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Attachment E:

Mojave National Preserve Road Repair Project Resource Protection/Mitigation Measures

Resource Protection/Mitigation Measures are presented below. These measures, found on pages 9-14 of the Project Finding Of No Significant Impact (FONSI) prepared by the U.S. National Park Service, and shall serve as the mitigation monitoring and reporting plan for the Mojave National Preserve Road Repairs Project.

RESOURCE PROTECTION / MITIGATION MEASURES

Mojave National Preserve is committed to avoiding, minimizing, and mitigating potentially adverse environmental impacts. Mitigation measures identified below will be implemented as part of the selected alternative.

Number	Mitigation	Responsible Party
General Measures		
GM-1	All protection measures will be clearly stated in the construction specifications and workers will be instructed to avoid conducting activities beyond the construction zone. This does not exclude necessary temporary structures such as erosion control fencing.	NPS Project Manager (PM) FHWA Project Engineer (PE)
GM-2	All tools, equipment, barricades, signs, and surplus materials will be removed from the project work limits upon project completion. Construction debris will be hauled from the Preserve to an appropriate disposal or recycling location. Any asphalt surfaces damaged due to work on the project will be repaired to original condition. All demolition debris will be removed from the project site, including all visible concrete and metal pieces.	FHWA PE
GM-3	Contractors will be required to properly maintain construction equipment (e.g., mufflers to minimize noise).	FHWA PE
GM-4	A hazardous spill plan will be put in place, stating what actions will be taken in the event of a spill and preventive measures to be implemented, such as placement of refueling facilities, storage, and handling of hazardous materials.	FHWA PE
GM-5	All equipment will be maintained in a clean, well-functioning state to avoid or minimize contamination from mechanical fluids. Equipment will be checked daily.	FHWA PE
GM-6	Material stockpiling, machinery storage, and vehicle parking will be permitted only in designated areas.	FHWA PE
GM-7	No work will occur on holidays. Work hours will be scheduled between dawn and dusk to avoid the potential for accidents after dark.	NPS PM and FHWA PE
GM-8	Weekday lane closures using one-way traffic with pilot cars and flaggers and 30-minute maximum delays will allow the work to continue with minimal traffic safety concerns.	NPS PM and FHWA PE
GM-9	Cross-country (off-road) travel outside of the construction areas will not be authorized, except under life-threatening/emergency situations.	NPS PM and FHWA PE
GM-10	No pets or firearms will be permitted inside the construction areas.	NPS PM and FHWA PE

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Number	Mitigation	Responsible Party
GM-11	Ranchers will be notified and information pertaining to the construction timing will be provided so that grazing operations and allotments are not impacted.	NPS PM
Air Quality		
AQ-1	Construction activities will be coupled with water sprinkling to reduce fugitive dust emissions. Water sprinkling will occur as needed on active work areas where soil or fine particles are exposed.	NPS PM and FHWA PE
AQ-2	Water will be obtained from Preserve sources, and trucked to project sites.	NPS PM and FHWA PE
AQ-3	Idling of construction vehicles will be limited to reduce construction equipment emissions. Unnecessary idling of all construction vehicles will be avoided throughout the construction period.	NPS PM and FHWA PE
Geological Resources/Soils		
Soils-1	<p>Erosion and sediment control will be required. Best management practices for drainage and sediment control, as identified and used by the FHWA and the NPS, will be implemented to prevent or reduce non-point source pollution and minimize soil loss and sedimentation in drainage areas. Use of best management practices in the project area for drainage protection will include all or some of the following actions, depending on site-specific requirements:</p> <ul style="list-style-type: none"> • Keep disturbed areas as small as practical to minimize exposed soil and the potential for erosion. • Locate waste and excess excavated materials outside of drainages to avoid sedimentation. • Install silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures (including installing erosion-control measures around the perimeter of stockpiled fill material) prior to construction. • Conduct regular site inspections during the construction period to ensure that erosion-control measures were properly installed and are functioning effectively. • Only tightly woven fiber netting or nonbinding materials shall be used for erosion control or other purposes to ensure that small mammals and reptiles do not become trapped. No plastic-tied wattles shall be used. 	NPS PM and FHWA PE
Soils-2	Store, use, and dispose of chemicals, fuels, and other toxic materials appropriately.	NPS PM and FHWA PE
Soils-3	Revegetate disturbed areas as soon as possible after construction is completed.	NPS PM
Vegetation		
Veg-1	Vegetation disturbance will be minimized by replacement of topsoil in as near the original location as possible, scarification, mulching, and seeding / planting with species	NPS PM and FHWA PE

