



6 PREFERRED ALTERNATIVE

This chapter summarizes the issues and concerns with the Recommended Alternative in the Draft Tier 1 EIS and how public and agency comments were considered in identifying a Preferred Alternative in this Final Tier 1 EIS.

6.1 Summary of Recommended Alternative in the Draft Tier 1 EIS

FHWA and ADOT identified a Recommended Alternative in the Draft Tier 1 EIS that best met the I-11 Purpose and Need while minimizing the potential for adverse impacts, as shown on **Figure 6-1**. The Recommended Alternative is a hybrid of the Purple, Green, and Orange Alternatives. It represents the preliminary findings of the Tier 1 EIS process as of March 2019, including impact analysis and agency, tribal, and public input. Considerations in identifying the Recommended Alternative, including adverse impacts and beneficial effects, are discussed in **Section 6.2** (Recommended Alternative, Differentiating and Substantive Impacts) of the Draft Tier 1 EIS.

The rationale for the Recommended Alternative in the Draft Tier 1 EIS is as follows:

I-19: Nogales to Sahuarita The Recommended Alternative (Option A) would provide access to high-growth areas, achieve LOS C throughout the I-11 Corridor, and serve key economic centers while avoiding impacts to sensitive environmental resources.

Sahuarita to Marana The Recommended Alternative (Option D) is part of an end-to-end alternative that would reduce travel time between Nogales and Wickenburg compared to the No Build Alternative and achieve LOS C or better throughout the I-11 Corridor. It would attract and divert traffic from existing roadways. Option D would provide an alternate regional route to I-10, facilitating efficient mobility for emergency evacuation and defense access. It avoids unmitigable impacts to communities as well as historic districts and structures (Section 4(f) resources in downtown Tucson). The CAP Design Option and a number of additional mitigation strategies were developed to address impacts to the Tucson Mitigation Corridor.

Marana to Casa Grande The Recommended Alternative (Option F) is part of an end-to-end alternative that would reduce travel time between Nogales and Wickenburg compared to the No Build Alternative and achieve LOS C or better throughout the I-11 Corridor. As an alternate regional route, Option F (Recommended Alternative) would provide access to planned growth areas and serve key economic centers in Marana, Eloy, and Casa Grande. Option F would attract and divert traffic from existing roadways. It is consistent with local and county-level planning and commits to mitigation measures to minimize impacts on floodplains.



Casa Grande to Buckeye	The Recommended Alternative (Options I2, L, N, and R) would provide an alternate regional route in an area where there are no high-capacity transportation facilities. This corridor would provide access to planned growth areas and serve key economic centers in western Maricopa and Pinal Counties. The new corridor would reduce travel time for long-distance traffic from Nogales to Wickenburg, achieve LOS C throughout I-11, and effectively attract and divert traffic from existing roadways. It also is consistent with local and county plans. The Recommended Alternative includes mitigation strategies developed to address the impacts of a new Gila River crossing.
Buckeye to Wickenburg	The Recommended Alternative (Hybrid Option U/X) would provide an alternate regional route and access to planned growth areas, reduce travel time for long-distance traffic between Nogales and Wickenburg, and meet LOS C on I-11. It would effectively attract and divert traffic from existing roadways and serve key economic centers in the Hassayampa Valley and western Maricopa County. It is consistent with local land use and transportation plans and includes measures to mitigate impacts to the Vulture Mine RMZ.

1 **6.2 No Build Alternative**

2 A No Build Alternative is the baseline for comparison to the Build Corridor Alternatives and is
3 evaluated as a full alternative in this EIS. The No Build Alternative represents the existing
4 transportation system, along with committed improvement projects that are programmed for
5 funding. These improvements are represented in the federally approved STIP (ADOT 2019a).
6 Projects in this program are consistent with the statewide long-range transportation plan and
7 metropolitan transportation improvement programs.

8 Under the No Build Alternative, travel between Nogales and Wickenburg would use the existing
9 corridors of I-19 and I-10 within the Study Area, along with a connection to Wickenburg via the
10 Phoenix metropolitan area. This connection could take many routes, depending on traveler
11 preference (e.g., SR 101L, SR 202L, SR 303L, I-17, SR 74, US 60). Draft Tier 1 EIS **Table 1-3**
12 in **Chapter 1** (Purpose and Need) provides the various routing options, distances, travel times,
13 and average speeds. This information was generated by the AZTDM maintained by ADOT
14 (ADOT 2017h).

15 The No Build Alternative includes new capacity (additional lanes) on I-10 between Tucson and
16 Casa Grande, operational and capacity improvements to a 3-mile segment of US 93 through
17 Wickenburg, and other capacity improvements detailed on **Figure 6-2**.

18

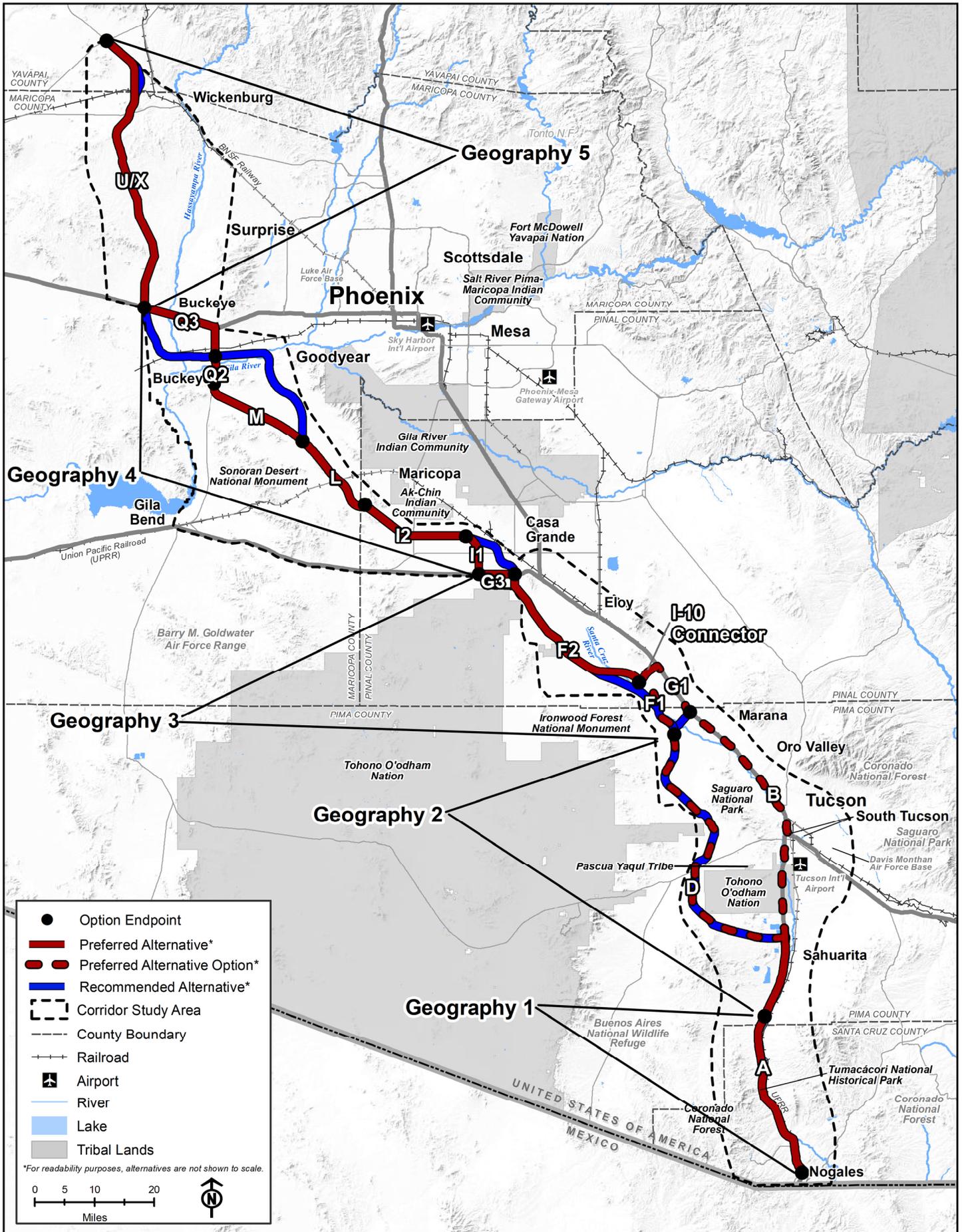


Figure 6-1. Draft Tier 1 EIS Recommended Alternative and Final Tier 1 EIS Preferred Alternative

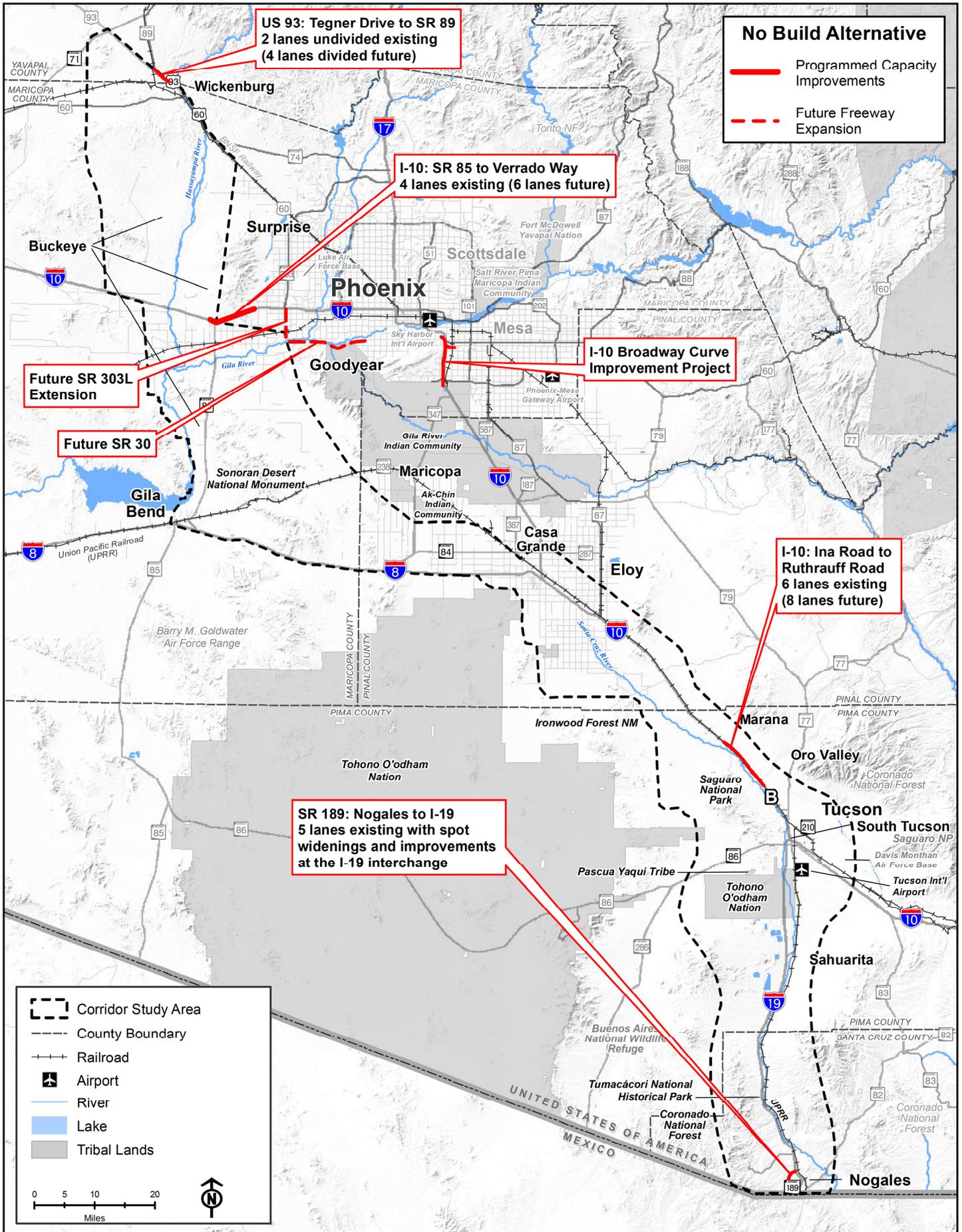


Figure 6-2. No Build Alternative Capacity Improvements

1 **6.3 Input on the Recommended Alternative**

2 This section summarizes major themes from public and agency comments on the
3 Recommended Alternative. General comments on the overall project are summarized first with
4 the following sections summarizing more location-specific comments. **Section 6.4** discusses
5 how those comments influenced the Preferred Alternative. Specific responses to comments are
6 in **Appendix H** (Comments on Draft Tier I EIS and Responses).

7 Several commenters expressed support for the No Build Alternative because the benefit or need
8 for the project did not outweigh impacts to wildlife, water resources, sensitive environments,
9 homes, ranches, farms, or cultural resources.

10 Some commenters suggested that ADOT finish improvements to I-10 before focusing on I-11.
11 Others opposed the project due to cost and suggested that ADOT instead spend the money on
12 maintaining existing roads. Commenters expressed support to widen existing highways rather
13 than build new ones or to implement tolls or raise gas taxes to avoid the need for new highways.
14 Commenters suggested the use of rail to move freight or intercity passenger traffic rather than a
15 highway. Some commenters did express support for the Project to reduce travel times in the
16 region or to improve freight flow. Others suggested that self-driving automobiles and trucks and
17 new traffic management technologies may change the transportation landscape to a point that a
18 new highway is not needed.

