

## 9. ENVIRONMENTAL IMPACT MITIGATION MEASURES

The effects of the recommended build alternative have been assessed and will be 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 Draft 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, State Lands, 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. If any grazing improvements, such as livestock tanks, corrals, or barns, were impacted by construction, the affected grazing permittee would be compensated.
2. Grazing permittees and the Arizona Department of Transportation Right-of-Way Section would be notified of anticipated impacts to grazing leases and livestock crossings during design and construction.
3. Existing box culverts that are 6 feet in height or greater would not be downsized and would be designed to function as cattle passes where feasible. If this were not feasible, the Arizona Department of Transportation would contact grazing permittees for information on livestock crossing needs and arrange for the development of alternative crossing locations or the provision of alternate livestock water sources.
4. During final design, the Arizona Department of Transportation would verify the extent of encroachment within the 100-year floodplain and would obtain the required floodplain construction permits from the Yavapai County Flood Control District.
5. During final design, the project plans would be reviewed to verify the extent of encroachment into waters of the U.S. As appropriate, permits required under Sections 401 and 404 of the Clean Water Act would be obtained by the Arizona Department of Transportation prior to construction.
6. The Arizona Department of Transportation Roadside Development Section would determine who would prepare the Storm Water Pollution Prevention Plan.
7. A plant salvage plan for the inventory, salvage, storage, and transplantation of native plants, including saguaro, agave, and Joshua tree, would be developed by the Arizona Department of Transportation during final design. All healthy saguaros and Joshua trees within the area of disturbance would be salvaged and transplanted within disturbed areas, in accordance with the plant salvage plan.
8. The project design would include the installation of game fence consistent with the Arizona Department of Transportation Game Fence Specification for all portions of the project that are not immediately adjacent to developed areas.
9. The Roadside Development Section would 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 and revegetation plans.
10. The clearing of existing vegetation would be avoided to the greatest extent possible.
11. Disturbed areas would be revegetated with a native seed mix and salvaged plants. During final design, the Arizona Department of Transportation would develop the seed mix. Revegetation plans would identify, where applicable, the need for mulching, salvaging, topsoiling, and other necessary treatments to promote successful plant establishment.
12. During final design, individual construction segments of the project area would be surveyed by the Arizona Department of Transportation Natural Resources Division to determine if invasive species are present within the segment. If invasive species were found, the Natural Resources Division would treat these species prior to construction and continue any necessary treatments following construction completion.
13. All disturbed areas that would not be landscaped or otherwise permanently stabilized by construction would be reseeded using species native to the project vicinity.
14. The plant salvage and revegetation plans would include the transplantation of all salvageable Joshua trees that could not be protected in-place.
15. Vegetation within the median area would be protected in-place in areas where the median width would be greater than 84 feet.

16. The cottonwood trees located with the right-of-way on either side of US 93 in the vicinity of milepost 166.8 would be protected in-place.
17. Revegetation would occur in a progressive manner once a portion of the roadway improvements had been completed.
18. Newly exposed rock faces would be designed to blend with natural rock features by incorporating characteristics of the adjacent natural rock to include scale, shape, slope, and fracturing to the extent that is practical and feasible as identified through geotechnical testing and constructability reviews.
19. Rock outcrops would be left in place if they are stable, would blend into the surrounding terrain, and would not create a hazard to the traveling public, interfere with construction, or look out of place in the natural landscape.
20. At the intersections of cuts and natural grades, slopes would be adjusted and warped to flow into each other or transition into the natural ground surfaces without noticeable breaks.
21. Cut and fill slopes would be constructed 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 would vary from the top to the bottom of the slope face and from station to station.
22. Any riprap material would blend with the surrounding rock and exposed soil color.
23. Erosion control matting would be composed of a natural earth tone material.
24. During final design, the Arizona Department of Transportation would evaluate the use of staining exposed rock or earth to reduce the color contrast with the existing landscape.
25. Bridges, concrete barriers, retaining walls, and highly visible culvert headwalls and endwalls would be constructed with color and/or texture qualities that blend with the existing landscape.
26. Where guardrail is required within the designated limits of the Joshua Forest Scenic Road, natural-appearing metal guardrail material such as naturally weathered steel would be installed to blend with the landscape.

