



# **Draft Tier 1 Environmental Impact Statement and Preliminary Section 4(f) Evaluation**

**Section 3.2, Summary of Key Environmental Impacts**

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1   **3.2    Summary of Key Environmental Impacts**

2   Each Build Corridor Alternative includes sensitive resource areas that were considered  
3   throughout **Chapter 3. Table 3.2-1** (Summary of Key Environmental Effects: Purple Alternative),  
4   **Table 3.2-2** (Summary of Key Environmental Effects: Green Alternative), and **Table 3.2-3**  
5   (Summary of Key Environmental Effects: Orange Alternative) provide a high-level summary of  
6   key considerations by Corridor Option to highlight more localized considerations that might be  
7   overlooked in an aggregate summary. These are the differentiating factors in comparing the  
8   three Build Corridor Alternatives against each other, by identifying locations where a particular  
9   option might provide better opportunities to avoid, minimize, or mitigate potential adverse  
10  impacts.

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative**

Corridor Option	No Build Alternative	Purple Alternative
A	<ul style="list-style-type: none"> <li>No major capacity improvements anticipated.</li> <li>I-19 is a pre-existing barrier to wildlife connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Tumacacori National Historical Park; impacts avoidable if improvements are within existing Arizona Department of Transportation (ADOT) right-of-way or in close proximity of I-19. ADOT commits to avoiding this 4(f) property (see <b>Chapter 4</b>).</li> <li>Communities of Nogales/Rio Rico area, Amado, and Arivaca have a high percentage of minority and low-income individuals; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during the Tier 2 environmental process for future improvements.</li> <li>The Santa Cruz River, which is a potential water of the United States (US) and wetland, is parallel to I-19. Riparian area along the river also is an Important Bird Area and potential habitat for several threatened and endangered species; future activities may require site-specific mitigation.</li> <li>Crosses through two wildlife linkages (Tumacacori-Santa Rita Linkage and Santa Rita-Sierrita Linkage) potentially affecting species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>High potential to impact endangered Pima pineapple cactus which could result in high level of compensatory mitigation; mitigation strategies identified in Section 3.14.5.</li> <li>Project Area crosses approximately 28 miles of impaired waters including the Santa Cruz River, Potrero Creek, and Nogales Wash; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
C	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Strong traffic modeling performance for long distance trips.</li> <li>Crosses wildlife linkage area associated in Avra Valley; use of Central Arizona Project (CAP) Design Option would consolidate linear facilities on the Tucson Mitigation Corridor (TMC). Mitigation strategies proposed in Section 3.14.5 and <b>Chapter 4</b> proposed to address these impacts.</li> </ul>

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative (Continued)**

Corridor Option	No Build Alternative	Purple Alternative
C (Con't)	<ul style="list-style-type: none"> <li>No transportation related modification to the TMC, CAVSARP, or SAVSARP.</li> </ul>	<ul style="list-style-type: none"> <li>TMC crossing represents a permanent use of 4(f) property; ongoing coordination with owner with jurisdiction.</li> <li>High potential to impact endangered Pima pineapple cactus which could result in high level of compensatory mitigation; mitigation strategies identified in Section 3.14.5.</li> <li>Potential for mostly low to moderate impact to archaeological sites and historic structures but high likelihood of impacts near crossing of Santa Cruz River and TMC; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Communities adjacent to the Project Area in the Schuk Toak District of the Tohono O’odham Nation would be potentially affected; targeted outreach would occur to work these communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Project Area bisects Three Points and Picture Rocks communities; targeted outreach would occur to work with these communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential for high overall visual impact from Saguaro National Park West-Tucson Mountain District because of high viewer sensitivity and superior, unobstructed views; site-specific mitigation measures would be identified during Tier 2 as described in Section 3.9.5. High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2 analysis.</li> <li>Potential to impact visual resources, noise levels, and visitor experience for the Wilderness Area within Saguaro National Park West.</li> <li>Cuts through Large Intact Block (LIB) Cluster 2, increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>CAP Design Option would locate I-11 facility farther from groundwater recharge areas associated with SAVSARP and CAVSARP.</li> <li>New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative (Continued)**