19 **6.3.1 I-19: Nogales to Sahuarita**

20 Comments on this area focused on the need for more lanes on I-19, using alternative routes
21 across tribal lands, or using ports of entry west of Nogales, such as those at Sasabe or
22 Sonoyta/Lukeville. This area is shown on **Figure 6-3**. Sample comments on the Nogales to
23 Sahuarita area include:

24 *I truly believe that the environmental impact study limits must include up to the south*
25 *border with Mexico. In other words, the Tier 1 EIS should include the section of Mariposa*
26 *Road (SR-189) from I-19 to Mariposa Port of Entry. Even though the Mariposa Road*
27 *Access Management Project expected to start construction by the end of 2019 or early*
28 *2020 included an environmental study, the future traffic expected with the development*
29 *of the I-11 corridor might have an impact to this segment that might require further*
30 *improvements (widening, i.e.). [City of Nogales]*

31 *...some policy changes at Nogales's Mariposa Port of Entry (Such as extending hours or*
32 *increasing staffing levels) would do a lot to help out with truck traffic up and down the*
33 *corridor. [member of the public]*

34 *I like the selected route of the I-19, but my recommendation is that we increase the lanes*
35 *from two lanes to three or possibly four lanes to move the traffic more efficiently.*
36 *[member of the public]*

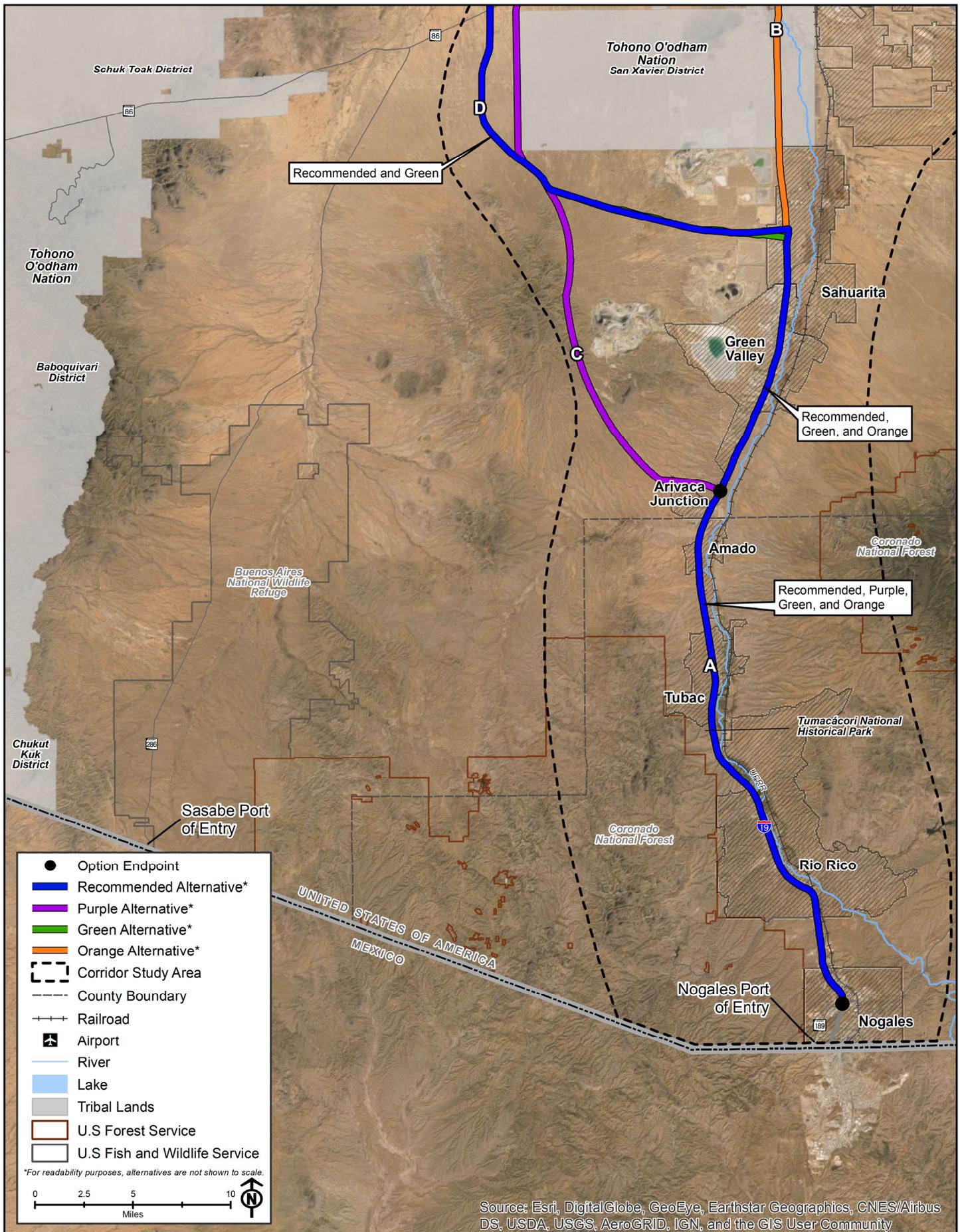


Figure 6-3. Nogales to Sahuarita with Recommended Alternative

1 **6.3.2 Sahuarita to Marana**

2 Comments expressed a preference for the southern connection with I-19 in Amado (the Purple
3 Alternative, which connects to I-19 in Amado) because it would avoid additional traffic through
4 Green Valley, avoid impacts in the growing community of Sahuarita, and provide an economic
5 benefit to the community of Amado (**Figure 6-3**). Topics brought up for the Sahuarita area
6 include a concern for community impacts, neighborhood continuity, and the rural, desert feel of
7 the community. This area is shown on **Figure 6-4**. Sample comments on the Sahuarita area
8 include:

9 *The proposed corridor doesn't work for those of us living in Sahuarita, Green Valley,*
10 *Tubac, Amado and Rio Rico. You need to move it west of the copper mines and Tinaja*
11 *Mts. or east of the Santa Rita Mtns. We do not need more congestion, more traffic, more*
12 *noise and anything else you will be bringing to the area. [member of the public]*

13 *I would be in favor of the I-11 interstate highway being built showing the purple*
14 *alternative near the town of Amado at the Arivaca junction, whatever they call it,*
15 *because I feel that building it in a more northerly location such as Sahuarita would be*
16 *highly disruptive to a growing, prosperous community, whereas the two roads would*
17 *meet, in my mind, down by Amado, it would greatly improve the local economy which is*
18 *almost zero right now, because you'll have a truck stop, motel, some kind of a*
19 *restaurant, you know. this always happens. And so I think it would be of great benefit to*
20 *those people down there. [member of the public]*

21 *Building I11 through or near our Rancho Buena Vista neighborhood [in Sahuarita] would*
22 *damage the balance of the natural desert ambiance with large one acre lots. The RBV*
23 *HOA CC&Rs are written to maintain a rural natural desert environment as well as the*
24 *wildlife corridor from the open desert to the Santa Cruz river. [member of the public]*
25

26 Many commenters focused on the Tucson and Avra Valley areas in Pima County. Some
27 commenters expressed opposition to the general concept of a new highway corridor. Others
28 acknowledged the lack of an alternate regional route and congestion issues on I-10, expressing
29 support for a new highway corridor. Many comments urged FHWA and ADOT to invest in
30 existing highways and explore more innovative solutions to the congestion problems on I-10
31 through Tucson, specifically suggesting double-decking I-10 or adding express lanes. There
32 was also concern that a bypass would negatively impact the economy in Tucson. Some
33 comments, both from the public and stakeholder agencies, requested further study before
34 choosing between the west option in Pima County and co-location with I-19 and I-10.

35 An overarching theme in Pima County was a deep concern for impacts to the natural
36 environment and sensitive resources in Avra Valley and a desire to have those areas remain
37 rural and undisturbed. Specific issues of concern include noise, visual, light pollution, wildlife
38 connectivity, wilderness areas, and impacts to the endangered Pima pineapple cactus.
39 Members of the public expressed how highly they value the desert environment, recreation
40 areas, and rural character of their community and said those features were the main reasons
41 they enjoy living in the area.

42

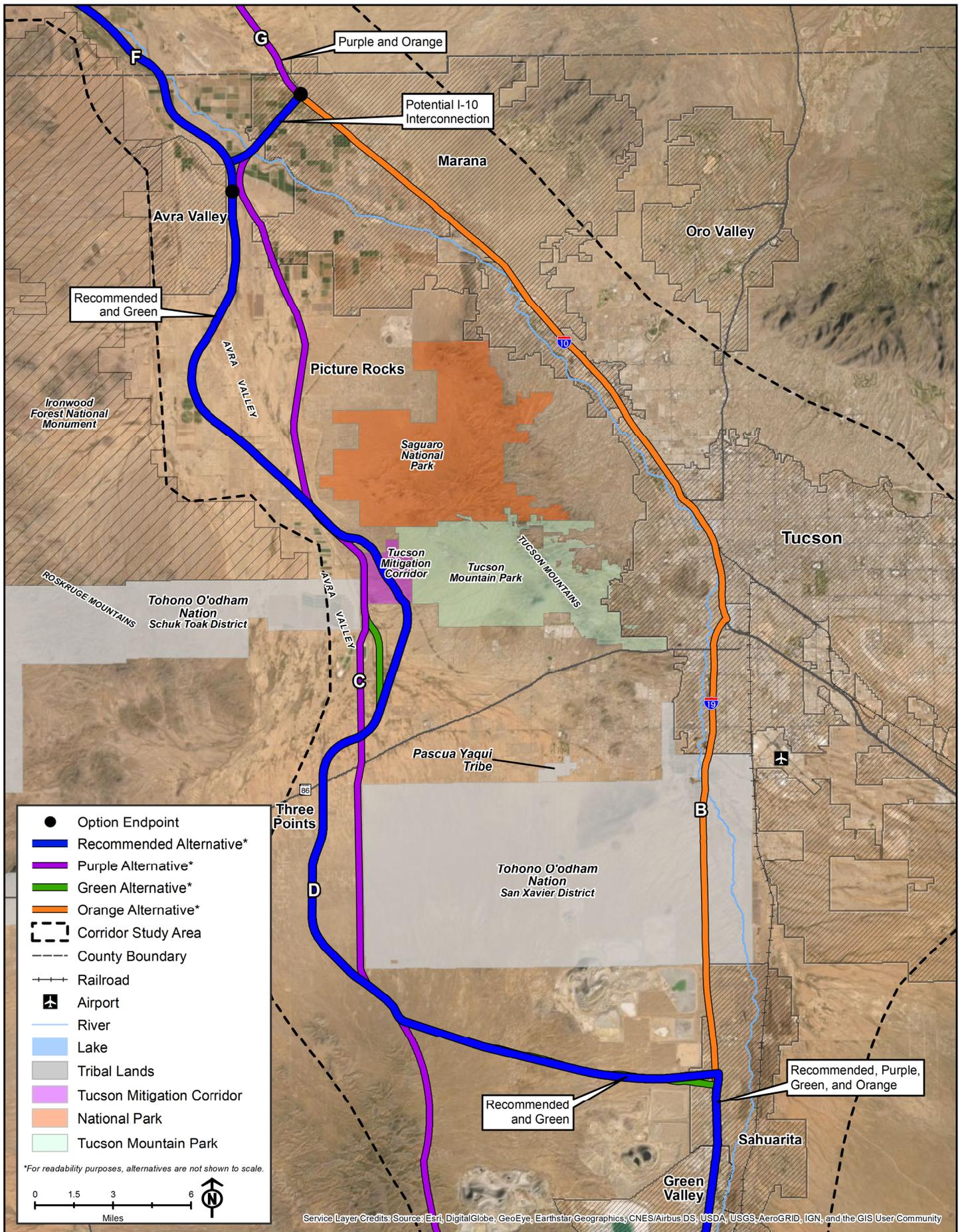


Figure 6-4. Sahuarita to Marana with Recommended Alternative

1 The Section 4(f) analysis was a focal point for comments from stakeholder agencies, with
 2 numerous substantive comments requesting further analysis for the Tucson Mitigation Corridor,
 3 Saguaro National Park, Ironwood Forest National Monument, and Tucson Mountain Wildlife
 4 Area. Agencies were concerned the mitigation measures were insufficient to offset impacts to
 5 the Tucson Mitigation Corridor and requested an individual Section 4(f) analysis of the property
 6 be completed instead of the net benefit programmatic analysis presented in the Draft Tier 1 EIS.
 7 More detail on Section 4(f) analysis can be found in **Chapter 4** (Draft Preliminary Section 4(f)
 8 Evaluation).

