

Appendix C Additional Mitigation to be Evaluated in Tier 2

The following is a summary of general best practices, permit requirements, and/or other mitigation strategies to be considered in Tier 2 studies.

1 Land Use and Section 6(f)

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Be an active partner in a broader effort with Metropolitan Planning Organizations, local jurisdictions, resource agencies, and private stakeholders to cooperatively plan development in the I-11 Project Area.
- Coordinate planning for wildlife connectivity, local land use planning, and context-sensitive design. The White Tank Conservancy may be a model for this type of effort, which also could include coordination with Pima County on the implementation of the *Sonoran Desert Conservation Plan* (Pima County 2016b).
- Define alignments that do not use park properties.
- Incorporate refinement details, such as retaining walls, to minimize the I-11 footprint.
- If necessary, pursue an amendment to applicable resource management plans to grant right-of-way or otherwise permit construction of an interstate highway through BLM lands. The project would not use property designated as a national monument (Ironwood Forest National Monument or the Sonoran Desert National Monument).

2 Recreation

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Design route to avoid or minimize impacts on the recreation properties and use of recreation properties.
- Maintain access to recreation areas and continue to provide connectivity between recreation areas/lands and trails.
- Schedule construction to avoid peak recreation seasons and special events, including hunting and birdwatching seasons, when possible.
- Include context-sensitive design in future stages of project development.

- Develop natural design features, such as earthen berms and vegetative plantings.
- Include design features, such as fencing and designated crossings, to protect the safety of those using the recreation area.
- Develop traffic plans that minimize access limitations during construction, minimize the duration of access disruption, and provide on-site and online information about alternative access options.
- Apply ADOT Noise Abatement Requirements (ADOT 2017m), including potential use of temporary and permanent noise barriers (if not already present) adjacent to parks.
- Locate construction staging and temporary construction easements away from recreation sites to the extent possible.

3 Community Resources, Title VI, and Environmental Justice

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Avoid community features or resources to the greatest extent practicable.
- Maintain function and access to existing community facilities.
- Provide offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by the project.
- Build structures such as pedestrian overpasses to maintain existing neighborhood connections.

4 Economic Impacts

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Coordinate with local municipalities to revise county comprehensive and municipal general plans, zoning ordinances, and capital improvement programs to support the corridor as needed.
- Coordinate with local and state entities to assist in adopting financing tools and strategies targeted to increase investment and job creation along the corridor.

- Coordinate with local and state entities to assist in implementing business attraction strategies and efforts to target desirable economic sector development along the corridor.
- Prepare for and fund infrastructure improvements to planned industrial and business parks along the corridor in coordination with local municipalities.
- Coordinate with local municipalities to adopt zoning strategies that support and encourage recreation compatibility and wildlife connectivity to support mitigation in the Tier 1 Record of Decision.

5 Archaeological, Historical, Architectural, and Cultural Resources

During the Tier 2 process, ADOT will evaluate mitigation measures, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies, tribes, or the public.

6 Noise

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Noise barriers
- Earthen berms
- Refinement of horizontal and vertical alignments
- Reduced speeds
- Truck traffic restrictions

7 Visual and Aesthetics

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Prepare landscape design plans for visually sensitive areas. These plans will:
 - Protect existing vegetation and add new vegetation to minimize the visual effects of I-11 features and to retain and enhance the area's natural features.
 - Minimize the spatial limits of earthwork and grading where possible.
 - Implement site restoration plans upon completion of construction.



- Protect and enhance existing rock outcrops.
- Include and treat newly exposed rock outcrops by considering scale, shape, slope, and fracturing and by using rock stain where desert rock varnish has been disturbed to reduce the color contrast with adjacent rocks.
- Salvage protected native plants to the extent possible.
- Protect existing views and do not block those views with new vegetation or other I-11 features such as signs.
- Include grading designs that create natural-looking slopes, surfaces, and transitions.
- Include landscape treatments in stormwater channels and basins to help blend them into their surroundings and create new visual resources in the landscape.
- Enhance sound walls, retaining walls, headwalls, concrete barriers, riprap, and similar I-11 features that are highly visible by selecting colors that complement their surroundings and/or by using artistic surface treatments, including textures and patterns that support an overall design theme compatible with their setting.
- Select lighting standards, guardrails, and other supporting features that minimize visual impacts.
- Use natural-tone metals with non-contrasting, non-glare finishes and color choices that match their settings.
- Minimize fugitive light from portable light sources used during construction near sensitive receptors to the maximum extent feasible, given safety considerations. Lights will be screened and directed downward toward work activities and will be screened and directed away from the night sky and nearby residents to the maximum extent possible.
- Design bridge and other vertical I-11 components to conform to the design standards applicable to the entire corridor or to the special design standards in key locations where these features can become visual resources.
- Restore disturbed terrain and install replacement plantings in areas where vegetation is removed. Replacement plantings will be native and indigenous to the area. Define the storage sites for equipment, materials and stockpiles, and borrow sites in the Tier 2 project plans. Site selection will consider and minimize visual impacts and will include screening to minimize visual impacts, where appropriate. To minimize the impact of staging areas on visual quality and character, return these areas to preconstruction conditions once the staging facilities are decommissioned and removed.