Corridor Option	No Build Alternative	Purple Alternative
CAP Design	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area through the TMC.</li> </ul>	<ul style="list-style-type: none"> <li>Includes placement of concurrent wildlife crossings that match up with existing siphon crossings on the CAP canal.</li> <li>Relocation and reclaiming of the current Sandario Road alignment to natural habitat would eliminate this barrier to wildlife movement on the TMC; alignment of wildlife structures with I-11 would avoid greater fragmentation of wildlife crossing areas. See <b>Chapter 4</b> for a more detailed analysis.</li> <li>Farther from CAVSARP and SAVSARP properties.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential to impact visual resources, noise levels, and visitor experience for the Wilderness Area within Saguaro National Park West.</li> <li>Likely to avoid potential high impact on archaeological sites located on western portions of the TMC.</li> <li>Continuing coordination with owner with jurisdiction regarding the application of a Net Benefit Programmatic Evaluation to the TMC, including studies to understand east-west wildlife movement needs within Avra Valley to inform the Tier 2 process.</li> </ul>
G	<ul style="list-style-type: none"> <li>I-10: SR 87 to Picacho Road widening and realignment.</li> <li>I-10 is a pre-existing barrier through Ironwood-Picacho Wildlife Linkage, potentially affecting species isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Better avoids impacts on Santa Cruz River in Pinal County.</li> <li>Project Area includes a portion of Picacho Peak State Park and historic Picacho Pass Civil War Skirmish Site. Although not anticipated to be a 4(f) use, could result in indirect impacts.</li> <li>Affected communities of Red Rock, Eloy, and Casa Grande have a high percentage of minority and low-income individuals; targeted outreach would occur to work with potentially affected communities to ensure Title VI compliance and full and fair participation during the Tier 2 environmental process for future improvements.</li> <li>Would increase noise levels along the existing I-10 facility; potential noise impacts would occur as far out as 500 feet from the edge of the corridor ROW.</li> <li>Project Area crosses floodplain, potential Waters of the US, and wetlands; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> <li>Parallel to riparian habitat and wildlife linkage along the Santa Cruz River, which also is potential water of the US and wetlands; mitigation strategies present the opportunity to provide connectivity across the barrier presented by the existing I-10 facility.</li> <li>Approximately 94 percent of the soils within Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with Natural Resources Conservation Service (NRCS) would occur during Tier 2.</li> </ul>

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative (Continued)**

Corridor Option	No Build Alternative	Purple Alternative
G (Con't)		<ul style="list-style-type: none"> <li>Minimizes the creation of new barriers to wildlife movement if co-located with I-10.</li> </ul>
I1	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area bisects the communities of Casa Grande; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Consistent with local land use planning for the West Pinal Freeway.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Approximately 99 percent of the soils in Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> </ul>
I2	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area bisects community west of Casa Grande; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Consistent with local land use planning for the West Pinal Freeway.</li> <li>Moderate to low potential for impact to archaeological sites and historic structures; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Approximately 95 percent of the soils in Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> </ul>
L	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Juan Bautista de Anza National Historic Trail Management Area; Tier 2 analysis would need to further analyze strategies to avoid, minimize, or mitigate impacts.</li> <li>Low potential for impact to archaeological sites and historic structures except near Union Pacific Railroad and historic Butterfield Overland Mail Stage Route; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> </ul>

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative (Continued)**

Corridor Option	No Build Alternative	Purple Alternative
L (Con't)		<ul style="list-style-type: none"> <li>• Potential for visual impacts on users within Sonoran Desert National Monument and North Maricopa Mountains Wilderness due to the introduction of new dominant features; site-specific mitigation measures would be identified during Tier 2 as described in Section 3.9.5.</li> <li>• High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>• Cuts through Gila Bend-Sierra Estrella Wildlife Linkage and between LIB Clusters 6 and 7 would potentially increase species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>• New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
N	<ul style="list-style-type: none"> <li>• No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>• Project Area bisects community of Buckeye where there is a high percentage of minority individuals; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>• Consistent with planning for future SR 30 and SR 303L corridors.</li> <li>• Moderate potential for impact to archaeological sites and historic structures along Gila River; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>• Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>• Approximately 83 percent of the soils in Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> <li>• A new crossing of the Gila River would be required in sensitive riparian habitat, potentially affecting threatened and endangered species; mitigation strategies identified in Section 3.14.5.</li> <li>• New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts. Potential to impact waters of the US and wetlands Gila River; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
R	<ul style="list-style-type: none"> <li>• No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>• Project Area bisects community of Buckeye where there is a high percentage of minority individuals; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>• Moderate potential for impact to archaeological sites and historic structures near confluence of Gila River and Hassayampa River; mitigation would occur in accordance with drafted Programmatic Agreement.</li> </ul>

