



South Mountain Transportation Corridor Study

Citizens Advisory Team
Technical Report Summary

Draft Biological Resources

Why study biological resources in the Environmental Impact Statement (EIS)?

It is widely accepted that a healthy ecosystem is interconnected to the well-being of humankind. In today's modern society, keeping the balance is becoming ever more challenging. With rapid growth occurring throughout the southwestern United States, the natural environment and its wildlife habitats are being converted to homes, businesses and our modern way of life. Yet, even with the growth that is occurring, there is strong concern for the protection and enhancement of wildlife diversity and habitat.

Construction and operation of a project like the proposed South Mountain Freeway could adversely affect vegetation, wildlife and native biological communities located in the Study Area.

- Wildlife habitat could be degraded because of fragmentation and conversion of land into pavement.
- Wildlife populations could be negatively affected by greater noise disturbance associated with traffic.
- A project the size of the proposed South Mountain Freeway could accelerate the pace of urban expansion and result in the loss or force displacement of native biological communities.

What kinds of native biological resources are known to occur in the Study Area?

Vegetation in the Study Area is classified as Arizona Upland Sonoran Desertscrub and Lower Colorado River Sonoran Desertscrub. Because these community types stretch from east of the Study Area to California and south to the Mexican border, vast numbers of tree, shrub, flower and grass species can be found within these two communities. Some examples include various native species of paloverde, acacia, mesquite, walnut, elder, cottonwood, smoketree, ironwood, creosote bush, desert broom, ocotillo and brittlebush. Cacti found in the Study Area can include saguaro, buckhorn cholla, hedgehog cactus, barrel cactus and Christmas cactus. Many species of native plants are protected by Arizona's Native Plant Law (NPL) from theft, vandalism or unnecessary destruction.

Only a fraction of these species are found in the Study Area because much of the native habitat has been altered by agricultural, commercial and urban development. As the Study Area continues to develop, native plant communities in the area are decreasing in size and are transforming into a more urban, nonnative setting.

Animal abundance and diversity are related to area habitat types. Retired and active agricultural fields are found in or adjacent to all Western and Eastern section alternatives. These fields have reduced value for some native plants and wildlife, with an exception being burrowing owls, which can be found nesting and hunting on the perimeter of agricultural fields and irrigation dikes. Small mammals, reptiles, rodents and some birds may use the fields for cover and foraging. When agricultural fields are flooded, black-necked stilt, cattle egret and killdeer can be present. Along irrigation canals, white-winged dove, mourning dove, Inca dove and roadrunner can be found.

Some gravel pits along the W101 Alternative in the Western Section contain water and some riparian vegetation. These areas have the potential to attract various species of birds, which



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view the man-made habitat as suitable for nesting. Sand and gravel pits, created along the Salt River riverbed, provide a wildlife habitat. However, unlike natural ecosystems, the steep sides of the pits create less important zonal habits than natural aquatic systems like rivers or lakes.

In Phoenix South Mountain Park/Preserve, mammalian populations, which are restricted by food supply and the large number of human visitors to the park, include black-tailed jack rabbit, cottontail rabbit, ground squirrel, ringtail cat, coyote, kit fox, gray fox, javelina and various species of bats.

No major wildlife migration corridors have been documented in the Study Area. However, some wildlife in Phoenix South Mountain Park/Preserve likely travels outside of the park boundary and onto neighboring land for the purpose of foraging or hunting.

Many common desert birds can also be found, including curve-billed thrasher, Gambel's quail, cactus wren, canyon wren, black-throated sparrow, phainopepla, blue-gray gnatcatcher, Abert's towhee, turkey vulture and different species of raptors including owls, falcons and hawks.

In preparing the biological resources technical report, the potential to affect species protected under state and federal laws was examined. Such species include plants and animals proposed for listing or currently listed as threatened, endangered or candidate species in accordance with the Endangered Species Act, or birds protected under the Migratory Bird Treaty Act (MBTA) as managed by the United States Fish and Wildlife Service (USFWS). The State of Arizona's sensitive species, as designated by the Arizona Game and Fish Department (AGFD) were also considered.