9 In 2018, FHWA and ADOT invited the US Institute for Environmental Conflict Resolution to
 10 facilitate a discussion in Pima County regarding the I-11 Tier 1 EIS. The US Institute is a
 11 nationwide program of the Udall Foundation to assist parties in resolving environmental, public
 12 lands, and natural resource conflicts that involve federal agencies or interests. Sample
 13 comments from the process include:

14 *The proposed alignment that completely bypasses the Tucson economic corridor should*
 15 *be abandoned. The economic impact to the corridor would be disastrous. Stack and*
 16 *double up 1-10 and level out north of Marana where there is plenty of room to expand I-*
 17 *10 width. Use the existing I-19 corridor as well. [member of the public]*

18 *I support the "green alternative" route which avoids the congested areas near Tucson*
 19 *and Phoenix, which will only be worse if and when this I-11 route gets funded and built. It*
 20 *is imperative that deviations from the existing I-19 and I-10 routes have as minimal as*
 21 *possible impact on the areas they traverse. ADOT must work in conjunction with*
 22 *environmental organizations, such as the "Coalition for Sonoran Desert Protection" to*
 23 *insure that sufficient and approved wildlife corridors are built in appropriate locations*
 24 *along new sections of any proposed route. [member of the public]*

25 *I would love to see AZ preserve some of its natural lands and not build the proposed I*
 26 *11. However, if it is a necessity I would rather that less "new" road be added. Therefore,*
 27 *building the orange proposal would be less invasive, less expensive and would not*
 28 *invade as many established communities. Thank you. [member of the public]*

29 *Throughout the course of this process, a number of key themes emerged that will serve*
 30 *to inform the Tier 1 EIS process. For example, it became clear that triple-decking I-10 is*
 31 *not a palatable option for these stakeholders. Many expressed interest that the corridor*
 32 *be built underground. Wildlife corridor crossing is an important consideration to many, as*
 33 *is keeping viewsheds intact. Stakeholders hope that any new design will contain features*
 34 *that reduce noise, light, and smell pollution. The largest con to many of the desired*
 35 *design options is cost. In addition, stakeholders feel it is important to consider cultural*
 36 *impacts and impacts to historical resources. Environmental justice is also important to*
 37 *many, and impacts to minority and low-income neighborhoods should be taken into*
 38 *account. Others feel that a silent majority of residents would prefer that the C/D route be*
 39 *built, and that the needs and interests of everyone in Tucson valley (and southern*
 40 *Arizona) should be taken into account, not just the needs and interests of residents of*
 41 *Avra Valley. Public safety is important to keep in mind when selecting a new corridor,*
 42 *and important to keep in mind when selecting design options for that corridor.*

43 *In terms of the overall process, most felt they were given ample opportunity to voice their*
 44 *points of view. Feedback indicated that many were happy with the diversity of voices and*



1 *interests that were included in the process, though some felt that “minority” opinions (i.e.*
2 *business interests) were somewhat drowned out by others in the room. Others wished*
3 *they had more time to provide input, and expressed a feeling that the overall Tier 1 EIS*
4 *process is happening too fast. A majority expressed overall satisfaction with the process*
5 *and indicated that it was a good learning experience for all. Upon conclusion of the*
6 *meetings, attendees expressed interest in having the group continue to meet in the*
7 *future, and throughout the entirety of the overall Tier 1 EIS process. [Draft Tier 1 EIS*
8 *Appendix H, Summary of Lessons Learned section in Final Report: I-11 Stakeholder*
9 *Engagement, U.S. Institute for Environmental Conflict Resolution, May 2018]*

10 *After continued consultation with our TMC partners, the Department is requesting FHWA*
11 *prepare an Individual Section 4(f) Evaluation for the TMC. Based on discussions with*
12 *FHWA, it is our understanding that this change will not affect the overall EIS schedule.*
13 *[US Department of the Interior]*

14 *The Department continues to be concerned that the analysis at the Tier 1 level is*
15 *insufficient to determine a Recommended Alternative or a Preferred Alternative in the*
16 *Final EIS. The Recommended Alternative, which is 0.3 miles from SNP and 0.6 miles*
17 *from Wilderness, should include the necessary studies to illustrate and further quantify*
18 *the impacts the highway and cumulative effects of future multi-modal transportation and*
19 *reasonably foreseeable subsequent development would have to park resources and*
20 *visitors; specifically to wildlife movement and park wilderness values; impacting the view*
21 *shed, diminishing natural sounds; diminishing night sky darkness and increasing air*
22 *pollution. [US Department of the Interior]*

23 *Of all listed species that may be affected by the I-11 project, FWS is most concerned*
24 *about effects to the PPC. Unlike other listed species that occur in the I-11 study area—*
25 *which tend to occur in small numbers in restricted or relatively inaccessible habitats—the*
26 *PPC occurs in significant numbers within all three of the I-11 build corridor alternatives.*
27 *The recommended alignment for I-11 will bisect the PPC’s entire known range from*
28 *south to north and will affect possibly hundreds of individual cactus plants. The*
29 *proportion (percent) of the known range-wide population that will be affected is unknown*
30 *but is likely to be significant. [US Department of the Interior, US Fish and Wildlife*
31 *Service]*

32 *Selection of a corridor in the Tier 1 EIS deprives the decision maker and the public of*
33 *evaluating the true impacts of the proposed action and alternatives. Recommend*
34 *carrying multiple corridors forward to the Tier II NEPA analysis, particularly where the*
35 *environmental impacts are controversial or additional information would facilitate an*
36 *informed decision. [US Department of the Interior, Bureau of Reclamation]*
37

1 **6.3.3 Marana to Casa Grande**

2 Some commenters agreed there is a need for an alternate regional route in this area, while
3 others supported using the existing I-10 corridor. Commenters requested changes to the
4 Recommended Alternative, such as a closer examination of the interconnection with I-10, better
5 avoidance of the Santa Cruz River, or more distance from the rural community of Arizona City.
6 Many were concerned with impacts to the Santa Cruz River and the high-quality riparian habitat
7 and birding areas along its corridor. Concerns also included impacts to recreation areas, such
8 as Picacho Peak State Park, and cultural resources in and around the Ironwood Forest National
9 Monument. This area is shown on **Figure 6-5**. Sample comments on the Marana to Casa
10 Grande area include:

11 *On behalf of the City of Eloy, I would like to convey our support for the Green*
12 *Alternative...Our support for this alternative has been formalized through a resolution*
13 *adopted by the Eloy City Council on May 28, 2019. [City of Eloy]*

14 *While understanding that the scale of the previous documents likely did not account for*
15 *the Pinal Airpark and the alignment of the interconnection should be adjusted to avoid*
16 *the airpark, the Town of Marana strongly objects to the now depicted location of the*
17 *interconnection. [Town of Marana]*

18 *The Preferred Alternative is not environmental [sic] friendly as it impacts the important*
19 *birding areas found in the Santa Cruz Flats, along the Santa Cruz River and in Avra*
20 *Valley. Alternative Orange avoids these areas, preserves open space, and is less*
21 *disruptive. I suspect that it is also more cost efficient. [member of the public]*

22 *The Santa Cruz Flats are a priority area for the USACE. They contain high quality*
23 *wetlands. The USACE would prefer the corridor be shifted to the east, outside of the*
24 *floodplain in the general area of the Pinal Airpark. [US Army Corps of Engineers]*

25 *Regarding the Santa Cruz River crossing near Marana, the Recommended Alternative*
26 *alignment runs parallel to the Santa Cruz and will be both expensive and extremely*
27 *disruptive to the floodplain. Crossing the Santa Cruz River perpendicular to flow (purple*
28 *alternative) is the traditional design method for roadway crossing and would be far less*
29 *disruptive. [Pima County]*

30 *The region immediately north of the sand ridge is an affected area that includes the Oro*
31 *Blanco wash bottom and the margins of Ironwood Forest National Monument extending*
32 *northward to the Santa Cruz Flats. Development here would create a major barrier to*
33 *wildlife connectivity between Ironwood Forest (and "points west") and Picacho Peak*
34 *State Park, Picacho Mountains, and points north and east. The connectivity is essential*
35 *to the sustainability of native species. Similarly, we are concerned that much intact*
36 *Sonoran Desert Scrub will be severely impacted between the cutoff from I-19 west and*
37 *north into the southern Avra Valley. [Tucson Herpetological Society]*

38 *In order for the residents of Arizona City to continue to have a small intimate town you*
39 *must keep interstates out of the community. I10 and I8 are located approximately 3 miles*
40 *north of Arizona City, which has already created congestion and frustration with local*
41 *residents. The purple alternative route seems more appropriate for the Arizona City*
42 *community. [member of the public]*

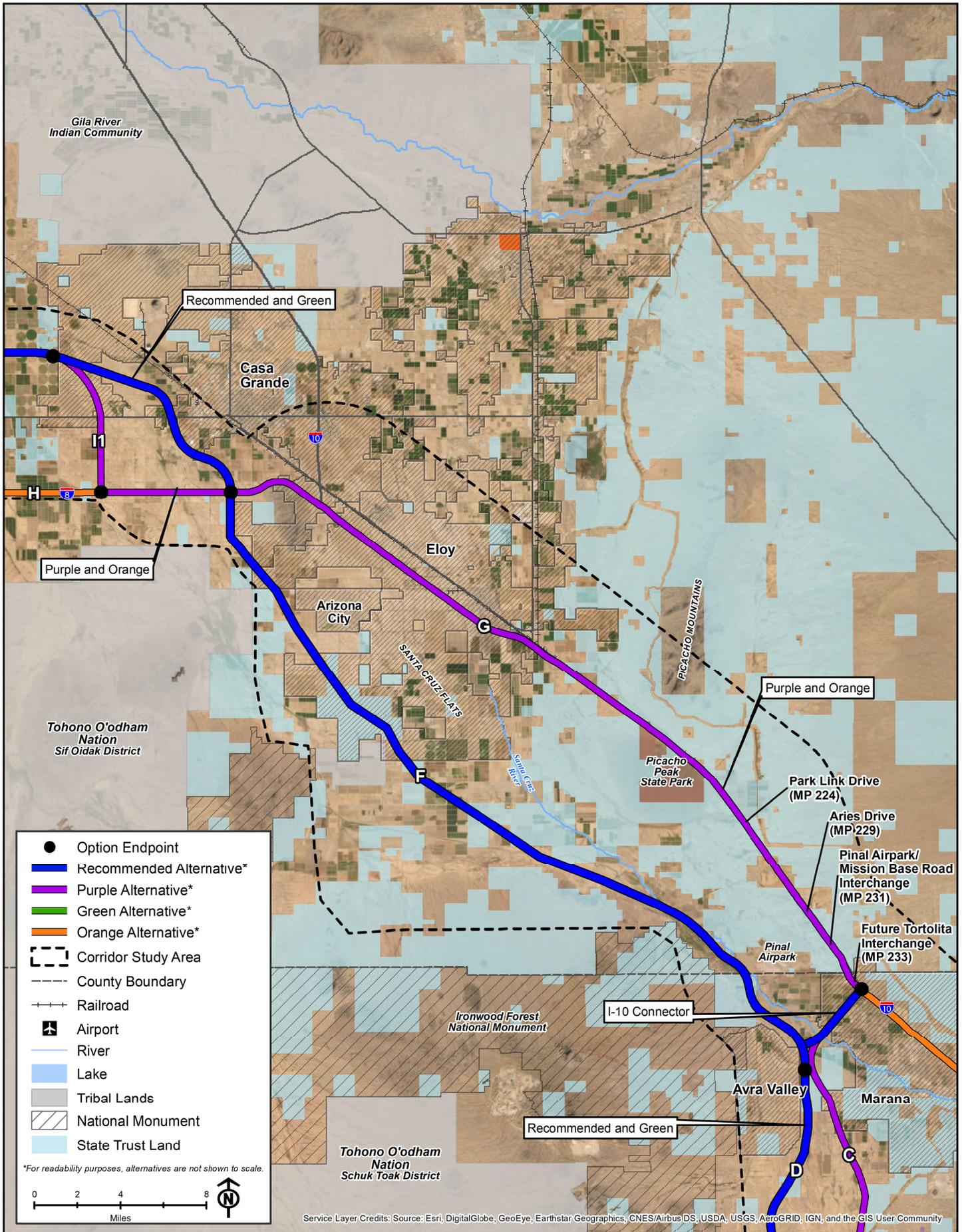


Figure 6-5. Marana to Casa Grande with Recommended Alternative

1 **6.3.4 Casa Grande to Buckeye**

2 Some commenters support using existing I-10 or I-8 (Orange Alternative) over building a new
3 highway, citing concerns with the construction and maintenance costs of a new highway,
4 environmental impacts, and light pollution. Others supported the Recommended Alternative
5 because it provides an alternate regional route, strengthens economic development and job
6 growth, promotes freight movement, and is generally consistent with plans for the West Pinal
7 and Hassayampa Freeways.

8 Comments from local agency stakeholders in the Casa Grande area were supportive of I-11 and
9 a new highway corridor, but they also stated they would support the Purple Alternative along
10 Montgomery Road over the Recommended Alternative, citing its consistency with local plans for
11 the West Pinal Freeway. Their comments further expressed concern for impacts to ongoing and
12 planned economic development and utilities west of Casa Grande along Option I2 in
13 unincorporated Pinal County. This area is shown on **Figure 6-6**.

