



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

Section 3.15, Temporary Construction-related Impacts

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1 **3.15 Temporary Construction-related Impacts**

2 Construction impacts are impacts associated with the construction process and can be either
3 temporary or permanent. Permanent impacts are reviewed in the individual resource sections of
4 this chapter. This section will discuss the temporary construction impacts expected for all Build
5 Corridor Alternatives and potential mitigation measures. The No Build Alternative would not lead
6 to construction activities and therefore will not be discussed.

7 **3.15.1 Transportation**

8 Construction activities would increase traffic congestion and travel times through construction
9 areas, which may change traffic patterns on local roads. Temporary impacts to transportation
10 would be the greatest for the Orange Alternative, which is primarily co-located with other
11 highway facilities (Interstate 19 [I-19], I-10, I-8, and State Route [SR] 85). In general, fewer
12 impacts would occur when a Build Alternative is constructed where no existing facilities exist,
13 due to a lower likelihood of affecting major existing traffic patterns on high-capacity roadways.
14 During Tier 2 analysis, plans to mitigate impacts on vehicular traffic during construction would
15 be prepared to avoid, minimize, or mitigate these types of impacts.

16 **3.15.2 Land Use**

17 The most likely temporary short-term impact on land use would be the need for temporary
18 construction easements (TCEs). TCEs typically would be needed for alternatives with co-
19 located facilities and activities such as the reconstruction of adjacent local roads, driveways,
20 construction of noise walls or retaining walls, and relocation of utilities. TCEs would generally
21 consist of narrow strips adjacent to the permanent right-of-way (ROW). Staging and stockpiling
22 would likely occur within the existing ROW; however, TCEs may be required if sufficient area is
23 not available within the ROW. The exact locations for TCEs would be determined during the
24 final design of the Tier 2 project.

25 **3.15.3 Recreation**

26 The majority of temporary construction impacts to recreation would occur within the South and
27 Central Sections where there are more established recreation areas and larger populations.
28 Within the North Section, the Purple Alternative (Purple Alternative) and Green Build Corridor
29 Alternative (Green Alternative) cross the Vulture Mountains Recreation Area within a Bureau of
30 Land Management-designated multi-use corridor.

31 Impacts on recreation would typically include temporary restrictions on access to trails or other
32 recreational facilities. Access issues and restrictions would be addressed as part of Tier 2
33 Analysis and the development of mitigation measures in collaboration with the owners of the
34 recreation facilities and local communities.

35 For all Build Corridor Alternatives, there could be a need for TCEs within designated
36 recreational areas. Construction activities also could impact the user's experience within these
37 recreational areas due to noise and/or visual impacts, as well as poorer air quality attributed to
38 dust from the construction activities. Hunting access to game management areas would likely
39 be maintained, though traffic detours might impact property access.



1 **3.15.4 Social Resources and Environmental Justice**

2 Construction impacts to social resources and environmental justice would be greatest in the
3 areas with dense development and environmental justice populations. Construction along
4 existing routes would result in temporary land and road closures, traffic congestion, and delays
5 through the construction zones. Reconstruction of traffic interchanges would result in the
6 temporary closure of the interchanges, requiring potentially lengthy detours. The added
7 congestion also could impact emergency response times for fire, police, and ambulance
8 services.

9 All the Build Corridor Alternatives would be co-located along a portion of I-19. Because the
10 Orange Alternative would be co-located along the entire length of I-19 (as well as I-10, I-8, and
11 SR 85) it would have the greatest potential for temporary road and lane closures and the need
12 for detours. The Purple Alternative would have the next greatest potential for temporary road
13 and lane closures and the need for detours. The Green Alternative, which has the least amount
14 of co-located roadway and the greatest amount of new interstate alignment, would have the
15 least amount of impact on road closures and detours.

16 Tier 2 analysis would include a full evaluation into the short-term and long-term benefits and
17 adverse effects of I-11 and determine whether the environmental justice populations would bear
18 disproportionately high and adverse effects. This evaluation would look at the totality of the
19 circumstances surrounding I-11, including the effects of I-11 construction. If the construction-
20 related impacts have the potential to affect an environmental justice population, full and fair
21 participation of those groups in the planning process would be critical to identify measures to
22 avoid, minimize, and mitigate those impacts.