The USFWS list of threatened, endangered and candidate species for Maricopa County documents 15 species potentially found in the county. This list was reviewed and it was determined two of these species (Western yellow-billed cuckoo and Yuma clapper rail) have the potential to be found in the Study Area. A wide range of birds protected by the MBTA is assumed to be found in and adjacent to the Study Area. In addition, AGFD provided a list of 7 special-status species documented to occur in the Study Area or within a 2-mile buffer. A single species is common to both lists. Because of the sensitive nature of the information, the precise locations of where these species were found are not provided.

Data to support the information provided above were obtained through field surveys, literature reviews and verbal and written correspondence with appropriate staff at USFWS, AGFD and the City of Phoenix.

What kind of impacts would occur from construction?

The following are ways biological resources could be altered during construction of the proposed project:

- Native vegetation would be removed from construction zones, causing a decrease in shelter, foraging and nesting resources for birds, mammals and reptiles.
- Wildlife could be displaced and their nesting/breeding seasons potentially disrupted by such impacts as construction noise and construction activities (movement of heavy equipment).



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- Undesirable invasive plant species could be introduced into the Study Area through the accidental import of seeds by construction equipment and through soil disturbance.
- Construction vehicle collisions—while expected to be uncommon—with wildlife could result in wildlife fatalities.
- Project construction activities such as land clearing or bridge modifications during nesting seasons could result in “take” of birds protected under the MTBA.

How would the alternatives differ in construction-related impacts?

All action alternatives in the Western Section would cross similar land use areas (i.e., agricultural and urbanizing lands) and plant communities and would have comparable impacts on biological resources.

The E1 Alternative in the Eastern Section would cross the least developed areas and would have the greatest impact on biological resources.

What kinds of freeway operational impacts (postconstruction) would occur?

Vehicular traffic would pose a collision hazard to wildlife attempting to cross a project like the proposed action.

Increased traffic volume would create noise disturbances beyond the limits of the freeway and may cause wildlife to shift home ranges and alter their movement patterns and escape responses as well as alter their physiological states.

Construction and operation of the South Mountain Freeway could further limit habitat connectivity in the metropolitan area, especially near Phoenix South Mountain Park/Preserve.

How would the alternatives differ in operational-related impacts?

All alternatives, when operating, would have similar kinds and levels of impacts on vegetation, wildlife and native biological communities.

What if the project were not constructed?

No project-specific impacts would be experienced. However, urban growth is projected to continue in much of the Study Area. Vehicular traffic would increase on surface streets, and residential and commercial development would continue to displace biological resources. Only protected areas, such as Phoenix South Mountain Park/Preserve would remain unchanged.

What specific and/or unique impacts could occur from construction and operation of the action alternatives?

For a project the magnitude of the proposed South Mountain Freeway, there do not appear to be any unique impacts on biological resources. However, support is growing among state and federal agencies, as well as the general public, for maintaining landscape connectivity related to wildlife movement when possible. Many scientific studies have concluded that roads can fragment habitat, isolate wildlife populations and ultimately diminish landscape connectivity.



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As reported in the Arizona Department of Transportation (ADOT) Environmental and Enhancement Group Annual Report Fiscal Year 2004:

Arizona Habitat Connectivity Planning Group - As Arizona has experienced record growth in population, the need to preserve wildlife diversity is on the forefront. In the fall of 2003, wildlife experts from various agencies and organizations throughout the state came together in an effort to address wildlife habitation fragmentation within Arizona. Representatives from the Arizona Game and Fish Department, ADOT, Federal Highway Administration, Bureau of Land Management, US Fish and Wildlife Service, USDA Forest Service, Northern Arizona University, and the Wildlands Project formed the Arizona Habitat Connectivity Planning Group. This Group will identify important habitat linkage corridors throughout the state, rank the linkages based on importance and imminent threats, and provide linkage information to resource and transportation agencies within the state. Officials can then use this information when developing project plans, and accommodate wildlife linkage in a more efficient and effective manner.