14 Sample comments on the use of existing routes in the Casa Grande to Buckeye area include:

15 *Use of existing routes through State Highway 85 and Interstate 8 (Routes H, K, Q1) offer*
16 *transportation connectivity with substantially lower costs and significantly less impacts to*
17 *wildlife connectivity than new routes proposed in segments N, L, and I2. Those*
18 *segments, located north and east of Sonoran Desert National Monument are critical*
19 *wildlife corridors for many species that are challenging to adequately mitigate. [The*
20 *Nature Conservancy]*

21 *The orange alternative uses existing road that will become unsafe and continue to have*
22 *extreme congestion. The existing I-8, Highway 85/I-10 truck route is ineffective and is*
23 *currently avoided by the trucking industry. I prefer the green alternative. This is located*
24 *in areas of major population and future economic growth. This route is consistent with*
25 *Maricopa Association of Government, Hassayampa, Hidden Valley study for improving*
26 *transportation in western Pinal. It significantly reduces the time travel for trucking and*
27 *moving goods to spur economic development. By providing an alternative route near the*
28 *City of Maricopa, it will also reduce congestion on very unsafe State Route 347 and*
29 *improve travel in that area. In addition, I prefer a modification to the green alternative*
30 *that would be the Montgomery Road alignment to enter I-8 rather than the Chuichu Road*
31 *intersection. [member of the public]*

32
33 In the Goodyear, Buckeye, and Palo Verde area, concerns focused on impacts to Estrella
34 Mountain and CantaMia communities, the Gila River, and agricultural communities north of the
35 Gila River in Buckeye. USFWS expressed concern for potential impacts to the endangered
36 Yuma Ridgway's rail habitat and requested further evaluation of impacts to Public Land Order
37 1015 properties along the Gila River. USACE and other agencies expressed concern for
38 impacts to the Gila River. Other stakeholders supported the Recommended Alternative, citing
39 improved access and economic development opportunities.

40 East of SR 85 in Buckeye, Palo Verde, and Tonopah, there were similar concerns regarding
41 potential impacts to the Yuma Ridgway's rail habitat along the Gila and Hassayampa Rivers.
42 The City of Buckeye expressed concern that the Recommended Alternative is located too close
43 to schools and homes in Palo Verde and impacts dairy and other farms; they requested I-11 be
44 shifted south to be closer to the Gila River.

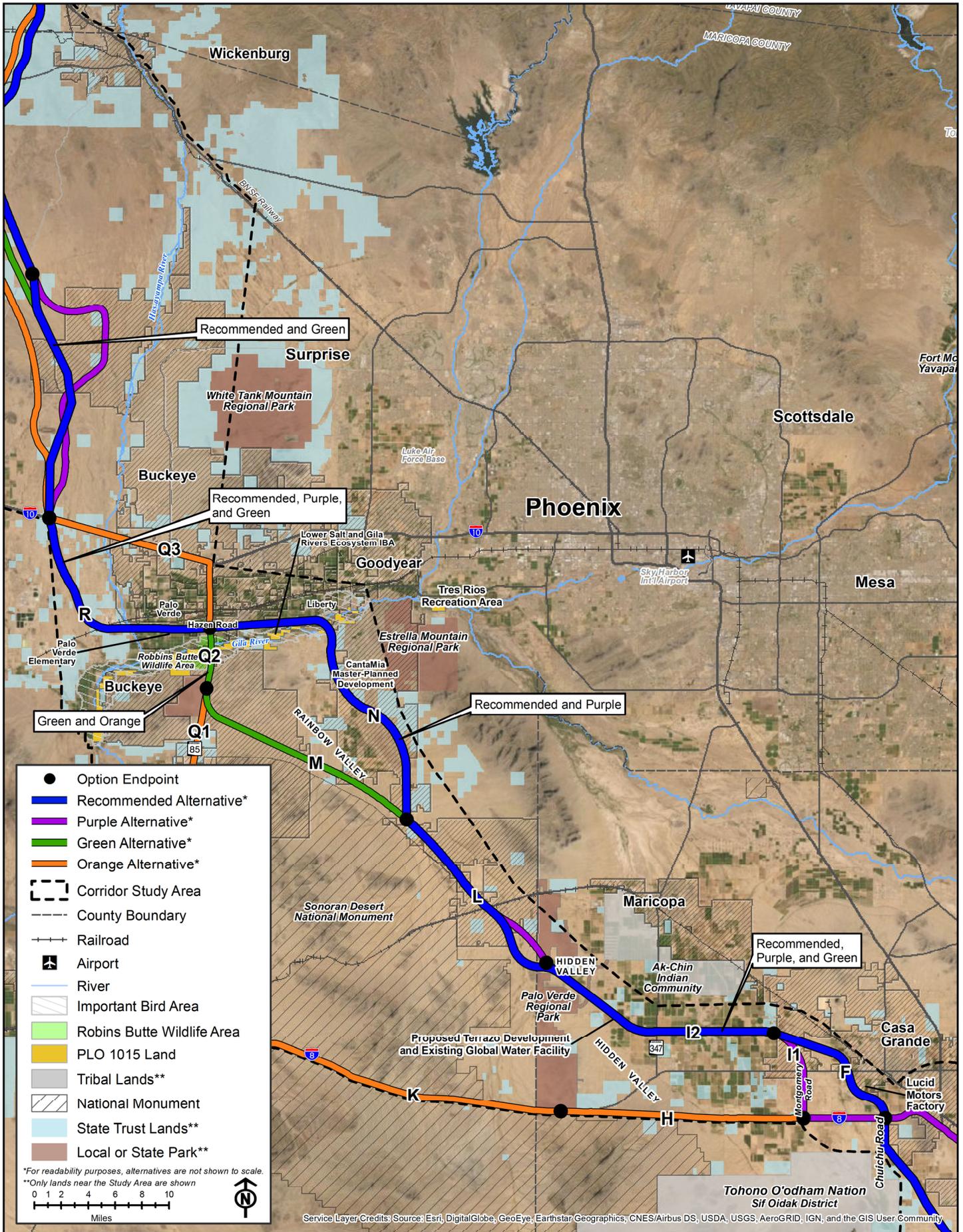


Figure 6-6. Casa Grande to Buckeye with Recommended Alternative

1 Sample comments on the northern portion of the Casa Grande to Buckeye region include:

2 *The recommended route (blue route) through Estrella Mountain would come extremely*
 3 *close to our housing development. The alternate Green route appears to be a much*
 4 *better route with regard to the Estrella Mountain communities. [member of the public]*

5 *As a resident of south Goodyear (south of the Gila River) I believe the value of having*
 6 *convenient access in all directions as essential to future commerce for both residential*
 7 *and commercial properties. [member of the public]*

8 *We do thank you for noting the six Important Bird Areas [IBA] that are within or*
 9 *proximate to the study corridor for I-11, including the Lower Salt and Gila Riparian*
 10 *Ecosystem IBA. This IBA is globally significant because of the population of Yuma*
 11 *Ridgway's Rail, a federally endangered bird. This IBA has migratory and potential*
 12 *breeding habitat for Southwestern Willow Flycatcher (Endangered) and Western Yellow-*
 13 *billed Cuckoo (Threatened). The Yuma Ridgway's Rail was listed prior to critical habitat*
 14 *designations. Table 3.14-4 showing only critical habitat affected gives an incomplete*
 15 *picture of the impact of I-11 to Yuma Ridgway's Rail. The recommended corridor*
 16 *alignment from Highway 85 east to the Gila River crossing on the Rainbow Valley Road*
 17 *alignment includes or is immediately adjacent to known Yuma Ridgway's Rail detections.*
 18 *This bird requires emergent marsh habitats and reliable water supply for those habitats.*
 19 *Many of the suitable locations for this bird are in association with agricultural irrigation*
 20 *return drains in the mapped floodplain for the Gila River. Audubon Arizona is developing*
 21 *a GIS predictive model for potential suitable habitat for this bird. We hope to have a*
 22 *completed map by this fall. We strongly recommend a more comprehensive analysis of*
 23 *the impact the recommended corridor will have to Yuma Ridgway's Rail habitats.*
 24 *[Audubon Arizona]*

25 *Particular attention should be given to the proposed crossing of the Gila River due to the*
 26 *presence of a special aquatic site (wetland), which merits additional scrutiny under the*
 27 *404(b)1 Guidelines [40 CFR 230.10(a)3]. [US Army Corps of Engineers]*

28 *Interstate 11 would cross the Gila River near the community of Liberty, about midway*
 29 *between the Tres Rios Recreation Area and Robbins Butte Wildlife Area. There are*
 30 *remarkable birding and wildlife populations downstream of the 91st Ave. water treatment*
 31 *plant west to Tres Rios. Despite some urbanization, this Salt/Gila segment downstream*
 32 *to Robbins Butte remains a flyway and corridor for wildlife, and should not be*
 33 *unnecessarily interrupted by a busy freeway like I-11. [The Sierra Club]*

34 *Construction of a new bridge at the proposed crossing will impact the endangered Yuma*
 35 *Ridgeway's rail (YRR) (*Rallus obsoletus yumanensis*), and possibly the threatened*
 36 *western yellow-billed cuckoo (*Coccyzus americanus*) and endangered southwestern*
 37 *willow flycatcher (*Empidonax traillii extimus*), due to habitat loss and elevated*
 38 *disturbance levels. Of particular concern would be the permanent loss of irrigation runoff*
 39 *that currently helps to recharge the Gila River and maintain marsh and riparian habitats*
 40 *at the Option N crossing and along river reaches upstream and downstream of the*
 41 *crossing. [US Fish and Wildlife Service]*

42 *I am opposed to the I-11 ADOT Recommended Alternative alignment for the following*
 43 *reasons: It will be located very close (.5 miles) to Palo Verde Elementary School; It will*

1 | *cross the Buckeye Water Conservation & Drainage Districts main canal multiple times*
2 | *impacting irrigation delivery infrastructure; It impacts two (2) different dairy farm*
3 | *operations; It will be located within close proximity (less than ½ mile) to existing*
4 | *subdivisions; It bisects multiple existing farms into two separate areas causing major*
5 | *impacts to farming operations. [City of Buckeye, Buckeye Irrigation Company, and*
6 | *Buckeye Water Conservation and Drainage District]*

7 | **6.3.5 Buckeye to Wickenburg (Maricopa and Yavapai Counties)**

8 | Commenters expressed support for the Purple Alternative through the proposed Douglas Ranch
9 | development over the Recommended Alternative, citing concern that the Recommended
10 | Alternative is not consistent with local planning and would result in a need to revise planning
11 | documents, master plans, and development agreements. Their concern is that, by not directly
12 | reflecting local planning, the Recommended Alternative represents lost economic development
13 | opportunities.

14 | In the Vulture Mine RMZ, BLM restated their preference for the Orange Alternative, which is
15 | located outside of the Vulture Mine RMZ. BLM stated that if the I-11 corridor was planned
16 | through the Vulture Mine RMZ that it be routed through the multi-use corridor that already
17 | divides the Vulture Mine RMZ. They also expressed concern that the Recommended Alternative
18 | intersects an off-highway vehicle trail several times.

19 | Some commenters in the Wickenburg area were concerned that the Recommended Alternative
20 | is too far from the Town of Wickenburg and that this would negatively affect businesses in
21 | Wickenburg. Others were concerned the Recommended Alternative is located too close to
22 | residential communities. The Town of Wickenburg noted that north of US 60, they support
23 | moving the corridor west to minimize community impacts. Yavapai County supports the
24 | Recommended Alternative and requests that in Tier 2 the specific alignment be placed as far
25 | west within the 2,000-foot wide corridor as possible. This input reflects comments from local
26 | residents, who were concerned the Recommended Alternative is too close to the residential
27 | community of Vista Royale.

28 | AGFD expressed concern that the destruction and further isolation of tortoise habitat on the
29 | scale of the Recommended Alternative will lead to the species needing to be listed under the
30 | ESA in the future. Agencies also expressed concern for impacts to wildlife movement.

31 | This area is shown on **Figure 6-7**.

32 | Sample comments on the Buckeye to Wickenburg region include:

33 | *EPA continues to be concerned about the extensive indirect and cumulative impacts that*
34 | *are likely to result from construction of a future I-11 freeway, particularly as the*
35 | *recommended alternative directly fragments large intact habitat blocks in each of the*
36 | *project sections. This is of immediate concern within the northern section of the project*
37 | *area (Segment U) where extensive development has been proposed within the*
38 | *Hassayampa River floodplain, both impacting the hydrology of this important ecological*
39 | *resource, and limiting the potential for future habitat connectivity across a vital East-*
40 | *West wildlife movement corridor. [USEPA]*

1 *The proposed routes would transect one of only two OHV race areas allocated in the*
 2 *Hassayampa Field Office Resource Management Plan (RMP 2010) and travel through*
 3 *the Vulture Mine Recreation Management Zone (RLIZ). The RAIP at Recreation*
 4 *Resources (RR) 37 states "Motorized competitive speed races are authorized only 777*
 5 *Special Recreation Management Zones (SRMAs) or Recreation Management Zones*
 6 *(RMZs) where an allocation for such use has been made". The Hassayampa SRMA and*
 7 *Castle Hot Springs RMZ (RMP at R 116 and RR 87, respectively) are the only two such*
 8 *allocations. Therefore, the proposed route would potentially affect recreation that is*
 9 *relatively rare on the field office and highly sought after by the OHV race community and*
 10 *general public alike. There would also be potential effects to the Vulture Mine Recreation*
 11 *and Public Purposes Act Lease (R&PP) recently entered into with Maricopa County*
 12 *Parks Department which formalizes the development of motorized and non-motorized*
 13 *recreation opportunities for the public over approximately 1000 acres adjacent to the*
 14 *proposed route. [Department of the Interior, Bureau of Land Management]*

