

## 9. ENVIRONMENTAL IMPACT MITIGATION MEASURES

The effects of the recommended build alternative have been assessed and are documented in the project's Final EA. The findings of the Final EA and the mitigation commitments made therein will remain in effect for three years following FHWA's Finding of No Significant Impact (FONSI). For all design segments of the recommended alternative subsequent to the post-FONSI three-year period, project reevaluations must be conducted to confirm the final design is in accordance with the provisions stipulated in the Final EA. If a design change is proposed, supplemental documentation must be prepared as part of a Design Change Reevaluation to assure compliance with NEPA requirements and FHWA guidelines.

The mitigation commitments provided below have been taken from the Final EA. This list applies to all segments of the recommended alternative for the proposed widening of US 93 between SR 89 (MP 193.5) to the recently completed improvements just east of the Santa Maria River (MP 161.5). Where required, site specific mitigation measures must be developed through consultation between ADOT and the BLM, ASLD, and local residents. ADOT will implement the mitigation measures by incorporating details into the construction plans, specifications, and special provisions, and by construction monitoring. The BLM will approve plans and specifications for improvements within their jurisdictional lands, and will monitor construction on BLM land. On private and State land, ADOT will provide a comparable level of effort to adhere to the agreed-upon ADOT/BLM standards of resource protection. ADOT will also direct all activities performed by the construction contractor(s).

In addition to the mitigation commitments, some techniques used to accomplish the mitigation objectives are also listed. Best management practices appropriate to this project that have been used successfully on other US 93 corridor projects have also been incorporated. An erosion control plan and a reclamation/revegetation plan must be prepared during the design of all segments of the recommended alternative. The plans will be implemented by ADOT during construction, and monitored by ADOT and any partnering agencies following construction.

### Design Responsibilities:

1. ADOT will provide a roadside pulloff facility for both directions of traffic in the vicinity of the existing roadside table (if provisions for a permanent rest facility have not been defined in or near the area). Each facility will include a trash receptacle, parking area, and emergency phone call box. The final locations of the facilities will be determined during design.
2. For each project design segment, ADOT will coordinate with affected landowners, land management agencies, and lease holders to identify opportunities and specific design measures to minimize impacts on livestock/farming operations. Coordination efforts will consist of, but not be limited to, a meeting with affected landowners and/or lease holders during the design kickoff phase, and a follow-up meeting at the 60 percent design phase addressing the concerns identified during the early coordination.
3. To minimize impacts on adjacent land use, existing cattle crossings under US 93 will be maintained or relocated. To maintain existing cattle crossings, existing box culverts that are 6 feet in height or greater will not be downsized and will be designed to function as cattle passes where feasible. If during design it is determined that the existing cattle passes cannot be retained, ADOT will contact the affected land managing agency for information on cattle crossing needs and arrange for the development of improved crossing locations or the provision of new livestock water sources. The number of cells/barrels to a culvert crossing is dependant on the drainage requirements.
4. During final design, ADOT will review the project plans to verify the extent of encroachment within the 100-year floodplain and will obtain the required floodplain construction permits from the Yavapai County Flood Control District.
5. During final design, the project plans will be reviewed to verify the extent of encroachment into waters of the US. As appropriate, mitigation plans will be developed and certifications and permits required under Sections 401 and 404 of the Clean Water Act will be obtained by ADOT prior to construction.
6. ADOT Roadside Development Section will determine who will prepare the Storm Water Pollution Prevention Plan.
7. A survey for loggerhead shrike nests will be performed by a qualified biologist during final design. The survey will be conducted in areas that will be disturbed by construction activities and are located on or within one mile of BLM lands. If loggerhead shrike nests are found, ADOT will coordinate with the BLM regarding potential impacts to the species.
8. A survey for western burrowing owls will be performed by a qualified biologist during final design. The survey will be conducted in areas that will be disturbed by construction activities and are located on or within one mile of BLM lands. If western burrowing owls are found, ADOT will coordinate with the BLM regarding potential impacts to the species.
9. Game fence consistent with ADOT Game Fence Specification (barbed wire game fence with a smooth bottom wire) will be installed along the right-of-way line in all portions of the project that are not immediately adjacent to developed areas.
10. ADOT will include the Arizona Game and Fish Department in the design partnering process to address wildlife movement issues. During design, Arizona Game and Fish Department representatives will be requested to provide input in discussions about wildlife opportunities and the development of appropriate wildlife-sensitive design measures at locations identified as important for wildlife connectivity and movement, including the Date Creek and Big Jim Wash bridges. In conjunction with the wildlife-sensitive design efforts, further examination of available wildlife strike data for the project area will be conducted.
11. ADOT Roadside Development Section will notify the Arizona Department of Agriculture at least 60 days prior to the start of construction to afford commercial salvagers the opportunity to remove and salvage any plants that are not included in the plant salvage plan.