**Table 3.2-1 Summary of Key Environmental Effects: Purple Alternative (Continued)**

Corridor Option	No Build Alternative	Purple Alternative
R (Con't)		<ul style="list-style-type: none"> <li>• Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>• High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>• Project Area crosses approximately 0.8 mile of impaired waters and has potential to impact waters of the US and wetlands including Hassayampa River; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
X	<ul style="list-style-type: none"> <li>• No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>• Project Area crosses the Vulture Mountains Recreation Area (VMRA) within the Bureau of Land Management (BLM)-designated multi-use corridor.</li> <li>• Project Area bisects off-highway vehicle (OHV) race course within VMRA</li> <li>• Consistent with regional transportation planning and local land use planning in Buckeye.</li> <li>• Aligned with power lines through the BLM-designated multi-use corridor in the VMRA.</li> <li>• Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>• New transportation facility may be visible from VMRA, but corridor views would be obstructed due to distance, intervening terrain, and vegetation screening.</li> <li>• High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>• Cuts through LIB Clusters 8 and 9 and 2 wildlife linkages (Wickenburg-Hassayampa Wildlife Linkage and White Tanks-Belmonts-Vultures Hieroglyphics Linkage) would potentially increase species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>• New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential.</li> </ul>
Corridor Wide	<ul style="list-style-type: none"> <li>• Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> <li>• Potential for air quality improvements as compared to the No Build.</li> </ul>

ADOT = Arizona Department of Transportation, CAP = Central Arizona Project, CAVSARP = Central Avra Valley Storage and Recovery Project, dBA = A-weighted scale, I-10 = Interstate 10, I-19 = Interstate 19, LIB = Large Intact Block, NRCS = Natural Resources Conservation Service, ROW = right-of-way, SAVSARP = Southern Avra Valley Storage and Recovery Project, SR = State Route, TMC = Tucson Mitigation Corridor, US = United States, VMRA = Vulture Mountains Recreation Area.

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative**

Corridor Option	No Build Alternative	Green Alternative
A	<ul style="list-style-type: none"> <li>No major capacity improvements anticipated.</li> <li>I-19 is a pre-existing barrier to wildlife connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Tumacacori National Historical Park; impacts avoidable if improvements are within existing ADOT ROW or in close proximity of I-19. ADOT commits to avoiding this 4(f) property (see <b>Chapter 4</b>).</li> <li>Communities of Nogales, Rio Rico, Amado, and Arivaca have high percentage of minority, low-income, and limited English proficient individuals; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Santa Cruz River, which is potential waters of the US and wetlands, is parallel to I-19. Riparian area along the River also is an Important Bird Area and potential habitat for several threatened and endangered species; future activities may require site-specific mitigation.</li> <li>Crosses through two wildlife linkages (Tumacacori-Santa Rita Linkage and Santa Rita-Sierrita Linkage), potentially affecting species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>High potential to impact endangered Pima pineapple cactus which could result in high level of compensatory mitigation; mitigation strategies identified in Section 3.14.5.</li> <li>Project Area crosses approximately 28 miles of impaired waters including Santa Cruz River, Potrero Creek, and Nogales Wash; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative (Continued)**

