to public parks and trails		
Coordination regarding the status of the public parks and trails (existing and planned) has been continuous (see Appendix 5-2, beginning on page A561, regarding documented coordination efforts with City of Phoenix Parks and Recreation Department and Maricopa County).		
City of Phoenix	April 6, 2005	Meeting to discuss existing and planned recreation facilities
Maricopa County	September 6, 2005	Meeting to discuss recreational trail policy
MAG <sup>f</sup> and City of Phoenix	October 23, 2009	Meeting to discuss recreational trails
MAG	December 1, 2009	Meeting to discuss recreational trails
Maricopa County	May 8, 2012	Letter sent indicating that if an action alternative were chosen, trails near potential freeway construction would be closed for limited periods for safety reasons. Such closures would constitute a temporary occupancy of land so minimal as to not constitute a Section 4(f) use (Maricopa County concurred on May 10, 2012).

(continued on next page)



Table 5-2 Documented Coordination Associated with Section 4(f) Resources (continued)

Summary of Topics Discussed <sup>a, b, c</sup>		
Agency/Group	Date of Coordination	Action Taken
Coordination pertinent to public schools		
Coordination regarding the status of the public school sites (existing and planned) has been continuous (see Appendix 5-2, beginning on page A561, regarding documented coordination efforts associated with protected public schools).		
Coordination pertinent to Hudson Farm and Colvin-Tyson Farmstead and Barnes Dairy Barn		
Arizona State Land Department Bureau of Land Management Bureau of Reclamation City of Phoenix–City Archaeologists City of Phoenix–Historic Preservation Office Salt River Project SHPO	August 31, 2005	Request concurrence on adequacy and eligibility recommendations of addendum records search and field survey reports addressing these resources: <ul style="list-style-type: none"><li>• Bureau of Reclamation concurred on September 19, 2005</li><li>• City of Phoenix–City Archaeologist concurred on November 1, 2005</li><li>• Salt River Project concurred with comments on September 19, 2005</li><li>• SHPO requested revisions on September 19, 2005</li><li>• Revisions made and SHPO concurrence received on October 3, 2005</li></ul>
City of Phoenix	July 18, 2010	Letter sent to FHWA <sup>g</sup> to: <ul style="list-style-type: none"><li>• Request revised W59 Alternative alignment (shift from 63rd Avenue to 61st Avenue near Dobbins Road)</li><li>• Note that this shift to 61st Avenue would result in direct use of Section 4(f) resources</li></ul>
FHWA	September 27, 2010	Letter sent to City of Phoenix to: <ul style="list-style-type: none"><li>• Request information on current zoning and planning in vicinity of Section 4(f) resources along Dobbins Road</li><li>• Request determination of SHPO position on potential W59 Alternative alignment revision</li></ul>
City of Phoenix	October 20, 2010	Letter sent to FHWA to: <ul style="list-style-type: none"><li>• Note that the Laveen area and historic farmsteads/Section 4(f) properties are zoned commercial</li><li>• Indicate that the City of Phoenix will coordinate the response from SHPO regarding historic, Section 4(f) farmsteads</li></ul>
City of Phoenix	December 23, 2010	Letter sent to FHWA regarding SHPO/City of Phoenix response to potential W59 Alternative alignment shift from 63rd Avenue to 61st Avenue, noting that: <ul style="list-style-type: none"><li>• SHPO supports shift to 61st Avenue alignment with acceptable plan to minimize harm to historic Section 4(f) properties</li><li>• SHPO’s support for alignment shift depends on successfully protecting Hudson Farm</li><li>• Protection of the entire Hudson Farm farmstead is not expected</li><li>• Potential exists to protect Hudson Farm with a conservation easement</li></ul>
FHWA	February 1, 2011	Letter sent to SHPO requesting concurrence on approach to mitigation of impacts on historic/Section 4(f) properties in the area of the W59 Alternative’s intersection with Dobbins Road, noting that: <ul style="list-style-type: none"><li>• Approach would consist of documentation and a conservation easement, with goal of conveying Hudson Farm to another entity for reuse</li><li>• A public meeting is recommended in vicinity of resources to solicit feedback</li><li>• SHPO concurred with this approach to mitigation of impacts on historic/Section 4(f) properties on February 4, 2011</li></ul>
FHWA	July 11, 2012 (eligibility) September 6, 2012 (effects)	Letter sent to SHPO requesting concurrence on reassessment of eligibility and findings of effect to properties in the area of the W59 Alternative’s intersection with Dobbins Road, noting that: <ul style="list-style-type: none"><li>• One property was considered no longer eligible for the NRHP.</li><li>• The boundary of one NRHP-eligible property was expanded.</li><li>• The NRHP eligibility of the other properties remained unchanged.</li><li>• SHPO concurred with the eligibility recommendations on July 16, 2012.</li><li>• SHPO concurred with the findings of effect (no effects on historic properties) on September 14, 2012.</li></ul>