12. A plan for the inventory, salvage, storage, and transplantation of native plants, including saguaro, agave, and Joshua trees, will be developed by ADOT Roadside Development Section during final design. Healthy, salvageable native plants within the area of disturbance will be salvaged and transplanted to the extent practicable to replicate the surrounding vegetative density.
13. Disturbed areas will be seeded with a seed mix consisting of native species selected for the site and will be revegetated with salvaged plants. During final design, ADOT will develop the seed mix. Revegetation plans will identify, where applicable, the need for mulching, salvaging, placement of salvaged surface soils, and other necessary treatments to promote successful plant establishment.
14. During final design, ADOT Natural Resources Section will survey the project area for invasive species. If invasive species are found, ADOT Natural Resources Section will treat these species according to an invasive species management plan and any necessary treatments will continue following completion of construction.
15. During final design, the variable-width median and roadway centerline will be tweaked to minimize visual impacts and maximize travelers' experience within the Joshua Forest Scenic Road.
16. Vegetation within the median area will be protected in-place to the extent possible in areas where the median width will be greater than 84 feet.
17. The cottonwood trees located in the vicinity of MP 166.8 will be protected in-place.
18. Seeding of disturbed areas will occur in a progressive manner as the slopes are completed.
19. Newly exposed rock faces will be shaped to blend with natural rock features by incorporating characteristics of the adjacent natural rock to include color, scale, shape, slope, and fracturing to the extent that is practical and feasible as identified through geotechnical testing and constructability reviews.
20. Rock outcrops will be left in place after construction if they are determined to be stable; will blend into the surrounding terrain; and will not create a hazard to the traveling public, interfere with construction, or look out of place in the natural landscape.
21. At the intersections of cuts and natural grades, slopes will be adjusted and warped to flow into each other or transition into the natural ground surfaces without noticeable breaks.
22. Cut and fill slopes will be designed with varied slope ratios to leave an irregular, undulating, or roughened appearance rather than a uniform grade to simulate the terrain of the surrounding area. The slope ratios will vary from the top to the bottom of the slope face and from station to station.
23. The project plans will identify remnants of landforms to be modified to make them appear more natural and to avoid leaving uncharacteristic fin-shaped landforms in the median.
24. Any riprap material will blend with the surrounding rock and exposed soil color.
25. Erosion control matting will be composed of a natural, earth-tone material.
26. During final design, ADOT will evaluate the use of staining exposed rock to reduce the color contrast with the existing landscape.
27. Bridges, concrete barriers (outside limits), retaining walls, and highly visible culvert headwalls and endwalls will be constructed with color and/or texture qualities that blend with the existing landscape.
28. Where guardrail is required, natural-appearing metal guardrail material, such as naturally weathered steel, will be installed to blend with the landscape.
29. During final design, copies of the construction documents will be provided to the Parkway, Historic, and Scenic Roads Advisory Committee for review and comment.
30. During final design, the Federal Highway Administration's Visual Prioritization Process (1994) or its equivalent will be used to identify site-specific measures to reduce impacts to visual resources through the Joshua Forest Scenic Road. While these impacts cannot be avoided, proof that the proposed design solution addresses these concerns shall be provided.
31. All asphalt not reused as part of the project will be removed from the site or incorporated into roadway embankments under a minimum of 3-foot cover, and the roadbed will be reshaped, scarified, and revegetated. All abandoned sections of old roadway will be obliterated and made to blend with the existing landscape.
32. Within the designated limits of the Joshua Forest Scenic Road, signing and other roadside elements, such as reflectors, delineators, and object markers, will be limited to those essential to ensure efficient traffic operations and driver safety.
33. If possible, any new roadway signs will be placed to avoid obstructing northbound motorists' views of the Shiprock formation between mileposts 166.0 and 164.0. ADOT will field-verify the placement of roadway signs before installation.
34. An Initial Site Assessment will be conducted during final design to assess hazardous materials concerns associated with right-of-way acquisition at the US 93/State Route 71 junction. If necessary, remedial measures will be implemented based on the results of the assessment.
35. During final design, ADOT will conduct assessments to determine the presence of asbestos within any bridge structure that will be altered or modified as a result of construction. ADOT will also conduct assessments to determine the presence of Resource Conservation and Recovery Act metals (e.g., lead-based paint) on these structures.
36. The stipulations contained in the Programmatic Agreement between ADOT, Federal Highway Administration, BLM, and State Historic Preservation Office will be fully satisfied prior to the beginning of construction.
37. During design, ADOT will administer a public involvement program for the design segment including the State Route 89 junction and Vista Royale area in order to give area residents the opportunity to provide input on specific design issues. The program will include, but not be limited to, a meeting with area residents during the design kickoff phase, and a follow-up meeting or newsletter, as appropriate, at the 60 percent design stage addressing the concerns identified during the early coordination.