Maintenance of landscape connectivity would be a consideration for the proposed project. Opportunities for maintenance of landscape connectivity are presented in this document under the heading, "*What could be done to reduce or avoid impacts?*"

Additionally, the proposed project would cross the Salt River in the Western Section. The City of Phoenix and U.S. Army Corps of Engineers (USACE) are currently in the planning phases for the Rio Salado Oeste project. The project would be an approximately 8-square-mile habitat restoration project located in the 100-year floodplain along the Salt River between 19th and 83rd avenues. The intent of the project would be for native riparian habitat restoration in conjunction with flood control, water quality and passive recreation in the form of multiuse trails. The City and USACE have anticipated a South Mountain Freeway crossing and view it as an opportunity to direct stormwater runoff from the freeway to "irrigate" river habitat. As planning for the proposed project progresses, the City and USACE have agreed to coordinate with ADOT on enhancement opportunities for the project.

What could be done to reduce or avoid impacts?

ADOT would undertake a range of activities to reduce impacts during construction and operation of the proposed freeway. Below is a list of measures ADOT could undertake. Measures will be presented in the Draft EIS and mitigation will be committed to through the Final EIS and Record of Decision.

During Construction

- To comply with the Arizona NPL, the Arizona Department of Agriculture would be notified in writing that native plants need to be salvaged at least 60 days prior to construction (to afford commercial salvagers the opportunity to remove and salvage the plants).
- All disturbed soils that would not be landscaped or otherwise permanently stabilized by construction would be seeded using species native to the project vicinity.
- All earthmoving and hauling equipment would be washed at the contractor's storage facility prior to arriving onsite to prevent the introduction of invasive species seed.



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- All earthmoving and hauling equipment would be cleaned prior to leaving the construction site to prevent invasive species seeds from leaving the site.
- Disturbed areas would be replanted with drought-tolerant native vegetation.
- ADOT would coordinate with AGFD during final design to identify fencing locations along the freeway to reduce wildlife access to the freeway and, consequently, the number of roadkill instances.
- Habitat loss would be minimized by restricting construction activities to the minimum area necessary to perform the activities and by maintaining natural vegetation where possible, especially the larger trees, which provide habitat for nesting birds.
- Construction noise would be controlled in accordance with the Arizona Department of Transportation *Standard Specifications for Road and Bridge Construction*, Section 104.08 (2008 Edition).
- Construction activities could be scheduled to take place outside of prime nesting and breeding seasons for sensitive species.
- AGFD guidelines would be followed for avoidance of sensitive species during construction.

For Operation

- Wildlife crossing structures and fencing could be incorporated along sections of the freeway to allow wildlife to pass without risk of harm. To prevent entrapment, particularly of large mammals, oversized drainage crossings (i.e., bridges) and box culverts (wildlife crossing structures) would be considered adjacent to Phoenix South Mountain Park/Preserve to prevent the isolation of wildlife and to reduce the potential for roadkill.

Others

- In accordance with Section 4(f) of the Department of Transportation Act, measures to minimize harm to Phoenix South Mountain Park/Preserve must be identified and implemented. Identification of and refinement of such measures continue to evolve through coordination with the City of Phoenix, ADOT, the Federal Highway Administration and stakeholders. A possible measure to minimize harm to a resource (such as Phoenix South Mountain Park/Preserve) is to replace the parkland that would be converted to a freeway use. For the South Mountain Freeway project, no commitments have been made that this would be an appropriate measure to minimize harm; however, coordination among the stakeholders is ongoing. If such a measure were to be undertaken, the measure could also function to reduce biological resource impacts described here.



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Are the conclusions presented in this summary final?

It is quite likely that quantitative findings relative to impacts are subject to change. The reasons for future changes that would be presented to the public during the Draft EIS, Final EIS and Final Design stages are based on:

- Refinement in design features through the design process
- Updated aerial photography related to rapid growth in the Western Section of the Study Area
- Ongoing communications with the City of Phoenix regarding measures to minimize harm to Phoenix South Mountain Park/Preserve
- Ongoing communications with the Gila River Indian Community (GRIC) regarding granting permission to perform studies on GRIC land
- Potential updates to traffic forecasts as revised regularly by the Maricopa Association of Governments
- Potential updates regarding the special 2005 survey to augment the 2000 Census
- Cost estimates for construction, right-of-way acquisition, relocation and mitigation would be updated regularly as design progresses.