Corridor Option	No Build Alternative	Green Alternative
D	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> <li>No transportation related modification to the TMC, CAVSARP, or SAVSARP.</li> </ul>	<ul style="list-style-type: none"> <li>Would directly connect to key economic activity centers south of the Tucson Airport, as well as the planned Sonoran Corridor.</li> <li>Crosses wildlife linkage area associated in Avra Valley; use of CAP Design Option would consolidate linear facilities on the TMC. Mitigation strategies proposed in Section 3.14.5 and <b>Chapter 4</b> proposed to address these impacts.</li> <li>TMC crossing represents permanent use of 4(f) property; ongoing coordination with owner with jurisdiction.</li> <li>High potential to impact endangered Pima pineapple cactus which could result in high level of compensatory mitigation; mitigation strategies identified in Section 3.14.5.</li> <li>Potential for mostly low to moderate impacts to archaeological sites and historic structures but high likelihood of impacts near crossing of Santa Cruz River and TMC; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Communities adjacent to the Project Area in the Schuk Toak District of the Tohono O’odham Nation would be affected; targeted outreach would occur to work these communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Project Area bisects Three Points and Picture Rocks communities; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during the Tier 2.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential for high overall visual impact from Saguaro National Park West-Tucson Mountain District because of high viewer sensitivity and superior, unobstructed views; site-specific mitigation measures would be identified during Tier 2 as described in Section 3.9.5.</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2 analysis. Cuts through LIB Cluster 2, increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>Potential to impact visual resources, noise levels, and visitor experience for the Wilderness Area within Saguaro National Park West.</li> <li>CAP Design Option would locate I-11 facility farther from groundwater recharge areas associated with SAVSARP and CAVSARP. Would not bisect ongoing mining operations.</li> <li>New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative (Continued)**

Corridor Option	No Build Alternative	Green Alternative
CAP Design	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area through the TMC.</li> </ul>	<ul style="list-style-type: none"> <li>Includes placement of concurrent wildlife crossings that match up with existing siphon crossings on the CAP canal.</li> <li>Relocation and reclaiming of the current Sandario Road alignment to natural habitat would eliminate this barrier to wildlife movement on the TMC; alignment of wildlife structures with I-11 would avoid greater fragmentation of wildlife crossing areas. See <b>Chapter 4</b> for a more detailed analysis.</li> <li>Farther from CAVSARP and SAVSARP properties.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential to impact visual resources, noise levels, and visitor experience for the Wilderness Area within Saguaro National Park West.</li> <li>Likely to avoid potential high impact on archaeological sites located on western portions of the TMC.</li> <li>Continuing coordination with owner with jurisdiction regarding the application of a Net Benefit Programmatic Evaluation to the TMC, including studies to understand east-west wildlife movement needs within Avra Valley to inform the Tier 2 process.</li> </ul>
F	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Communities of Red Rock, Eloy, and Casa Grande have a high percentage of minority and/or low-income individuals; targeted outreach would occur to work with potentially communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Consistent with local transportation planning.</li> <li>Potential for mostly low to moderate impacts to archaeological sites and historic structures but high likelihood of impacts in the vicinity of Santa Cruz River and on the Santa Cruz Flats; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2 analysis.</li> <li>Approximately 99 percent of the soils in Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> <li>New barrier to wildlife connectivity through Ironwood-Picacho Wildlife Linkage; mitigation strategies identified.</li> </ul>

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative (Continued)**

Corridor Option	No Build Alternative	Green Alternative
F (Con't)		<ul style="list-style-type: none"> <li>Parallel to riparian habitat and wildlife linkage along the Santa Cruz River, which also is potential water of the US and wetlands; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> <li>Cuts through LIB Cluster 3 increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
I2	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area bisects a community west of Casa Grande that has a high percentage of minority individuals; targeted outreach would occur to work with potentially community to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Consistent with local land use planning for the West Pinal Freeway.</li> <li>Moderate to low potential for impact to archaeological sites and historic structures; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Approximately 95 percent of the soils in Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> </ul>
L	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Juan Bautista de Anza National Historic Trail Management Area; Tier 2 analysis would need to further analyze strategies to avoid, minimize, or mitigate impacts.</li> <li>Low potential for impact to archaeological sites and historic structures except near Union Pacific Railroad and historic Butterfield Overland Mail Stage Route; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential for visual impacts on users within Sonoran Desert National Monument and North Maricopa Mountains Wilderness due to the introduction of new dominant features; site-specific mitigation measures would be identified during Tier 2 as described in Section 3.9.5.</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> </ul>