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	native to the immediate area.	
Veg-2	Reclaimed/revegetated areas will be monitored after construction to determine if efforts are successful or if additional remedial actions are necessary.	NPS PM and Vegetation Specialist
Veg-3	Remedial actions could include installation of erosion-control structures, reseeding and/or replanting the area, and controlling non-native plant species.	NPS PM and FHWA PE
Veg-4	In an effort to avoid introduction of non-native/noxious plant species, no imported topsoil or hay bales will be used during revegetation. Weed free materials (e.g., straw bales) may be used for erosion-control dams that may be necessary.	NPS PM and FHWA PE
Veg-5	Non-native and/or invasive plant species will be controlled in areas determined to be high-priority by Preserve staff and other undesirable species will be monitored and controlled, as necessary. To prevent the introduction and minimize the spread of non-native vegetation and noxious weeds, the following measures will be implemented during construction: <ul style="list-style-type: none"> • Pressure wash and/or steam clean all construction equipment to ensure that all equipment, machinery, rocks, gravel, or other material are cleaned and weed free before entering the Preserve. • Cover all haul trucks bringing asphalt or other materials from outside the Preserve to prevent seed transport. • Limit vehicle parking to existing roadways, parking lots, or access routes. • Limit disturbance to previously disturbed roadsides and culvert areas. No machinery or equipment should access areas outside the construction zone. Treatment of non-native vegetation will be completed in accordance with NPS-13, <i>Integrated Pest Management Guidelines</i>. 	NPS PM and FHWA PE
Veg-6	One or more vegetation surveys will be completed prior to any construction work to avoid or reduce impacts to any undetected listed or rare plant species.	NPS biologist
Veg-7	A project-specific plan will be developed and implemented to monitor the success of re-vegetation efforts. The plan will contain report and success measures and appropriate contingency measures.	NPS biologist
Federally Listed Species and Species of Special Consideration		
Listed-1	Qualified biologists will provide oversight of all survey efforts, monitoring, and other activities within the roadway corridor necessary to protect desert tortoise.	NPS PM and Wildlife Specialist
Listed-2	An individual will be designated the field contact representative to oversee project compliance and coordination. The field contact representative will be authorized to halt any activity that may harm desert tortoise.	NPS Wildlife Specialist
Listed-3	A worker education program will be presented to all	NPS PM, FHWA PE,

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	construction personnel prior to any construction activities. At a minimum, this program will cover: (1) desert tortoise distribution/occurrence, (2) general behavior, activity patterns, and ecology, (3) sensitivity of the species to human activities, (4) legal protection, (5) penalties for violation of state or federal laws, (6) reporting requirements, and (7) project protective mitigation measures; and (8) legal penalties for violation of federal or state laws.	and Wildlife Specialist
Listed-4	Handling or relocating desert tortoises is not permitted. If a tortoise enters the project area, all work will stop until the tortoise moves away on its own accord.	NPS Wildlife Specialist and FHWA PE
Listed-5	Speed limits within the project area, along right-of-way maintenance routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked and all workers shall be made aware of the limits.	
Listed-6	Vehicles parked in desert tortoise habitat shall be inspected immediately prior to being moved. Construction vehicles parked overnight the side of the road or in pre-existing turnouts will be surveyed (from all four directions) for desert tortoise prior to moving the vehicle in the morning.	NPS PM, FHWA PE, and Wildlife Specialist
Listed-7	A litter control program will be implemented during construction to eliminate the accumulation of trash to avoid attracting ravens that may prey on juvenile desert tortoise. All trash and food items generated by the construction activities would be promptly contained and removed to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on site, if applicable.	NPS FHWA PE and Wildlife Specialist
Listed-8	All work and staging areas will be surveyed prior to the start of construction. Tortoise-proof fencing will be installed to prevent tortoises from entering the construction and staging areas. After initial presence/absence surveys are complete, the fence perimeter will be checked daily to ensure the integrity of the tortoise exclusion barrier is intact.	NPS PM, FHWA PE, and Wildlife Specialist
Listed-9	At sites where fencing is not feasible, presence/absence surveys will be completed each morning by a qualified biologist. The qualified biologist would accompany all heavy equipment operators in desert tortoise habitat and remain on site while construction employees are actively working. The qualified biologist has the responsibility and authority to halt all project activity that would endanger a desert tortoise.	NPS PM, FHWA PE, and Wildlife Specialist
Listed-10	A qualified biologist will monitor initial vegetation removal and disturbance to monitor for any undocumented tortoises.	NPS PM, FHWA PE, and Wildlife Specialist
Listed-11	The qualified biologist will maintain a complete record of desert tortoise encounters.	NPS PM, FHWA PE, and Wildlife Specialist
Listed-12	To avoid building up tall berms that may inhibit desert tortoise	NPS PM, FHWA PE,