15 *Segment U of the recommended alternative which spans north through the Hassayampa*
 16 *Plain and Tonopah Desert study area has the potential to affect wildlife movement over*
 17 *two concrete wash overchutes and a wildlife bridge. While the primary intent of*
 18 *overchutes is to maintain hydrological connectivity, wildlife use was considered in their*
 19 *design. Reclamation has performed long-term monitoring of multiple CAP wildlife bridge*
 20 *and concrete wash overchutes. Some overchutes currently being monitored have*
 21 *recorded total individual crossings by mule deer as high as 380 a month. It is expected*
 22 *that Segment U would devalue and reduce the wildlife utilization of the overchutes and*
 23 *the wildlife bridge in the surrounding area. Replacement of multiple wildlife crossing*
 24 *structures should be included as mitigation in Segment U. [Department of the Interior,*
 25 *Bureau of Reclamation]*

26 *BLM directs you to its August 2018 comments on the ADEIS (included in Errata to*
 27 *Appendix H section in Errata to Draft Tier 1 DEIS). These comments still generally apply,*
 28 *particularly regarding BLM's preference for the orange alternative for the entire length of*
 29 *the project and reasoning therefore. The orange alternative minimizes new disturbance*
 30 *and collocates new facilities where possible, thereby minimizing impacts to BLM*
 31 *designations and uses and sensitive resources throughout the project area. These*
 32 *include:*

33 *-Avoids Vulture Mountain RMZ....[Department of the Interior, Bureau of Land*
 34 *Management]*

35 *I live in the Wickenburg area and I oppose the I-11 going directly adjacent to the*
 36 *neighborhood Vista Royal and connecting with the 93 at milepost marker 189. You have*
 37 *8 miles of state trust land that you can move this to. This needs to be moved further west*
 38 *at least two miles if not all the way to highway 71. Thank you. [member of the public]*

39 *The County asks that when final placement of the road is determined within the 2000'*
 40 *preferred alignment corridor that consideration is taken to locate the road to the westerly*
 41 *portion of the corridor, allowing more distance between the Vista Royale community and*
 42 *the new interstate. [Yavapai County]*
 43



1 **6.4 Rationale for the Preferred Alternative**

2 The Final Tier 1 EIS documents the NEPA study completed to date, culminating in the
3 identification of the Preferred Alternative. This process included technical analysis, coordination
4 with study partners such as Cooperating Agencies, Participating Agencies, and Tribal
5 Governments, as well as the review and consideration of public input received at study
6 milestones.

7 The Project Team evaluated the comments received on the Recommended Alternative
8 presented in the Draft Tier 1 EIS. Based on this evaluation, FHWA and ADOT are proceeding
9 with a Preferred Alternative in this Final Tier 1 EIS that is different from the Recommended
10 Alternative in the Draft Tier 1 EIS. The Preferred Alternative balances transportation needs with
11 impacts to the natural and human environment and stakeholder input.

12 The No Build Alternative would not address the needs outlined in **Chapter 1** (Purpose and
13 Need). Travel times between Nogales and Wickenburg would not be improved and regional
14 mobility would not be improved for people or goods. FHWA and ADOT weighed the impacts of
15 the Recommended Alternative against the benefits described in the purpose and need metrics
16 and identified the Preferred Alternative to further reduce impacts while meeting purpose and
17 need. The Preferred Alternative would provide access to planned growth areas, improve travel
18 times between Nogales and Wickenburg, divert traffic from existing roadways, serve economic
19 centers, and provide an alternate regional route in many areas.

20 Self-driving automobiles and trucks and emerging traffic management technologies may change
21 the transportation landscape. ADOT uses the AZTDM to project traffic volumes, which does not
22 currently estimate these emerging technologies. If the need does decrease due to these
23 technologies, ADOT and regional planning organizations may choose not to prioritize the I-11
24 project. The funding process is discussed further in **Section 6.8**.

25 Economic growth in Arizona will result in demands on all modes of transportation, not just
26 interstate highways. This Tier 1 EIS considers a 2,000-foot-wide corridor, which is wide enough
27 for rail or utility lines if this infrastructure is implemented in the future.

28 The following discussion describes the rationale for the Preferred Alternative.

29 **6.4.1 I-19: Nogales to Sahuarita**

30 From Nogales to Sahuarita, the Preferred
31 Alternative is the same as the
32 Recommended Alternative. The
33 southernmost endpoint of the Project is at
34 the SR 189/I-19 interchange in Nogales.
35 The Preferred Alternative is co-located
36 with I-19 to the Santa Cruz/Pima County
37 line. ADOT travel demand modeling
38 indicates that I-19 will continue to provide
39 LOS C with projected 2040 traffic volumes;
40 however, Tier 2 studies would further investigate expanding I-19 based on new data and more

The Preferred Alternative uses I-19 between Nogales and Sahuarita, which is the same as the Recommended Alternative. It provides access to high-growth areas, achieves LOS C throughout the I-11 corridor, and serves key economic centers while avoiding impacts to sensitive environmental concerns.

1 specific regional travel demand models. If needed, there is potentially enough room for
2 additional travel lanes in the median (**Figure 6-8**).

3 Some commenters suggested using alternative routes across tribal lands. FHWA and ADOT did
4 not consider options on tribal lands because the Tohono O’odham Nation and Pascua Yaqui are
5 sovereign nations that did not grant FHWA and ADOT permission to study transportation
6 corridors on their lands. During scoping, the southern terminus of the project was confirmed as
7 the I-19/SR 189 interchange in Nogales, consistent with the proposed action, purpose and
8 need, and the *I-11 and Intermountain West Corridor Study* (NDOT and ADOT 2014).

9 **6.4.2 Sahuarita to Marana**

10 Based on technical analysis, and input
11 from agencies, tribes, and the public
12 leading into the Draft Tier 1 EIS, FHWA
13 and ADOT narrowed options in Pima
14 County to three: two western alternatives
15 (Purple and Green) and one eastern
16 alternative (Orange) through Pima
17 County. The Draft Tier 1 EIS
18 recommended the Green Alternative in
19 Pima County (**Figure 6-9**).

The Preferred Alternative carries forward both the west option and east option in Pima County, allowing ADOT to make a more informed decision after completing detailed environmental and engineering studies prior to selecting an alignment in Tier 2.

20 Feedback on the Draft Tier 1 EIS from both stakeholder agencies and the public requested
21 more detailed environmental studies and engineering in this area. FHWA and ADOT considered
22 these comments and modified the Preferred Alternative to carry forward both the west option
23 (Recommended or Green Alternative) and east option (Orange Alternative) in Pima County.
24 Carrying both a west and an east option forward allows ADOT to make a more informed
25 decision after completing detailed environmental and engineering studies in Tier 2. It also
26 enables metropolitan planning organizations, local governments, tribal nations, and other
27 planning organizations to continue long-term planning strategies while being responsive to
28 public and agency concerns.

29 Factors that influenced the determination to carry both a west and an east option forward with
30 the Preferred Alternative are described in the following sections.

31 **6.4.2.1 Section 4(f) and Tucson Mitigation Corridor Impacts**

32 The Preliminary Draft Section 4(f) Evaluation in the Draft Tier 1 EIS was one of the determining
33 factors considered when ADOT and FHWA identified the Recommended Alternative. The
34 evaluation found that the west option in Pima County would have a proposed net benefit to one
35 Section 4(f) property (the Tucson Mitigation Corridor), while the east option through Tucson
36 would result in unmitigable Section 4(f) impacts. The Section 4(f) evaluation was a topic of
37 concern for stakeholder agencies, particularly the Bureau of Reclamation, the official with
38 jurisdiction of the Tucson Mitigation Corridor. The Tucson Mitigation Corridor plays a critical role
39 in maintaining wildlife connectivity between the isolated habitat block along the Tucson
40 Mountains (Saguaro National Park and Tucson Mountain Park), Ironwood Forest National
41 Monument, and Roskrige Mountains.