23 **3.15.5 Economics**

24 Construction would create a beneficial economic effect due to temporary job creation and the
25 introduction of construction dollars into the local economy. The most likely construction-related
26 adverse economic impacts would be on businesses that experience limits on, or changes to
27 access because they are located along roads that are temporarily closed for construction or
28 near traffic interchanges that are temporarily closed. These types of impacts would be more
29 likely for alternatives that are co-located with existing highway facilities, where reconstruction of
30 existing traffic interchanges may be necessary. Temporary road closures also could occur along
31 Corridor Options where I-11 crosses existing roads. These situations would require detours
32 which could make getting to the businesses more difficult.

33 A less quantifiable short-term impact due to construction would be the economic impact due to
34 traffic delays through construction zones. This would include both delays in commuters traveling
35 to and from work, as well as local and pass-through commercial traffic, such as long-haul trucks.

36 **3.15.6 Cultural Resources**

37 Additional cultural resource studies, including on-the-ground surveys, would be conducted
38 during Tier 2 if a Build Corridor Alternative is selected. Construction-related impacts are
39 unknown until the cultural work associated with individual Tier 2 projects has been completed.
40 Processes regarding site discovery during construction would be laid out as part of the
41 individual Tier 2 projects, likely in Section 106 agreement documents. Noise impacts during



1 construction may temporarily affect historic structures or districts. These impacts would be most
2 likely to occur along co-located Corridor Options.

3 **3.15.7 Noise and Vibration**

4 Construction noise and vibration could have effects on both the natural and human
5 environments, as well as on cultural resources. General construction noise and vibration from
6 activities, such as pile driving for bridge structures, could affect local residences and other
7 noise-sensitive resources (e.g., hospitals, nursing homes, etc.). These impacts would be most
8 likely within urbanized areas where I-11 would be co-located with other highway facilities such
9 as along I-10 through Tucson.

10 Construction excavations along some alternatives may require blasting to facilitate the removal
11 of material. This would be more likely in rural areas and where no transportation facilities
12 currently exist than in urbanized areas or along alignments co-located with other transportation
13 facilities. In more rural areas, noise and vibration could impact wildlife species, introducing
14 stress affecting normal lifecycle activities, such as wildlife movement and nesting for bird
15 species. Specific strategies to mitigate these impacts will be developed in Tier 2.

16 **3.15.8 Visual and Aesthetic**

17 Temporary construction features such as excavation areas, soil stockpiles, crane towers,
18 equipment and materials storage, false work, and other miscellaneous items would be visible
19 from surrounding areas. Temporary visual impacts would be greatest where the freeway route
20 would be located adjacent to existing residential developments and where large system traffic
21 interchanges would be constructed.

22 Within Options C and D, construction would be more visible to users on the Central Arizona
23 Project (CAP) canal trail if the CAP Design Option is selected and less visible for drivers on
24 Sandario Road. Visual expectations for drivers might be somewhat different than those of hikers
25 or cyclists on the CAP canal trail. Visual and aesthetic impairments, such as dust generated air
26 pollution and/or light pollution from machinery, could impact recreational users' experience per
27 construction activities of the CAP Design Option.

28 Night construction in more rural areas would be unlikely or minimal, but lighting from any night-
29 time construction could affect night skies, nearby sensitive land uses, or sensitive wildlife
30 species. This would be less of an impact in urban areas where light pollution is more prevalent
31 or in areas where I-11 would be co-located with other facilities.

32 **3.15.9 Air Quality**

33 Temporary construction impacts to air quality would be limited to the areas where construction
34 is taking place. Dust from heavy machinery and additional vehicle traffic emissions due to lane
35 or facility closures may occur.

36 Construction air quality impacts would be limited to short-term increased fugitive dust and
37 mobile source emissions. Because carbon monoxide emissions from motor vehicles increase
38 with slower speeds, disruption of traffic during construction could result in short-term elevated
39 concentrations of carbon monoxide because of the temporary reduction of road capacity and
40 increased delays.



1 Fugitive dust would be generated by construction vehicles and other earthmoving machinery.
2 Increased dust levels would be attributable primarily to particulate matter generated by vehicle
3 movement over paved and unpaved roads, dirt tracked onto paved surfaces, and material blown
4 from haul trucks.