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	movement, the operator should minimize lowering of the roadbed while grading. Berms higher than 12 inches or a slope greater than 30 degrees would be pulled back into the roadbed.	and Wildlife Specialist
Wildlife or Wildlife Habitat		
Wildlife-1	Vegetation will be cleared prior to March 1 or after May 20. If work needs to occur during this time, a nesting survey will be conducted to ensure no nesting birds are present in the construction area. If a nest or nests are found, work shall be postponed until after young have left the area. In addition, all work areas shall be fenced and disturbance shall not be permitted beyond the fenced area.	NPS PM, FHWA PE, and Wildlife Specialist
Wildlife-2	Train workers to avoid or limit contact with migrating birds or mammal species	NPS PM, FHWA PE, and Wildlife Specialist
Water Resources		
Water-1	During precipitation events that result in flow to stream channels affected by the project, no construction will take place.	NPS FHWA PE
Water-2	Staging areas will not occur in steam channels and will occur outside of flood prone areas to the greatest extent possible.	NPS PM and FHWA PE
Visitor Resources		
VR-1	Motorists will be advised in announcements, programs, publications and temporary signs that there may be temporary inconveniences from construction work on the road.	NPS PM and Interpretation Staff
VR-2	In all cases, traffic control and safety shall be maintained.	NPS PM and FHWA PE
VR-3	The construction contractor shall include proposed daytime work protocols in its Quality Control Plan and its Safety Plan to show how traffic monitoring and controls will be implemented.	NPS PM and FHWA PE
Archeological Resources and Cultural Landscapes		
HR-1	Prior to construction, the NPS will complete recordation and documentation of Kelbaker and Kelso-Cima intersection, and the section of Kelso-Cima Road that will be realigned, accordance with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation.	Park Archeologist and NPS PM
HR-2	After construction, the NPS will update the National Register of Historic Places Registration Form to update the National Register for the Kelso Depot, Restaurant, and Employees Hotel National Historic District and document the new alignment of the intersection, Kelbaker Road, and Kelso-Cima Road.	Park Archeologist
HR-3	The intact section of the archeological site at Project Site 2 will be fenced off and avoided during construction.	NPS PM, FHWA PE, and Park Archeologist
HR-4	Archeological specimens found within the construction area will be removed only by NPS archeologists who meet the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716), or their designated representatives.	Park Archeologist

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HR-5	<p>In the event that a previously unidentified archeological resource is discovered during ground disturbing activities, all construction work involving subsurface disturbance will be halted in the area of the resource and in the surrounding area where further subsurface remains can be reasonably expected to occur. An archeologist meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) will immediately inspect the work site and determine the area and nature of the affected archeological feature. Construction work may then continue in the project area outside the defined area of the resource. Within 48 hours of the discovery, the NPS shall notify the CA SHPO and such notification shall describe the NPS' assessment of the eligibility of the feature for listing on the National Register of Historic Places and proposed actions to resolve potential adverse effects. The CA SHPO shall respond within 48 hours of the notification and the NPS shall take into account the CA SHPO's recommendation regarding National Register eligibility and proposed actions, and then carry out appropriate actions. In compliance with the Native American Graves Protection and Repatriation Act of 1990, work will be halted and NPS will also notify and consult concerned American Indian tribal representatives for the proper treatment of human remains, funerary, and sacred objects should these be discovered during the project.</p>	<p>NPS PM, FHWA PE, and Park Archeologist</p>