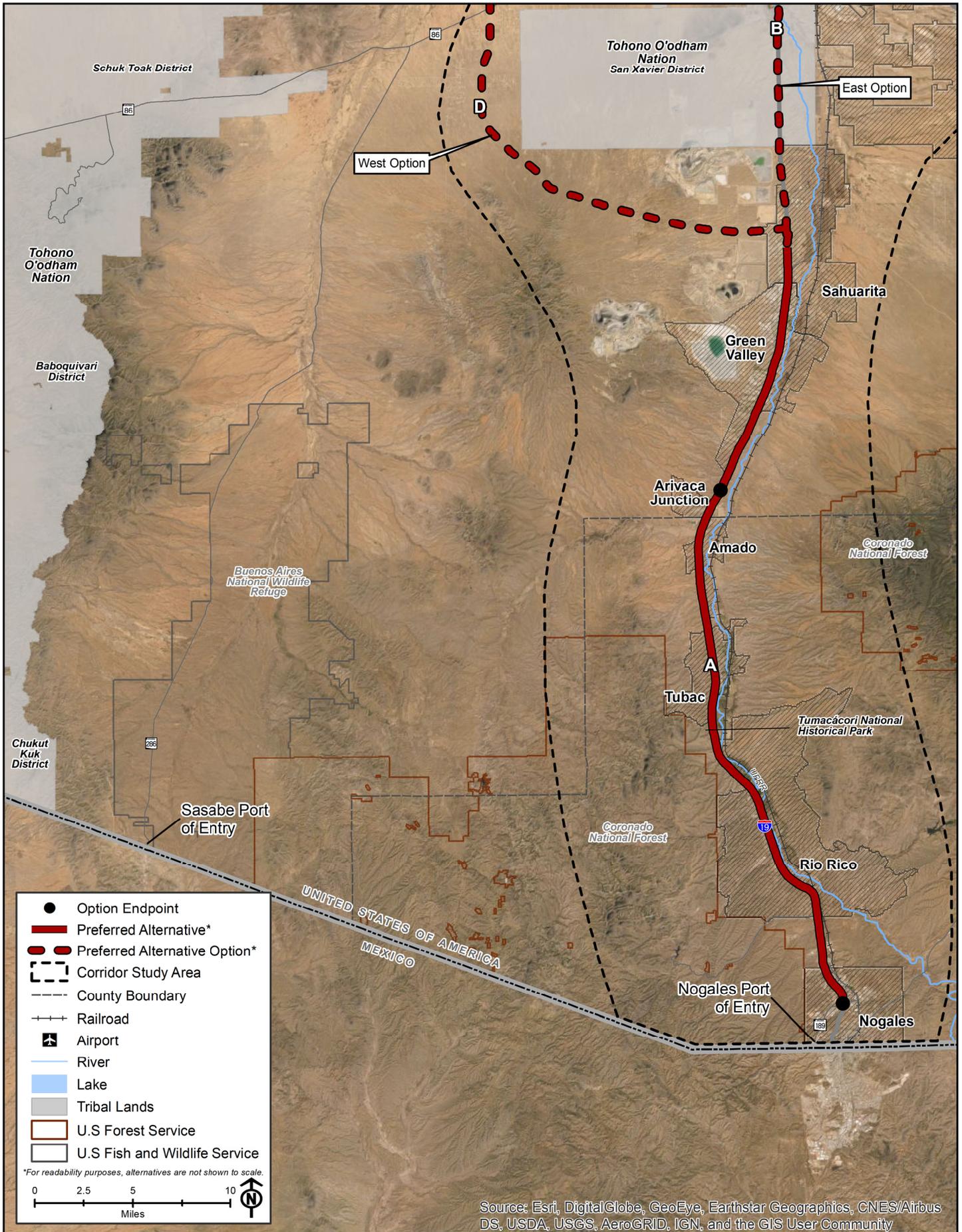


Figure 6-8. Nogales to Sahuarita with Preferred Alternative

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

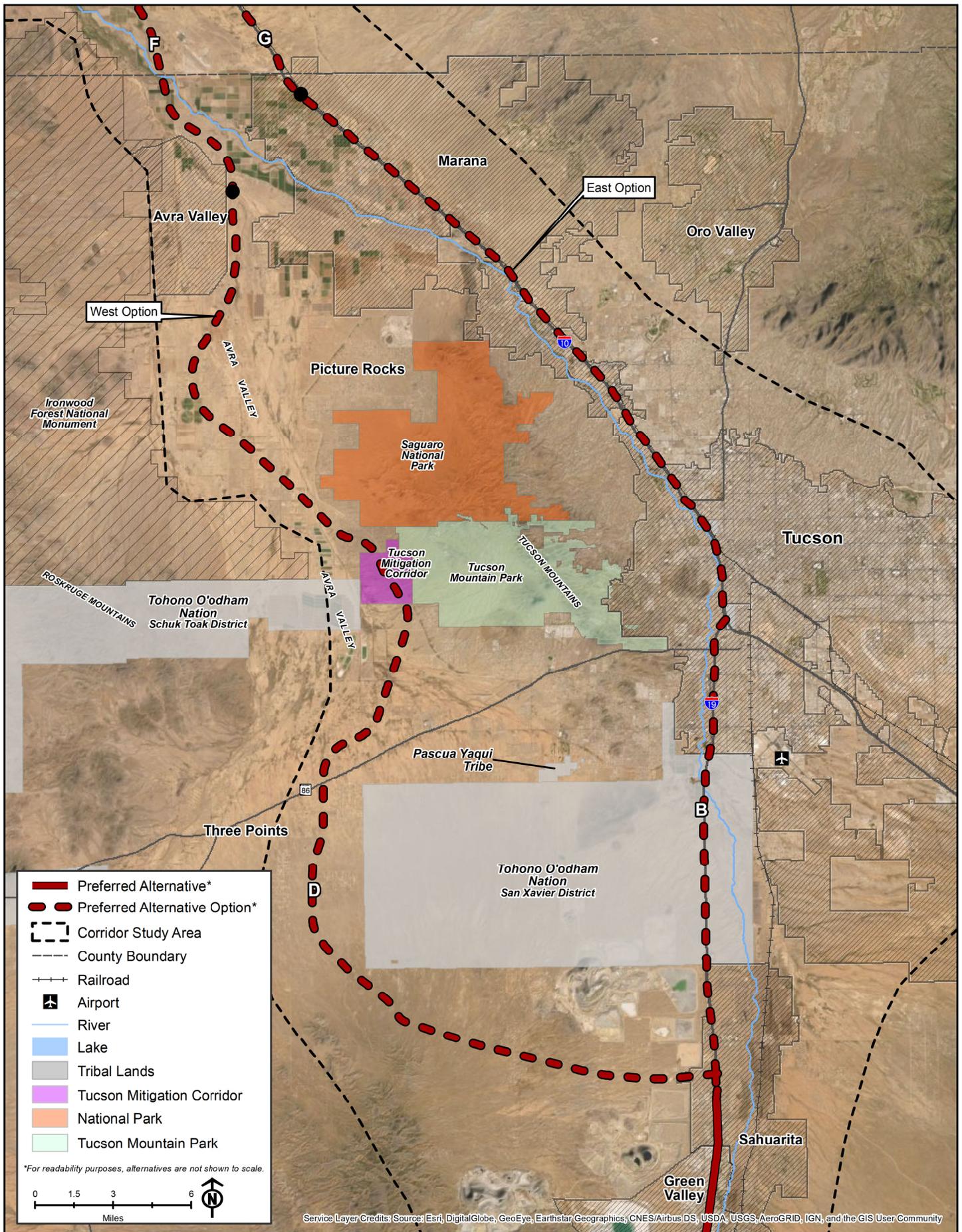


Figure 6-9. Sahuarita to Marana with Preferred Alternative



1 Coordination among FHWA, ADOT, and the Bureau of Reclamation leading up to the
2 identification of a Recommended Alternative indicated the Project, when combined with a
3 comprehensive package of mitigation strategies, had the potential to provide a net benefit to the
4 Tucson Mitigation Corridor and wildlife movements in Avra Valley compared to 2040 No Build
5 conditions. At the time, FHWA understood that the proposal would be subject to further
6 consultation with the officials with jurisdiction regarding potential use of the property. Feedback
7 from the Bureau of Reclamation on the Draft Tier 1 EIS stated they would not be able to provide
8 a higher level of commitment on their concurrence with the net benefit determination without
9 more detailed, quantitative impact analysis and a more specific mitigation package. The Bureau
10 of Reclamation's other Tucson Mitigation Corridor partners (USFWS, AGFD, and Pima County)
11 cited similar concerns regarding the need for more study in their comments on the Draft Tier 1
12 EIS. FHWA revised the Preliminary Individual Section 4(f) evaluation for the Final Tier 1 EIS; the
13 programmatic net benefit approach is no longer being pursued.

14 The Preferred Alternative with west option is located adjacent to the CAP canal to reduce the
15 barrier effect near the Tucson Mitigation Corridor (a 2,514-acre property that the Bureau of
16 Reclamation preserved for wildlife connectivity). The concept of co-locating I-11 near the CAP
17 canal was referred to as the CAP Design Option in the Draft Tier 1 EIS. The CAP Design Option
18 assumed at-grade travel lanes and would remove and reclaim Sandario Road (further reducing
19 the barrier effect) and co-align existing wildlife crossings over the CAP canal with new wildlife
20 crossings over I-11. All the Build Alternatives that come near the Tucson Mitigation Corridor use
21 the CAP Design Option (including Purple, Green, Recommended, and Preferred with west
22 option). Tier 2 studies may evaluate a tunnel or elevated structure in addition to an at-grade
23 highway.

24 **6.4.2.2 Additional Differentiating Analysis**

25 Agencies and the public expressed concern with traffic, noise, and air quality impacts to the
26 Saguaro National Park and other sensitive resources in Avra Valley. While the qualitative air
27 quality analysis found similar regional air quality impacts between the west and east options in
28 Pima County, agencies requested detailed quantitative analysis of local impacts covering
29 additional topics, such as decreased visibility. These types of quantitative project-level analyses
30 require detailed design information and traffic data (such as roadway profile or specific
31 interchange locations) that have not been developed for the Tier 1 EIS. Because no decision is
32 being made between the west and east options in Pima County, additional analysis
33 differentiating between these options will be conducted in Tier 2.

34 **6.4.2.3 Cultural Resources Survey and Analysis**

35 There was also a concern that comparing potential cultural resource impacts of the east and
36 west options in Pima County doesn't give enough consideration to the fact that most of the area
37 along the west option is unsurveyed and could contain undiscovered cultural resources. The
38 Tier 1 EIS analysis used information collected from Section 106 consulting parties and prior
39 studies to estimate the type and number of cultural resources that might be affected, applying a
40 model to rate areas based on their potential for unrecorded archaeological sites and historic
41 structures in both surveyed and unsurveyed areas. While this is an appropriate level of detail for
42 a Tier 1 EIS and the rankings developed provide a good understanding of how the Build
43 Corridor Alternatives perform relative to each other, the areas rated as having potential
44 moderate or even low levels of impacts (such as the west option in Pima County) could still
45 result in a Section 106 finding of an adverse effect.



1 **6.4.2.4 Section 4(f) Impacts in Downtown Tucson**

2 The Preliminary Section 4(f) evaluation in the Draft Tier 1 EIS found the Orange Alternative
3 would impact Section 4(f) properties in downtown Tucson. A number of scenarios for
4 improvement to I-10 were considered, including alignment shifts, an elevated structure, and a
5 tunnel. For a stretch of 6.5 miles, downtown Tucson is densely developed with parks, historic
6 districts, historic structures, and businesses very close to the existing I-10 right-of-way. Shifting
7 the alignment was considered problematic because it would impact homes, parks, businesses,
8 and historic properties on one or both sides of the highway. An elevated structure (i.e., double
9 decker or viaduct) would require deep excavations in an area known to contain underground
10 archaeological sites, and SHPO advised the noise and visual impacts of such improvements
11 would result in an adverse effect to the historic buildings, districts, and structures. A tunnel
12 would encounter similar concerns with archaeological sites and have an extraordinary cost
13 (\$3.5 to \$5.4 billion).

14 Tier 2 studies may evaluate elevated structures, tunnels, or elimination of frontage roads to
15 minimize impacts in Tucson and these concepts are accounted for in the total project cost
16 estimates in **Table 6-5**. The impact assessment in **Chapter 3** (Affected Environment and
17 Environmental Consequences) assumes widening at grade through Tucson because this would
18 represent the largest footprint. Elevated structures and tunneling are discussed in detail in
19 **Chapter 4** (Draft Preliminary Section 4(f) Evaluation).

20 The estimate of tunneling costs assumes two tunnels would be bored under I-10,
21 accommodating two additional I-11 travel lanes in each direction with existing I-10 remaining in
22 place. Some stakeholder and public comments indicate it would be desirable to put the entire
23 highway corridor (both the existing I-10 and proposed I-11) in an underground tunnel; this would
24 require further study during Tier 2.

25 A common theme in feedback from both stakeholder agencies and the public on the Draft Tier 1
26 EIS was a request that ADOT explore a wider and more creative range of scenarios to co-locate
27 I-11 with I-10. Members of the public specifically stated they would be open to an elevated
28 structure. The City of Tucson suggested the frontage roads be eliminated, and that space be
29 used to provide more highway capacity. Based on a preliminary inventory of parcels
30 immediately abutting the frontage roads between the I-19/I-10 system interchange and Prince
31 Road, there are over 50 (both residence and businesses) whose only access is via the frontage
32 road. There are an additional 40 parcels with access from both the frontage road and a local
33 road. Three recreation resources (David G. Herrera and Ramon Quiroz Park, the Santa Cruz
34 River Park, and the existing and proposed El Paso and Southwestern Greenway trail) rely on
35 the frontage roads for access to parking lots or for maintenance. Several neighborhoods also
36 connect to the frontage road via local roads, and eliminating the frontage road would require
37 reconfiguring ingress and egress.

38 **6.4.2.5 Town of Sahuarita**

39 Carrying both a west and an east option forward allows ADOT to make a more informed
40 decision after further studying concerns brought forward by the Town of Sahuarita, including
41 impacts to residences.



1 **6.4.3 Marana to Casa Grande**

2 From Marana to Casa Grande, the
3 Preferred Alternative is a new corridor and
4 is similar to the Recommended
5 Alternative, incorporating a shift that
6 minimizes impacts to the Santa Cruz
7 River and a new location for the
8 interconnection to I-10 (Figure 6-10).

9 **6.4.3.1 Santa Cruz Floodplain**

10 After review of public and agency
11 comments voicing concern for impacts to
12 the Santa Cruz River and coordination
13 with USACE, FHWA and ADOT shifted a
14 12-mile section of the Recommended
15 Alternative (Option F) to minimize impacts
16 to the Santa Cruz floodplain and
17 associated braided channels, riparian
18 habitat, and wetlands in Pinal County, as
19 shown on Figure 6-10. The Preferred
20 Alternative with west option, as shown in
21 Table 6-1, would impact fewer waters of
22 the US than the Recommended

23 Alternative. While the Preferred Alternative with east option would also impact waters of the US,
24 those impacts would entail widening of existing river and wash crossings.

25 The Project Team explored ways to avoid and minimize impacts to the Santa Cruz river
26 floodplain in response to USACE concerns with impacts to the riparian area and high-quality
27 wetlands. Mountainous terrain and the Ironwood Forest National Monument restrict alternatives
28 west of the river. The Project Team evaluated a shift to the east and determined that the shift
29 would not increase other impacts.

The Preferred Alternative uses Option F, which is the same as the Recommended Alternative with a minor refinement. FHWA and ADOT shifted a 12-mile section of the Recommended Alternative (Option F) to minimize impacts to the Santa Cruz floodplain in response to USACE comments and relocated the connector to I-10 to respond to the Town of Marana concerns. The Preferred Alternative provides an alternate regional route to alleviate congestion and prevent bottlenecks during emergency situations where there currently is no alternative route to I-10. It serves planned growth areas and key economic centers in Marana, Eloy, and Casa Grande and is consistent with local and county-level planning. It will attract and divert traffic from existing roadways and is part of the end-to-end alternative that will reduce travel time between Nogales and Wickenburg compared to the No Build Alternative.

30 **Table 6-1. Miles of Waters of the US in the 2,000-foot-wide Corridors of the**
31 **Recommended and Preferred Alternatives**

Potential Waters of the US	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Santa Cruz River	3.1	2.5	6.7 ^a

32 SOURCE: USGS 2019. [See Table 3.13-5 for more detail.]

33 Note: All numbers in table are rounded to the nearest 0.1 mile.

34 ^a The Preferred Alternative with east option is co-located with I-10; any impacts to waters along this option would entail widening of
35 existing river and wash crossings.

36

37

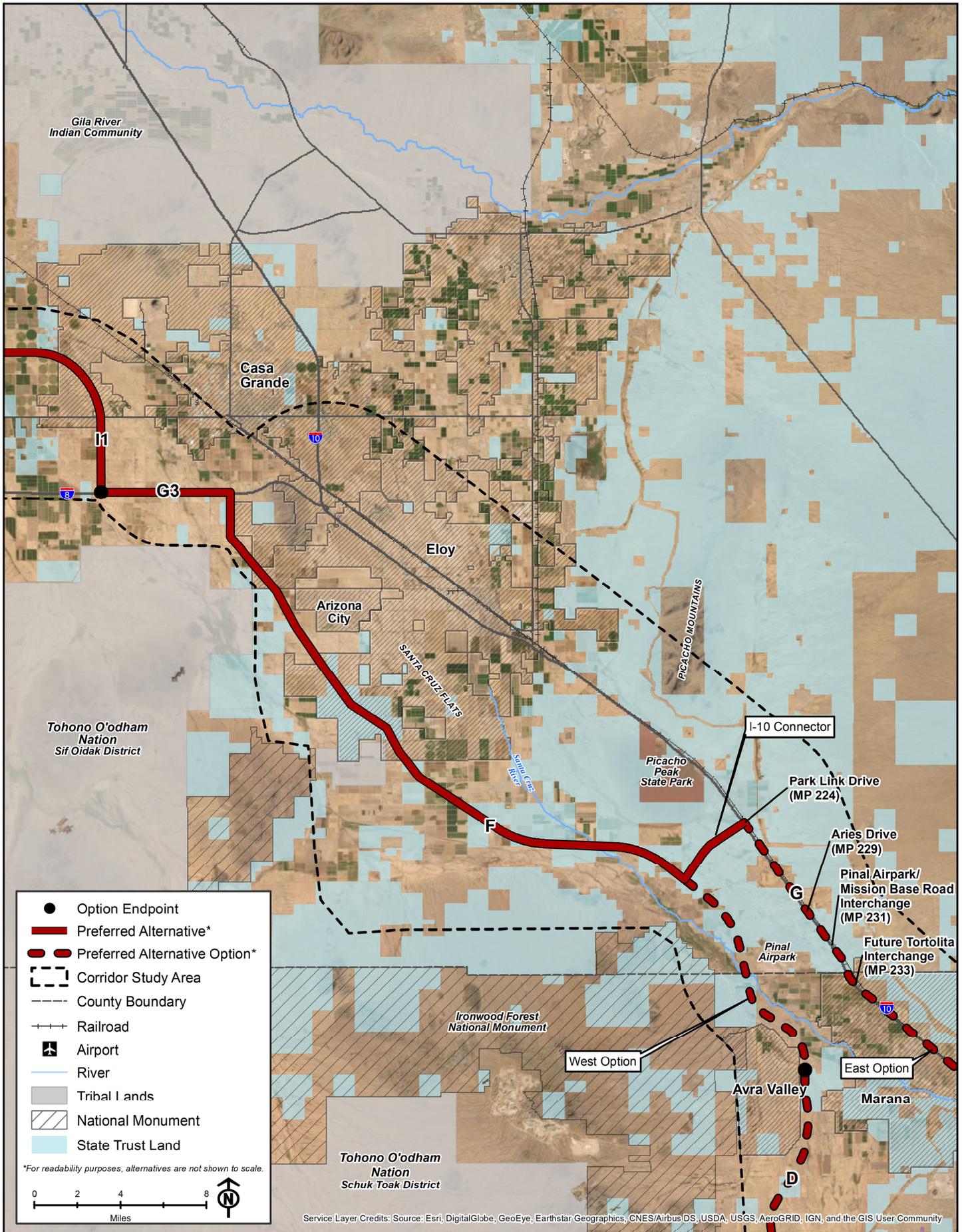


Figure 6-10. Marana to Casa Grande with Preferred Alternative



1 **6.4.3.2 Alternate Regional Route for Incident Management**

2 I-10 is a transcontinental corridor, and it is the only high-capacity transportation connection
3 between Arizona’s two largest population centers—Phoenix and Tucson. This high-volume
4 highway frequently experiences crashes and other incidents, such as weather events, that delay
5 travel. Events that cause highway closures generally happen at random and with very little or no
6 warning. In the event of a full highway closure, mobility delays are not only inconvenient, they
7 present safety hazards for first responders and can have economic impacts to the trucking and
8 freight industry.