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative (Continued)**

Corridor Option	No Build Alternative	Green Alternative
L (Con't)		<ul style="list-style-type: none"> <li>Cuts through Gila Bend-Sierra Estrella Wildlife Linkage and between LIB Clusters 6 and 7, potentially increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
M	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Potential use of Robbins Butte Wildlife Area; possible determination of <i>de minimus</i> use would need to be confirmed during Tier 2.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>Potential for visual impacts on users within Sonoran Desert National Monument and North Maricopa Mountains Wilderness due to the introduction of new dominant features; site-specific mitigation measures would be identified during Tier 2 as described in Section 3.9.5.</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Cuts through Buckeye Hills East-Sonoran Desert National Monument Wildlife Linkage and extends along perimeter of LIB Cluster 6, potentially increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>New construction could have impacts on sensitive water resources and ground water resources; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
Q2	<ul style="list-style-type: none"> <li>No major capacity improvements.</li> <li>SR 85 cuts through LIB Cluster 6.</li> </ul>	<ul style="list-style-type: none"> <li>Potential use of Robbins Butte Wildlife Area; possible determination of <i>de minimus</i> use would need to be confirmed during Tier 2.</li> <li>Community of Buckeye has a high percentage of minority individuals; targeted outreach would occur to work with potentially affected community to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Gila River crossing on SR 85 would be modified to accommodate I-11 co-location. Modified Gila River crossing is sensitive riparian habitat, potentially affects threatened and endangered species. This also is an Important Bird Area. Mitigation strategies identified in Section 3.14.5, and future activities may require additional site-specific mitigation during Tier 2.</li> <li>Project Area crosses approximately 1.7 miles of impaired waters including Gila River; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-2 Summary of Key Environmental Effects: Green Alternative (Continued)**

Corridor Option	No Build Alternative	Green Alternative
R	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area bisects the community of Buckeye, which has a high percentage of minority individuals. Targeted outreach would occur to work with potentially affected community to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Moderate potential for impact to archaeological sites and historic structures near confluence of Gila River and Hassayampa River; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Project Area crosses approximately 0.8 mile of impaired waters and has potential to impact waters of the US and wetlands including Hassayampa River; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
U	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area crosses the VMRA within the BLM-designated multi-use corridor.</li> <li>Project Area bisects OHV race course within VMRA.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>New transportation facility may be visible from VMRA, but corridor views would be obstructed due to distance, intervening terrain, and vegetation screening.</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2.</li> <li>Cuts through LIB Clusters 8 and 9 and 2 wildlife linkages (Wickenburg-Hassayampa Wildlife Linkage and White Tanks-Belmonts-Vultures Hieroglyphics Linkage), potentially increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>Highest potential to impact waters of the US and wetlands: Powerline Wash, Jackrabbit Wash, and Phillips Wash; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>
Corridor Wide	<ul style="list-style-type: none"> <li>Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> </ul>	<ul style="list-style-type: none"> <li>Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> <li>Potential for air quality improvements as compared to the No Build.</li> </ul>

ADOT = Arizona Department of Transportation, CAP = Central Arizona Project, CAVSARP = Central Avra Valley Storage and Recovery Project, dBA = A-weighted scale, I-10 = Interstate 10, I-19 = Interstate 19, LIB = Large Intact Block, NRCS = Natural Resources Conservation Service, ROW = right-of-way, SAVSARP = Southern Avra Valley Storage and Recovery Project, SR = State Route, TMC = Tucson Mitigation Corridor, US = United States, VMRA = Vulture Mountains Recreation Area.

**Table 3.2-3 Summary of Key Environmental Effects: Orange Alternative**

Corridor Option	No Build Alternative	Orange Alternative
A	<ul style="list-style-type: none"> <li>No major capacity improvements anticipated.</li> <li>I-19 is a pre-existing barrier to wildlife connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Tumacacori National Historical Park; impacts avoidable if improvements are within existing ADOT ROW or in close proximity of I-19. ADOT commits to avoiding this 4(f) property (see <b>Chapter 4</b>).</li> <li>Communities of Nogales, Rio Rico, Amado, and Arivaca have high percentage of minority, low-income, and limited English proficient individuals; targeted outreach would occur to work with potentially affected communities and ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Santa Cruz River, which is potential waters of the US and wetlands, is parallel to I-19. Riparian area along the river also is an Important Bird Area and potential habitat for several threatened and endangered species; future activities may require site-specific mitigation.</li> <li>Crosses through two wildlife linkages (Tumacacori-Santa Rita Linkage and Santa Rita-Sierrita Linkage); mitigation strategies identified in Section 3.14.5 provide an opportunity to improve connectivity across the barrier presented by the existing I-10 facility.</li> <li>High potential to impact endangered Pima pineapple cactus which could result in high level of compensatory mitigation; mitigation strategies identified in Section 3.14.5.</li> <li>Project Area crosses approximately 28 miles of impaired waters including Santa Cruz River, Potrero Creek, and Nogales Wash; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-3 Summary of Key Environmental Effects: Orange Alternative (Continued)**