5 **3.15.10 Hazardous Materials**

6 A risk associated with construction would be spills of hazardous materials such as fuel or oil. If a
7 large volume of material were spilled within the vicinity of a flowing stream or river, the spilled
8 material could be carried downstream and off site, potentially impacting wildlife, fisheries, and/or
9 domestic water supplies.

10 Another potential construction impact could be airborne asbestos derived from the demolition of
11 load bearing concrete structures and the removal of roadway paint that contains asbestos, lead,
12 or crystalline silica. The risks from both of these sources would be greatest for the Orange
13 Alternative, which is co-located with existing roads.

14 **3.15.11 Geology, Soils, and Farmland**

15 There would be no short-term impacts to geology or farmlands due to construction. Local
16 geology, however, could affect construction techniques and require blasting to remove material.

17 **3.15.12 Water Resources**

18 The greatest potential for temporary construction impacts to surface waters would be increased
19 sedimentation from erosion during stormwater runoff. While best management practices for
20 stormwater control would be implemented, a substantial storm event could result in the failure of
21 these mitigation features. Increased sediment also could result in impacts to aquatic species
22 downstream from the construction area. Construction impacts on specific water resources would
23 be evaluated during the design phase of the Tier 2 project.

24 **3.15.13 Biological Resources**

25 Construction of I-11, and in particular construction where no transportation facilities currently
26 exist, would result in the removal of vegetation, including protected plant species. While these
27 protected plants would be relocated, it would take some time for the plants to become
28 established. Following construction, the new ROW would be revegetated, but this would still
29 represent a change in habitat. Additionally, Section 3.14 details efforts that could be undertaken
30 to minimize the spread and colonization of invasive and noxious species.

31 Similarly, construction activities would pose a threat to wildlife species, especially less mobile
32 species, such as the Sonoran desert tortoise, or ground nesting species, such as the burrowing
33 owl. Arizona Department of Transportation (ADOT) has specific guidelines for avoiding impacts
34 to these species, which include the relocation of burrowing owls occupying burrows within the
35 construction area. Specific mitigation would be developed during Tier 2.

36 Construction where no transportation facilities currently exist would create a new barrier to
37 wildlife movement. While permanent impacts would be mitigated through the use of fencing and
38 wildlife crossings, the construction activities could result in a temporary barrier to wildlife
39 movement. Noise and vibration from construction equipment or from blasting could disrupt



1 species movement in the area, as well as nesting and mating of species. Many bird species,
2 such as eagles, nest in the same location every year and construction activities could impact
3 their nesting. Specific strategies to mitigate these impacts would be developed in Tier 2.

4 Night construction in more rural areas would be unlikely or minimal, but lighting from any night-
5 time construction also could disrupt wildlife and disorient nocturnal species. This would be less
6 of a problem in urban areas where light pollution is more prevalent or in areas where I-11 would
7 be co-located with other facilities.

8 **3.15.14 Summary**

9 The Build Alternatives would result in temporary construction-related impacts, with the most
10 consequential impacts where new roadway would be constructed. In those locations,
11 construction activities would occur in generally undeveloped areas where mitigation could be
12 more extensive.

13 **3.15.15 Potential Mitigation Strategies**

14 Specific mitigation measures would be identified following the Tier 2 analysis. Once project
15 design is more defined, temporary construction impacts can be evaluated and addressed in
16 commensurate detail.

17 **3.15.16 Future Tier 2 Analysis**

18 Future Tier 2 analysis would provide additional detail on the construction methodology if a Build
19 Corridor Alternative is selected. Additional details would be expected to include the number of
20 aerial structures (bridges or viaducts), the need for embankments and other earth moving
21 activities, and other design details for I-11. The exact design and configuration of I-11 would be
22 highly dependent upon local conditions, and efforts would be undertaken to gather information
23 about local features like soils and ground water through subsurface testing as part of the future
24 Tier 2 analysis. Further, the Tier 2 analysis would address traffic management and detours that
25 may occur during the construction period. Details about construction techniques, equipment,
26 and staging areas also would be documented as part of the future Tier 2 analysis.



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