However, even with these factors affecting findings, it is anticipated that the effects would be roughly equal among the alternatives and, consequently, impacts would be comparable. This assumption would be confirmed if and when such changes were to occur.

As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder at 602-712-6836 or Mark Hollowell at 602-712-6819.

Table 1. Threatened and Endangered Species

Species Common Name	Scientific Name	Habitat	Status Federal	Occurrence: Known or Potential
Bald eagle	<i>Haliaeetus leucocephalus</i>	Large trees or cliffs near rivers and lakes	Threatened	Possible occurrence as transient migratory or winter visitor. No breeding records within Study Area.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Canyons and dense forests	Threatened	There are no canyons or forests within the Study Area. No occurrence within Study Area.
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	Mesquite bosques, Sonoran desertscrub	Delisted	Historically occurred in south-central Arizona. Recent records (since 1993) suggest only marginal habitat in Pima and Pinal counties (<i>Federal Register</i> 2000). Habitat does exist within Study Area
California brown pelican	<i>Pelecanus occidentalis californicus</i>	Coastal areas; lakes and rivers	Endangered	Uncommon transient during migration. No breeding records for Arizona.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Riparian communities along rivers and streams	Endangered	Not documented within the Study Area; no suitable habitat (USFWS 1997).
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	Fresh water and brackish marshes	Endangered	Breeding pairs from 91st Avenue Waste Water Treatment Plant to the Salt River-Gila River confluence (Maricopa Audubon Society 2001).
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Open woods and stream sites	Candidate	Migratory. Known to occur on portions of the Salt and Gila rivers, west of 83rd Avenue to 115th Avenue (Maricopa Audubon Society 2001; <i>Federal Register</i> 2001).
Arizona agave	<i>Agave arizonica</i>	Oak-juniper woodlands and mountain mahogany-oak scrub	Endangered	No occurrence within Study Area because of a lack of suitable habitat.
Arizona cliffrose	<i>Purshia subintegra</i>	Rolling, rocky limestone lakebed deposits. Elevation 2,120 to 4,000 feet	Endangered	No occurrence within Study Area because of a lack of suitable habitat.

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Species Common Name	Scientific Name	Habitat	Status Federal	Occurrence: Known or Potential
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	Desert scrub habitat at <6,000 feet. Roost in caves, abandoned mine and unoccupied buildings at the base of mountains where agave and columnar cacti are present.	Endangered	No occurrence within Study Area because of a lack of suitable habitat.
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Alluvial valleys with creosote-bursage and paloverde–mixed cacti associations	Endangered	No occurrence within Study Area because of a lack of suitable habitat.
Desert pupfish	<i>Cyprinodon macularius</i>	Shallow springs, small streams and marshes	Endangered	This species was transplanted into the Salt River in 1958 but is no longer found in the Salt River Basin, including the Study Area.
Gila chub	<i>Gila intermedia</i>	Pools, springs, cienegas and streams	Proposed	The species is found on private land, including land owned by The Nature Conservancy and the Audubon Society, not within Study Area.
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Small streams, springs and cienegas with vegetated shallows	Endangered	This species was stocked in the Salt River in Tempe in 1966 but is no longer found in the Salt/Gila River Basin, including the Study Area (USFWS 1998a,b).
Razorback sucker	<i>Xyrauchen texanus</i>	Riverine and lacustrine areas, generally not in fast-moving water and may use backwaters	Endangered	Historically occurred in Gila River drainage and Salt River. Current populations only in Lake Mohave and Lake Mead. No occurrence in Study Area. (<i>Federal Register</i> 1994).

Source: AGFD Heritage Database and USFWS list of threatened, endangered, candidate and proposed species in Maricopa County