Corridor Option	No Build Alternative	Orange Alternative
B	<ul style="list-style-type: none"> <li>I-10: Ina to Ruthrauff Road widening would occur.</li> <li>Congestion would increase by 2040; Level of Service F is forecasted through downtown Tucson.</li> <li>I-10 is a pre-existing barrier to wildlife connectivity, potentially affecting species isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Would connect key economic activity centers south of the Tucson Airport (the planned Sonoran Corridor economic growth area) to Tucson and areas north via existing I-10.</li> <li>High potential for impacts on archaeological sites and direct and indirect impacts on historic properties and districts adjacent to the I-10 corridor; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>May require permanent use of properties protected under Section 4(f); Tier 2 analysis should further evaluate a potential use as design is refined and ADOT would coordinate with officials with jurisdiction.</li> <li>Affected communities, including historic districts, in the Tucson urban corridor and San Xavier District of the Tohono O’odham Nation have a high percentage of minority, low-income, and limited English proficient individuals; targeted outreach would occur to work with these communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Santa Cruz River is parallel to and crosses I-19. Riparian area along the river is potential habitat for several threatened and endangered species; future activities may require site-specific mitigation.</li> <li>Cuts through Tucson-Tortolita Santa Catalina Wildlife Linkage, potentially adding to the effect the I-10 corridor has on species isolation; mitigation strategies identified in Section 3.14.5.</li> <li>Project Area crosses approximately 8 miles of impaired waters and has potential to impact waters of the US and wetlands; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> <li>Project Area contains 133 groundwater wells.</li> </ul>

**Table 3.2-3 Summary of Key Environmental Effects: Orange Alternative (Continued)**

Corridor Option	No Build Alternative	Orange Alternative
G	<ul style="list-style-type: none"> <li>I-10: SR 87 to Picacho Road widening and realignment.</li> <li>I-10 is a pre-existing barrier through Ironwood-Picacho Wildlife Linkage, potentially affecting species isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Better avoids impacts on Santa Cruz River in Pinal County.</li> <li>Project Area includes a portion of Picacho Peak State Park and historic Picacho Pass Civil War Skirmish Site. Although not anticipated to be a 4(f) use, could result in indirect impacts.</li> <li>Affected communities of Red Rock, Eloy, and Casa Grande have a high percentage of minority and/or low-income individuals; targeted outreach would occur to work with potentially affected communities to ensure Title VI compliance and full and fair participation during the Tier 2 environmental process for future improvements.</li> <li>Would increase noise levels along the existing I-10 facility; potential noise impacts would occur as far out as 500 feet from the edge of the corridor ROW.</li> <li>Project Area crosses floodplain, potential Waters of the US, and wetlands; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> <li>Parallel to riparian habitat and wildlife linkage along the Santa Cruz River, which also is potential water of the US and wetlands; mitigation strategies present the opportunity to provide connectivity across the barrier presented by the existing I-10 facility.</li> <li>Approximately 94 percent of the soils within Project Area mapped as prime and unique farmland; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts and coordination with NRCS would occur during Tier 2.</li> <li>Minimizes the creation of new barriers to wildlife movement if co-located with I-10.</li> </ul>
H	<ul style="list-style-type: none"> <li>No major capacity improvements.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Sonoran Desert National Monument; opportunities to avoid or minimize impacts if improvements are within existing ADOT ROW or in close proximity to I-8.</li> <li>Affected communities west of Casa Grande have a high percentage of minority individuals; targeted outreach would occur to work with potentially affected communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> </ul>