27. During final design, copies of the construction documents would be provided to the Parkway, Historic, and Scenic Roads Advisory Committee for review and comment.
28. During final design, the Federal Highway Administration's Visual Prioritization Process would be completed to identify site-specific measures to reduce impacts to visual resources.
29. All asphalt not reused as part of the project would be removed from the site or incorporated into roadway embankments, and the roadbed would be reshaped, scarified, and revegetated. All abandoned sections of old roadway would be obliterated and made to blend with the existing landscape.
30. Within the designated limits of the Joshua Forest Scenic Road, signing and other roadside elements, such as reflectors, delineators, and object markers, would be limited to those absolutely essential.
31. Any new roadway signs would be placed to avoid obstructing northbound motorists' views of the Shiprock formation between milepost 166 and milepost 164. The Arizona Department of Transportation would field-verify the placement of roadway signs before installation.
32. An Initial Site Assessment would be conducted during final design to assess hazardous materials concerns at the US 93/State Route 71 junction. If necessary, remedial measures would be implemented based on the results of the assessment.
33. A Programmatic Agreement to determine the appropriate treatment for Register-eligible sites that cannot be avoided would be developed among the Arizona Department of Transportation, Federal Highway Administration, and State Historic Preservation Office prior to construction. The stipulations contained in the Programmatic Agreement would be fully satisfied prior to the construction of each design segment.

**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. The contractor would submit the Notice of Intent and the Notice of Termination to the Arizona Department of Environmental Quality.
2. The contractor would salvage and replant native plants within the area of disturbance in accordance with the plant salvage and revegetation plans. In the event that some saguaro could not be salvaged or were damaged during construction, the contractor would replace them with nursery stock of a similar size.
3. If Sonoran desert tortoise were encountered during construction, the contractor would comply with the Arizona Game and Fish Department's Tortoise Handling Guidelines in Appendix B.
4. The clearing of existing vegetation would be avoided to the greatest possible extent.
5. Disturbed areas would be revegetated with a native seed mix and salvaged native plants.
6. All earth-moving and hauling equipment would be washed at the contractor's storage facility prior to entering the construction site.
7. If invasive species were found within a given construction segment, the contractor would wash all earth-moving and hauling equipment prior to leaving the construction site. The contractor would notify the Arizona Department of Transportation Natural Resources Division of the location of any proposed wash sites prior to starting any washing operations.
8. All disturbed areas that would not be landscaped or otherwise permanently stabilized by construction would be reseeded using species native to the project vicinity.
9. The clearing limits would be staked for Arizona Department of Transportation approval prior to the start of clearing. These limits would be irregular, if possible, and straight clearing lines would be avoided where possible by varying the width of the area to be cleared or by leaving selected clumps of vegetation near the edge of the clearing limit.
10. The contractor would remove trees only when specifically authorized to do so by the Arizona Department of Transportation and would protect in-place the vegetation outside the specified clearing limits.
11. All salvageable Joshua trees that could not be protected in-place would be transplanted as shown on the plant salvage and revegetation plans.
12. Vegetation within the median area would be protected in-place in areas where the median width would be greater than 84 feet.
13. The contractor would protect in-place the cottonwood trees located in the vicinity of milepost 166.8.
14. Revegetation would occur in a progressive manner once a portion of the roadway improvements had been completed.
15. The contractor would protect in-place existing rock and landforms outside the clear zone during construction.
16. Any riprap material would blend with the surrounding rock and exposed soil color.
17. Erosion control matting would be composed of a natural earth tone material.
18. The contractor would completely remove all remnant landforms, such as "fins".
19. All asphalt not reused as part of the project would be removed from the site or incorporated into roadway embankments, and the roadbed would be reshaped, scarified, and revegetated. All abandoned sections of old roadway would be obliterated and made to blend with the existing landscape. The limestone portions of the Verde Formation are known to have karst features such as caves and sinkholes. The majority of the known caves and sinkholes are found east of the project; however, the project passes through a small area of exposed limestone between MP 209.3 near Black Canyon, and MP 211.4, 1.4 km (0.9 mi) south of Wilbur Canyon. Special precautions will be made to avoid underground voids, if necessary, in order to be consistent with the provisions of the Prescott National Forest's management plan relative to cave protection.
20. During final design, any substantive change in vertical and horizontal alignment from that presented in this Final L/DCR and documented in the Final EA will be reviewed for any additional social, economic or environmental impacts.