9 The Orange Alternative (Option G) would use the existing I-10 corridor, which has enough
10 capacity for projected future traffic volumes with I-11. However, Option G would not supply the
11 alternate route that Option F would in an area where incidents and closures often occur and
12 where the transportation network off the interstate is limited.

13 **6.4.3.3 Planned Growth Areas**

14 The Preferred Alternative (Option F) would provide access to planned growth areas in Marana,
15 Eloy, and Casa Grande. It extends through areas that are vacant or agricultural today but that
16 contain planned growth areas around Marana and Eloy. The development of a new high-
17 capacity transportation facility connecting these growth areas is consistent with local and
18 county-level planning. The land use around the Preferred Alternative in this area is generally
19 undeveloped and agricultural. Impacts to these resources would be minimized and mitigated
20 through Tier 2 design considerations, such as conveyance structures for floodwaters, wildlife
21 connectivity, and habitat impacts.

22 **6.4.3.4 Connector to I-10**

23 The Town of Marana expressed concern that the location of the I-10 connector intersected with
24 I-10 at the same location as the planned Tortolita Boulevard interchange (milepost [MP] 233 on
25 I-10). They predict high local traffic volumes for the interchange as planned residential
26 developments are built, and cited concerns that planning one interchange to serve as both a
27 system interchange (where traffic is moving between I-10 and I-11) and service interchange
28 (where local traffic gets on and off a freeway) would be problematic. The Town of Marana
29 suggested the planned I-11/I-10 service interchange be located farther north on I-10. The
30 Project Team explored three alternative locations for the I-11/I-10 connection:

- 31 • **Pinal Airpark/Mission Base Road (MP 231).** This option was eliminated because it would
32 either require a circuitous route for the connecting highway or go through the Pinal Airpark,
33 a cemetery, and wastewater reclamation facility. This connection point was suggested by
34 the Town of Marana.
- 35 • **Aries Drive (MP 229).** This option would be located entirely on undeveloped State Trust
36 land, would impact no known cultural resources, and would be approximately 1 mile from
37 the Pinal Airpark runway.
- 38 • **Park Link Drive (MP 224).** This option would be located entirely on undeveloped State
39 Trust land, would impact no known cultural resources, and would be approximately
40 4.75 miles from the Pinal Airpark runway. An interchange at Park Link Drive could connect
41 to SR 79, a major arterial road east of I-10.

1 Both the shift to avoid the Santa Cruz River and the new I-10 connector at Park Link Drive bring
2 the Preferred Alternative closer to Pinal Airpark and extend through State Trust land. During
3 coordination, ASLD said they do not have concerns with the floodplain shift and new I-10
4 connector. Coordination with stakeholders that use the Pinal Airpark facility identified no
5 concerns that would affect continued operation of Arizona Army National Guard operations at
6 the Airpark. While other stakeholders stated the Recommended Alternative (with or without the
7 proposed changes) would hinder continued use of the area for parachute training operations,
8 they also acknowledged proposed growth and development in the area would likely impact
9 parachute operations prior to implementation of the I-11 corridor.

10 Based on the above evaluation, FHWA and ADOT are proceeding with the Park Link Drive
11 (MP 224) connection point. This location is responsive to the Town of Marana concerns and
12 avoids co-location with the proposed Tortolita interchange, provides connectivity to SR 79 to the
13 east, and is farther away from the Pinal Airpark than the Recommended Alternative and other
14 locations considered.

15 **6.4.3.5 Impacts to Residences Near Arizona City**

16 Individuals from Arizona City cited concerns with noise, light, and air quality and suggested that
17 the Recommended Alternative be moved west, farther from the residential areas in Arizona City.
18 Shifting the alignment west is constrained by the Tohono O’odham Nation, and would bring the
19 corridor closer to the Santa Cruz River and its tributaries. It would also result in out of direction
20 travel and longer travel times. Therefore, FHWA and ADOT did not refine the Recommended
21 Alternative near Arizona City.

22 **6.4.4 Casa Grande to Buckeye**

23 Between Casa Grande and southern
24 Buckeye, the Preferred Alternative is a
25 new corridor on a new alignment. It
26 connects to SR 85 south of Buckeye and
27 is co-located with SR 85 and I-10 in
28 western Maricopa County (**Figure 6-11**).

29 **6.4.4.1 I-8 Crossing**

30 The Preferred Alternative differs from the
31 Recommended Alternative in the Casa
32 Grande area, and follows Montgomery
33 Road rather than Chuichu Road north of
34 I-8. The Recommended Alternative would
35 have required one system interchange at
36 Chuichu Road approximately 4 miles west
37 of the existing I-8/I-10 system
38 interchange.

The Preferred Alternative differs from the Recommended Alternative in the Casa Grande area, and follows Montgomery Road (Option I2) rather than Chuichu Road north of I-8.

Through the Hidden Valley area, the Preferred Alternative remains the same as the Recommended Alternative (Options I2 and L).

The Preferred Alternative is different from the Recommended Alternative through Buckeye and Palo Verde. It includes Options M, Q2, and Q3 rather than Options N and R, which avoids a new crossing of the Gila and Hassayampa Rivers.

The Preferred Alternative is consistent with local plans and agency feedback and minimizes impacts to the rivers and desert tortoise habitat.

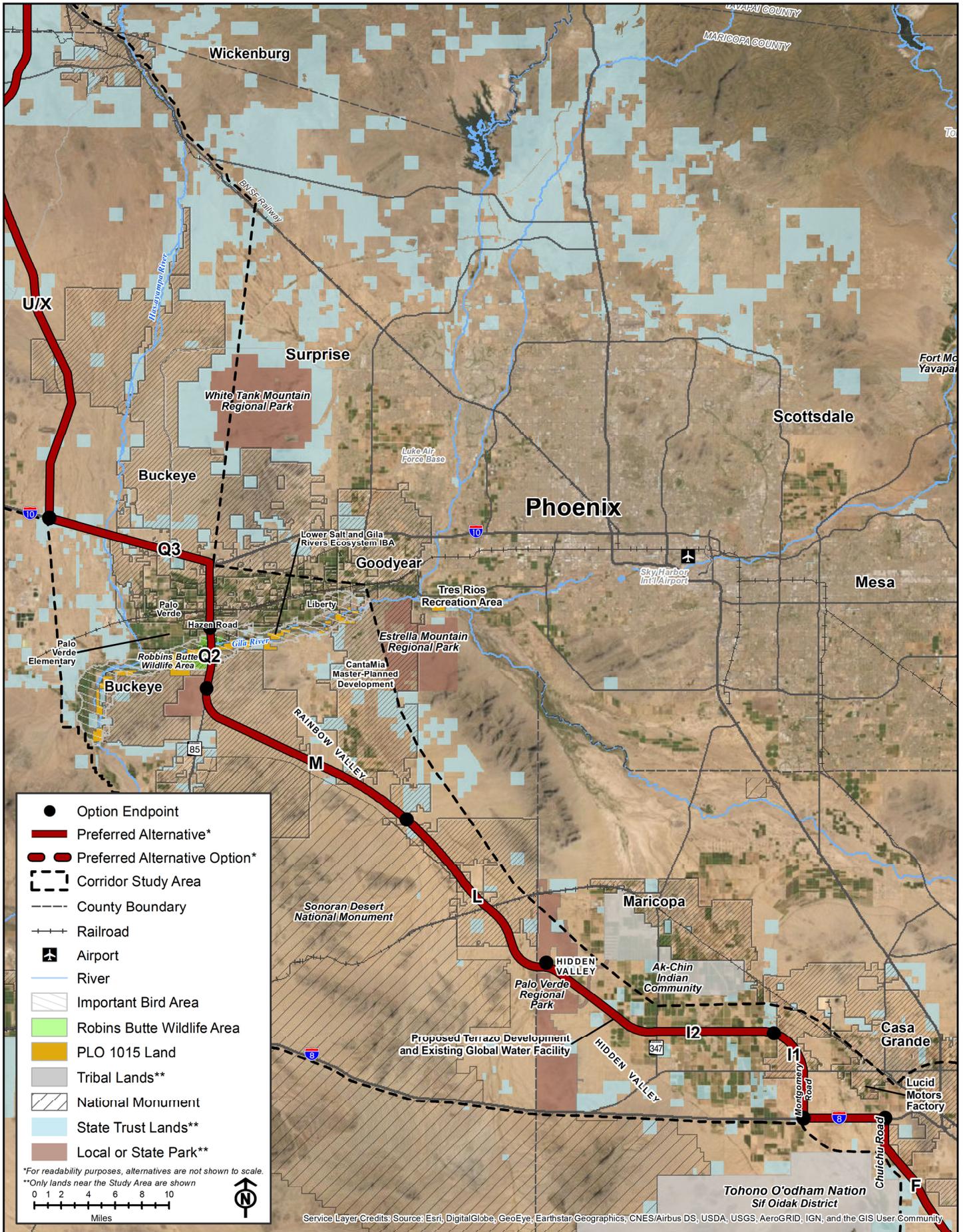


Figure 6-11. Casa Grande to Buckeye with Preferred Alternative



1 Local agencies and organizations including CAG, Pinal County Board of Supervisors, the City of
2 Maricopa, SCMPO, and the Pinal County I-11 Coalition expressed support for an alignment that
3 intersects I-8 at Montgomery Road because they have planned around a high-capacity
4 transportation facility at that location, as evidenced by the West Pinal Freeway in the *Pinal*
5 *Regional Transportation Plan* (Pinal County Regional Transportation Authority 2017). The
6 Recommended Alternative is located in an economic development corridor with several ongoing
7 and planned large-scale developments.

8 Although the Preferred Alternative would require two system interchanges on I-8 (one at
9 Montgomery Road and one where Option F intersects I-8), FHWA and ADOT are proceeding
10 with this alternative because it is consistent with adopted plans and local agency feedback.

11 **6.4.4.2 Maricopa Area**

12 Through the Maricopa area, the Preferred Alternative remains the same as the Recommended
13 Alternative. Agency and public comments requested consideration of the proposed Terrazo
14 master-planned development and associated Global Water facility, which lie within the 2,000-
15 foot-wide corridor of the Recommended Alternative. The corridor is consistent with the location
16 of the West Pinal Freeway in the *Pinal Regional Transportation Plan* through the Hidden Valley
17 area (Pinal County Regional Transportation Authority 2017), although the location of the West
18 Pinal Freeway in the City of Maricopa *2040 Vision Strategic Plan (General Plan)* shows a
19 slightly different location that avoids the Terrazo development (City of Maricopa 2015). The
20 planned Terrazo development has zoning entitlements but has not been officially platted and no
21 building permits have been issued. The Global Water facility provides water, wastewater, and
22 recycled water utility service to the City of Maricopa. While it would be possible to avoid the
23 Global Water facility when placing the specific alignment within the corridor during Tier 2
24 studies, the property on which Terrazo would be located is not avoidable. The Project Team
25 evaluated shifting the corridor south to avoid the proposed footprint of the Terrazo development,
26 and found it would result in more impacts to high-quality Sonoran Desert habitat.

27 Due to the trade-off in impacts, the Recommended Alternative's consistency with the 2017 *Pinal*
28 *Regional Transportation Plan*, and the ability to avoid the Global Water facility within the
29 Preferred Alternative corridor, the Preferred Alternative through Hidden Valley area is the same
30 as the Recommended Alternative.