**Table 3.2-3 Summary of Key Environmental Effects: Orange Alternative (Continued)**

Corridor Option	No Build Alternative	Orange Alternative
K	<ul style="list-style-type: none"> <li>No major capacity improvement.</li> <li>I-8 continues to exist as barrier through LIB Cluster 5 and the Sonoran Desert National Monument, potentially affecting species isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area includes a portion of Sonoran Desert National Monument; opportunities to avoid or minimize impacts if improvements are within existing ADOT ROW or in close proximity to I-8.</li> <li>Affected community in Gila Bend has a high percentage of minority and/or low-income individuals; targeted outreach would occur to work with the community to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Potential for mostly low to moderate impacts to archaeological sites and historic structures but high likelihood of impacts near Gila Bend; mitigation would occur in accordance with drafted Programmatic Agreement.</li> <li>Cuts through LIB Cluster 5 increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> </ul>
Q1	<ul style="list-style-type: none"> <li>No major capacity improvement</li> <li>SR 85 cuts through 2 wildlife linkages and LIB Cluster 6.</li> </ul>	<ul style="list-style-type: none"> <li>Potential use of Robbins Butte Wildlife Area; possible determination of <i>de minimus</i> use would need to be confirmed during Tier 2.</li> <li>Affected communities in Gila Bend and Buckeye have a high percentage of minority and/or low-income individuals; targeted outreach would occur to work with the communities to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Cuts through two wildlife linkages (Gila Bend-Sierra Estrella Linkage and Buckeye Hills East Sonoran Desert National Monument Wildlife Linkage) and LIB Cluster 6; mitigation strategies identified in Section 3.14.5.</li> </ul>
Q2	<ul style="list-style-type: none"> <li>No major capacity improvements.</li> <li>SR 85 cuts through LIB Cluster 6.</li> </ul>	<ul style="list-style-type: none"> <li>Potential use of Robbins Butte Wildlife Area; possible determination of <i>de minimus</i> use would need to be confirmed during Tier 2.</li> <li>Community of Buckeye has a high percentage of minority individuals; targeted outreach would occur to work with potentially affected community to ensure Title VI compliance and full and fair participation during Tier 2.</li> <li>Gila River crossing on SR 85 would be modified to accommodate I-11 co-location. Modified Gila River crossing is sensitive riparian habitat, potential affects to threatened and endangered species. This also is an Important Bird Area. Mitigation strategies identified in Section 3.14.5, and future activities may require additional site-specific mitigation during Tier 2.</li> <li>Project Area crosses approximately 1.7 miles of impaired waters including Gila River; mitigation strategies would be applied to avoid, minimize, or mitigate potential impacts.</li> </ul>

**Table 3.2-3 Summary of Key Environmental Effects: Orange Alternative (Continued)**

Corridor Option	No Build Alternative	Orange Alternative
Q3	<ul style="list-style-type: none"> <li>I-10: SR 85 Verrado Way widening.</li> <li>Congestion to increase by 2040; Level of Service F is forecasted.</li> <li>SR 85 cuts through LIB Cluster 6.</li> </ul>	<ul style="list-style-type: none"> <li>Affected community in Buckeye has a high percentage of minority individuals; targeted outreach would occur to work with the community to ensure Title VI compliance and full and fair participation during Tier 2.</li> </ul>
S	<ul style="list-style-type: none"> <li>No major transportation facility in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Project Area is outside of Vulture Mountains Recreation Area.</li> <li>Potential for substantial noise impacts (15-dBA increase from existing).</li> <li>New transportation facility may be visible from Vulture Mountains Recreation Area, but corridor views would be obstructed due to distance, intervening terrain, and vegetation screening.</li> <li>High degree of change for light pollution due to introduction of new light sources along new corridors in undeveloped areas; roadway lighting designs would be assessed as part of Tier 2 Crosses Bureau of Land Management Class II visual resource management area.</li> <li>Cuts through LIB Clusters 8 and 9 and the Wickenburg-Hassayampa Wildlife Linkage, potentially increasing species isolation; mitigation strategies identified in Section 3.14.5.</li> </ul>
Corridor Wide	<ul style="list-style-type: none"> <li>Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> </ul>	<ul style="list-style-type: none"> <li>Most sensitive land uses on the corridor are predicted to be impacted by traffic noise.</li> <li>Potential for air quality improvements as compared to the No Build.</li> </ul>

ADOT = Arizona Department of Transportation, dBA = A-weighted scale, I-8 = Interstate 8, I-10 = Interstate 10, I-19 = Interstate 19, LIB = Large Intact Block, NRCS = Natural Resources Conservation Service, ROW = right-of-way, SR = State Route, US = United States.