8 Air Quality

FHWA and ADOT will consider specific measures to avoid, minimize, and mitigate impacts to air quality from the Project during Tier 2 studies. No specific mitigation measures pertaining to air quality have been determined at this time. Examples of measures that ADOT may evaluate in Tier 2 include:

- Minimize idling time to save fuel and reduce emissions.
- Use cleaner fuels for construction equipment and vehicles to reduce exhaust emissions.
- Keep construction equipment well-maintained to ensure that exhaust systems are in good working order, and the exteriors are as clean of fugitive dust as possible.
- Control fugitive dust through a Fugitive Dust Control Plan, including watering disturbed areas.
- To minimize wind-blown dust from blasting, particularly near community areas, control blasting and avoid blasting on days with high winds.
- Develop a traffic plan to minimize traffic flow interference from construction equipment movement and activities.
- Space interchanges to reduce local impacts of idling on sensitive areas near the new corridor.
- Conduct analysis and implement other applicable local requirements, such as at the county-level.

9 Hazardous Materials

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of mitigation measures that ADOT may evaluate in Tier 2 include:

- Avoid contaminated sites wherever practical; where impractical, initiate further site investigation and coordination with affected property owners.
- Conduct surveys for asbestos, lead-based paint, and universal wastes prior to demolition of any building structures and bridges or elevated structures. If these regulated materials are encountered, abate them in accordance with applicable regulations and guidelines.
- Implement standard construction measures for fugitive dust control, as well as stormwater erosion and sediment controls, to minimize the spread of contaminated soil. During the construction phase, require the contractor to file and abide by a dust management plan to minimize the effects of dust on surrounding communities.

- Comply with local, state, and federal regulations regarding the storage and use of hazardous materials on the site.
- Consider alignments that place the new highway facility farther away from sensitive resources, such as CAVSARP and SAVSARP.
- Consider engineering solutions in areas where accidental spills could impact irrigation facilities, water wells, or other water resources, such as lined catchment basins.
- Incorporate best management practices designed to reduce erosion, minimize sedimentation, and eliminate non-stormwater pollutants as identified in ADOT's *Erosion and Pollution Control Manual for Highway Design and Construction* (ADOT 2012) and ADOT's *Standard Specifications for Road and Bridge Construction* (ADOT 2008). (The most recent versions of these design standards will apply during Tier 2 analysis.) Restrictions and requirements that would be considered are further discussed in **Section 3.13** (Water Resources).

10 Geology, Soils, and Prime and Unique Farmlands

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Avoid steep slopes and known bedrock outcrops.
- Evaluate and design for safe, stable excavated slopes in bedrock.
- Design to avoid or mitigate geotechnical-related construction constraints.
- Design and excavate slopes in accordance with accepted practices.
- Design and place fills in accordance with accepted safety practices.
- Protect excavation and fill slopes against erosion.
- Design subgrade and foundations in accordance with accepted practices.
- Monitor potential erosion or settlement areas during construction and through restoration.
- Develop and implement dust control and erosion control strategies.
- Stockpile topsoil for use in reclamation.
- Protect excavation and fill slopes against erosion.
- Design alignment within or near existing linear transportation features or planned urban areas to avoid agricultural areas.



- Work with local landowners to facilitate land swaps and purchases as applicable to avoid fragmented parcels with barriers to equipment access.
- Provide access for farm equipment between divided agricultural parcels, where feasible.

11 Water Resources

During the Tier 2 process, ADOT will evaluate mitigation measures to include design features, best management practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Such measures may be structural or non-structural in nature. Structural measures are intended to permanently slow stormwater runoff, retain pollutants, and reduce disturbance within drainages. Non-structural measures include temporary or ongoing procedures and policies to reduce impacts on water resources implemented during facility construction and post-construction maintenance.

Examples of permanent measures that ADOT may evaluate in Tier 2 include:

- Incorporate check dams into the project design to slow water before it enters waterways or wetlands.
- Design bridges to span drainages or reduce the number of piers within waters.
- Use self-cleaning culverts.
- Use retention ponds to hold water long enough to allow sediments and other pollutants to settle out.
- Locate rest stops away from drainages.

Examples of temporary or ongoing measures that ADOT may evaluate in Tier 2 include:

- Use wattles around the work area to capture sediment during the construction phase.
- Use tracking pads so that equipment does not carry sediment onto roadway surfaces during the construction phase.
- Sweep adjacent roadways daily to pick up sediment that the tracking pads do not catch.
- Limit the work area to avoid sensitive areas such as wetlands. Place protective material over wetlands before any temporary fill or equipment crossings occur and remove all materials after work is completed.
- Stabilize disturbed areas as soon as possible after work is completed.
- Limit the use of fertilizers along highways or at rest stops.
- Provide bags and regulations for picking up dog waste at rest stops.
- Design features to capture stormwater runoff for supplemental irrigation of landscaping.

12 Biological Resources

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public. Examples of measures that ADOT may evaluate in Tier 2 include:

- Wash construction equipment free of attached plant/vegetation and soil/mud debris prior to entering/leaving construction sites to avoid the introduction of invasive and noxious species seeds and to avoid invasive and noxious species seeds from entering or leaving sites.
- Seed disturbed soils that are not paved and that will not be landscaped or otherwise permanently stabilized by construction with species native to the project vicinity.
- Determine potential mitigation measures to avoid or minimize impacts to ESA-listed species through consultation with USFWS during the Tier 2 process. These could include breeding season restrictions, translocation of individuals, minimization of vegetation removal, minimization of the project footprint, etc.

13 Temporary Construction-related Impacts

During the Tier 2 process, ADOT will evaluate mitigation measures to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public.

14 Irreversible and Irrecoverable Commitment of Resources

During the Tier 2 process, ADOT will evaluate mitigation measures to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public.

15 Indirect and Cumulative Effects

During the Tier 2 process, ADOT will evaluate mitigation measures in addition to those listed above, to include best practices, permit requirements, and/or other mitigation strategies suggested by agencies or the public.