**Prescott and Kingman District Responsibilities:**

1. The District would submit the Notice of Intent and the Notice of Termination to the Arizona Department of Environmental Quality.
2. A construction notice would be provided to adjacent residents and businesses at least two weeks prior to construction.

**Contractor Responsibilities:**

1. Permanent cross-drainage structures shall be installed at the earliest possible phase of construction to minimize potential erosion throughout the duration of construction.
2. The contractor shall submit the Notice of Intent and the Notice of Termination to the Arizona Department of Environmental Quality.
3. The contractor shall employ a qualified biologist to provide instructional materials regarding the protection of chuckwalla and desert rosy boa to all supervisory construction personnel prior to performing any ground-disturbing activities related to construction of the project.
4. A desert tortoise survey shall be conducted by a qualified biologist 15 days prior to the beginning of construction in areas of suitable tortoise habitat that will be disturbed.
5. Because Sonoran desert tortoises occur within the project area, the contractor shall comply with the Arizona Game and Fish Department's Tortoise Handling Guidelines if specimens are encountered during construction.
6. The contractor shall salvage and replant native plants within the area of disturbance in accordance with the plant salvage and revegetation plans.
7. Disturbed areas shall be seeded with a seed mix consisting of native species selected for the site and shall be revegetated with salvaged native plants.
8. All earth-moving and hauling equipment shall be washed at the contractor's storage facility prior to entering the construction site to prevent the introduction of invasive species.

9. If invasive species are found within the project area, the contractor shall be required to wash all earth-moving and hauling equipment prior to leaving the construction site in order to prevent the spread of invasive species to uncontaminated areas.
10. The contractor shall stake the clearing limits for Arizona Department of Transportation Engineer's approval prior to the start of clearing. These limits shall be irregular where possible, and straight clearing lines shall be avoided by varying the width of the area to be cleared or by leaving selected clusters of vegetation near the edge of the clearing limits.
11. The contractor shall remove trees only when specifically authorized to do so by ADOT Engineer and shall protect in-place the vegetation outside the specified clearing limits.
12. Vegetation within the median area shall be protected in-place to the extent possible in areas where the median width will be greater than 84 feet.
13. The contractor shall protect in-place the cottonwood trees located in the vicinity of milepost 166.8.
14. Seeding of disturbed areas shall occur in a progressive manner as the slopes are completed.
15. Any riprap material shall blend with the surrounding rock and exposed soil color.
16. Erosion control matting shall be composed of a natural, earth-tone material.
17. The contractor shall protect in-place existing rock and landforms outside the clear zone during construction.

18. All asphalt not reused as part of the project shall be removed from the site or incorporated into roadway embankments under a minimum of 3-foot cover, and the roadbed shall be reshaped, scarified, and revegetated, all in accordance with ADOT standard specifications. All abandoned sections of old roadway shall be obliterated and made to blend with the existing landscape.
19. If asbestos and/or heavy-metal materials are found as a result of the assessments of bridge structures conducted by ADOT, the contractor shall prepare a plan detailing the proper procedures for the demolition or modification of the structures and the disposal or abatement of the asbestos and/or heavy-metal materials. In addition, the contractor shall obtain any permits required for demolition of the structures or disposal of the asbestos or heavy-metal materials.