<sup>a</sup> The table identifies documented meetings and refers to written communications to and from agencies, the Arizona Department of Transportation (ADOT), and the Federal Highway Administration (FHWA). Numerous e-mail communications and phone conversations also occurred to coordinate meeting dates and agendas and to follow up on actions resulting from meetings and written communications.

<sup>b</sup> Written communications can be found in Appendices 1-1 and 5-2. <sup>c</sup> Some measures to minimize harm presented in the chapter require further coordination on the part of ADOT and FHWA with vested agencies, jurisdictions, and possibly major user groups. Agencies requiring further coordination are identified in those measures. <sup>d</sup> Cultural resources discussed were determined to be Section 4(f) resources from either previous listing in the National Register of Historic Places (NRHP) or through initial consultations with SHPO.

<sup>e</sup> Gila River Indian Community <sup>f</sup> Maricopa Association of Governments <sup>g</sup> Federal Highway Administration



CONCLUSIONS

The chapter has served as the basis for the consideration of effects of the action alternatives on resources afforded protection under Section 4(f). Demonstration of the proposed action’s compliance with Section 4(f) necessarily meant presentation in this chapter of how consideration of the law’s provisions was implemented, beginning with the earliest stages in the EIS process. With few exceptions, action alternatives were designed to avoid direct and constructive use of recreational trails, properties eligible for the NRHP, public school recreational facilities, and public parklands. In some instances, alternatives were eliminated from the EIS process because complete avoidance could not be achieved and prudent and feasible avoidance alternatives were identified. Besides avoidance, other mitigation measures described in Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, helped reduce impacts resulting from the proximity of the action alternatives to the resources.

Use of some resources afforded protection under Section 4(f) would be unavoidable. Exhaustive efforts were undertaken to identify avoidance alternatives for each resource. However, not all efforts resulted in the identification of prudent and feasible avoidance to the use of all properties. Resources subject to direct use are afforded protection as historic properties eligible for listing in the NRHP as public parkland and/or as TCPs. All action alternatives (when the Western and Eastern Sections are combined) would result in the same extent of direct use of the resources associated with the South Mountains (see Table 5-3) and AZ T:12:112 (ASM). Measures to minimize harm to the South Mountains resources were determined through direct coordination with resource owners, agencies with jurisdiction, and with other stakeholders and users.

Table 5-3 Direct Use of Section 4(f) Resources

Resource Associated with the South Mountains	Direct Use
Public parkland	31.3 acres <sup>a</sup>
NRHP <sup>b</sup> -eligible historic land	31.3 acres
South Mountains TCP <sup>c</sup>	unknown <sup>d</sup>

<sup>a</sup> The acreage presented represent an “overlapping” impact on the South Mountains resulting from the three functions and are not to be interpreted as distinct—and therefore additive—geographical impacts.

<sup>b</sup> National Register of Historic Places

<sup>c</sup> Traditional Cultural Property

<sup>d</sup> Any direct use is unknown because the Federal Highway Administration and the Gila River Indian Community agreed that, while impacts to the TCP would occur, no boundary to the TCP has been established because of cultural resources sensitivity concerns.



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