31 **6.4.4.3 Goodyear, Buckeye, and Palo Verde Area**

32 After review of public and agency comments and obtaining new information regarding the
33 potential loss of irrigation runoff important to maintain habitat for the endangered Yuma
34 Ridgway's rail, FHWA and ADOT revised the Recommended Alternative (Options N and R) in
35 this area. The Preferred Alternative in the Final Tier 1 EIS includes Options M, Q2, and Q3
36 instead of Options N and R. The Preferred Alternative is partially co-located with SR 85 and
37 I-10, eliminating the need for new crossings of the Gila River and Hassayampa River, thereby
38 minimizing impacts to riparian and critical habitat and federally protected species in the area.

39 The Draft Tier 1 EIS identified two alternatives to consider for crossing the Gila River: the
40 Recommended Alternative (a new highway corridor) and the Orange Alternative (co-located with
41 SR 85 and I-10). Tier 2 studies would determine whether the existing crossing under the Orange
42 Alternative would be expanded or rebuilt. Citing the presence of wetlands along the Gila River,
43 USACE suggested particular attention be paid to the Recommended Alternative creating a new

1 crossing of the Gila River and consideration for its potential to be determined the least
2 environmentally damaging practicable alternative.

3 The Recommended Alternative creates new crossings of the Gila and Hassayampa Rivers in
4 areas where there are high-quality wetlands, riparian areas, and threatened and endangered
5 species and habitat. USFWS commented that a new crossing of the Gila River could impact
6 designated critical habitat for the yellow-billed cuckoo and habitat for the southwestern willow
7 flycatcher and Yuma Ridgway's rail. USFWS cited concerns that this area is important recovery
8 habitat and the Recommended Alternative could cause permanent loss of irrigation runoff that
9 sustains habitat, potentially affecting the southwestern willow flycatcher, yellow-billed cuckoo,
10 and Yuma Ridgway's rail. The combined impacts of the new river crossing and the potential loss
11 of agricultural runoff could result in greater habitat impacts than estimated in the Draft Tier 1
12 EIS.

13 In comparison, the Orange Alternative would co-locate with existing crossings of the Gila and
14 Hassayampa Rivers. While the Orange Alternative crosses both rivers, it does in locations
15 where there is already an existing crossing and would likely result in fewer new impacts due to
16 the presence of the existing highways.

17 The Preferred Alternative would avoid creating a new highway corridor through the Gila/Salt
18 River Corridor Granite Reef Dam potential linkage zone, and instead cross this linkage on a co-
19 located SR 85. The Preferred Alternative would also impact the Buckeye Hills-East Sonoran
20 Desert National Monument wildlife linkage (along Option M), which the Recommended
21 Alternative did not intersect. The Gila River linkage is a high value corridor and is home to a
22 greater number of species than the Buckeye Hills linkage, including threatened and endangered
23 species. While the Preferred Alternative would still impact wildlife connectivity, the shift to co-
24 locating with SR 85 and minimization of impacts to the Gila River linkage represent an overall
25 reduction in wildlife connectivity impacts.

26 While the change in corridor alignment results in a slight increase in travel time, the Preferred
27 Alternative balances travel times with overall impacts.

28 **6.4.5 Buckeye to Wickenburg (Maricopa and Yavapai Counties)**

29 Between Buckeye and Wickenburg, the Preferred Alternative is a new corridor on a new
30 alignment. It incorporates a shift to tie into US 93 farther away from the Vista Royale
31 neighborhood (**Figure 6-12**). The planned I-11/I-10 System Interchange at 363rd Avenue is the
32 same as the Recommended Alternative. The location of the I-10/I-11 system interchange at
33 363rd Avenue (MP 100.5 on I-10) was identified early in the design process. The *Interstate 10 –*
34 *Hassayampa Valley Roadway Framework Study* identified traffic interchanges and system
35 interchanges on I-10 in western Maricopa County (MAG 2007). The locations of three system
36 interchanges were proposed at the future Hassayampa Freeway (MP 100.5), SR 85 (MP 112.8),
37 and SR 303L (MP 124.7), providing at least 6 miles of clearance between them for ramping,
38 safe weaving, and maximum flexibility in design. Since that time, the system interchanges for
39 SR 85 and SR 303L have been built. In order to maintain the proper distance and spacing
40 between system interchanges, the connection point of I-11 on I-10 at 363rd Avenue (MP 100.5)
41 was incorporated into all Build Corridor Alternatives for the Tier 1 EIS.

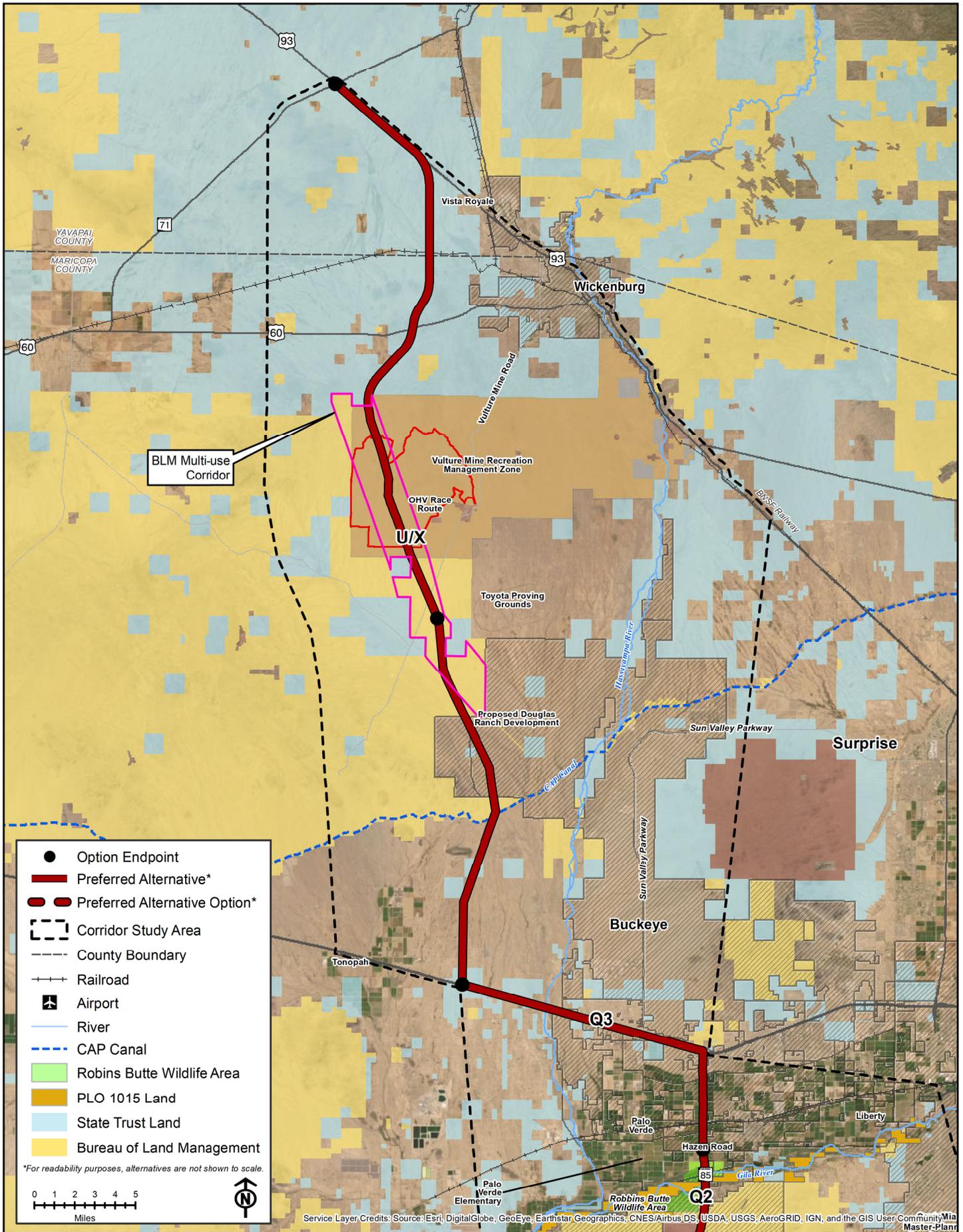


Figure 6-12. Buckeye to Wickenburg with Preferred Alternative



1 **6.4.5.1 Western Maricopa County Area**

2 The Preferred Alternative is the same as the Recommended Alternative (Option U) in western
3 Maricopa County. The Preferred Alternative is generally consistent with planning efforts
4 originating in the mid-2000s that call for a high-capacity facility through the Hassayampa Valley
5 (referred to as the Hassayampa Freeway). However, the I-11 Preferred Alternative does not
6 follow the exact alignment in local plans, instead following a straighter and more direct route.

7 The Purple Alternative is most similar to what is shown in previous local planning documents,
8 which show a highway alignment through the center of the planned Douglas Ranch
9 development and was desired to provide both connectivity and economic development
10 opportunities for the planned development. North of Douglas Ranch, however, constraints within
11 the Vulture Mine RMZ push the corridor farther west than was originally planned, resulting in an
12 out-of-direction loop through the planned Douglas Ranch development. Previous planning
13 documents follow the alignment of Vulture Mine Road, which was eliminated early in the Tier 1
14 EIS planning process based on agency feedback. Instead, the Preferred Alternative follows the
15 alignment of power lines through a multi-use corridor within the Vulture Mine RMZ, 4 to 5 miles
16 west of Vulture Mine Road. Additionally, the Purple Alternative is closer to the Hassayampa
17 River floodplain and riparian habitat and would require more tributary crossings. The Preferred
18 Alternative intersects the western portion of the planned Douglas Ranch development and does
19 not preclude development of a separate facility, such as a parkway, that bisects the
20 development as shown in local plans.

21 Through the Vulture Mine RMZ, the Preferred Alternative is the same alignment as the
22 Recommended Alternative, and is located within a BLM multi-use corridor and closely follows
23 the same alignment as the power transmission lines. This alignment is located 5.9 miles west of
24 Vulture Mine Road, within a BLM multi-use corridor identified through joint planning efforts with
25 BLM. Although some past local planning efforts and commenters on the Draft Tier 1 EIS support
26 locating the new highway on Vulture Mine Road, FHWA and ADOT eliminated the Vulture Mine
27 Road alternative during the alternatives screening process due to concerns it infringes on
28 environmentally sensitive areas and conflicts with planned recreation areas. BLM stated a
29 preference for alternatives either outside of the Vulture Mine RMZ or within the designated
30 multi-use corridor. The Vulture Mine RMZ is a Section 4(f) property; however, FHWA
31 determined that Section 4(f) does not apply to the multi-use corridor because the purpose of the
32 multi-use corridor is to co-locate utilities and transportation infrastructure. Corridor alternatives
33 located within the multi-use corridor avoid Section 4(f) impacts.

34 **6.4.5.2 Wickenburg Area**

35 While the location of the Recommended
36 Alternative was consistent with previous
37 feedback from the Town of Wickenburg
38 and input from the public gathered during a
39 context sensitive corridor design process
40 led by the Town of Wickenburg, feedback
41 gathered during Draft Tier 1 EIS public
42 review shows the locals' desired location
43 for I-11 changed (Town of Wickenburg
44 2017). In response to these comments, the Project Team evaluated alignment shifts to minimize
45 impacts to residential areas without increasing impacts to other resources. FHWA and ADOT

The Preferred Alternative carries forward the Recommended Alternative (Option U and X), with a refinement to Option X near US 93 to minimize impacts to residences near Wickenburg. This alignment minimizes impacts to residences, floodplains, wildlife linkages, and Sonoran Desert tortoise habitat.

1 determined that shifting I-11 (Option X) to a location approximately 1 mile away from the homes
2 in the Vista Royale neighborhood would reduce impacts to those residents while following
3 natural terrain, and reducing impacts to floodplains, wildlife linkages, and Sonoran Desert
4 tortoise habitat.

5 **6.5 Comparison of End-to-End Recommended and Preferred** 6 **Alternatives**

7 As previously described, FHWA and ADOT identified a Preferred Alternative that is different
8 from the Recommended Alternative. Changes were based on feedback on the Draft Tier 1 EIS
9 and the additional technical analyses documented in **Chapter 3** (Affected Environment and
10 Environmental Consequences) of the Final Tier 1 EIS. As shown on **Figure 6-1**, it follows more
11 existing highways than the Recommended Alternative, and includes segments co-located with
12 I-19, I-8, SR 85, I-10, and US 93. It also includes many of the new corridor segments from the
13 Recommended Alternative while incorporating several refinements to avoid and minimize
14 potential impacts. It carries forward two options for further study in Pima County.

15 **6.5.1 Summary of Alignment Differences between the Recommended and** 16 **Preferred Alternatives**

17 The Preferred Alternative is different than the Recommended Alternative in the following areas,
18 as shown on **Figure 6-1**:

- 19 • The Preferred Alternative carries forward both the west option in Pima County
20 (Recommended or Green Alternative) and the east option in Pima County (Orange
21 Alternative), allowing ADOT to make a more informed decision after completing detailed
22 environmental and engineering studies in Tier 2.
- 23 • The Preferred Alternative connects to I-10 at Park Link Drive north of Marana rather than
24 Tortolita Boulevard, which is responsive to feedback from the Town of Marana.
- 25 • The Preferred Alternative incorporates a refinement in southern Pinal County to minimize
26 impacts to the Santa Cruz River, in response to comments from USACE.
- 27 • The Preferred Alternative follows Montgomery Road north of I-8, which is consistent with
28 adopted plans and local agency feedback.
- 29 • The Preferred Alternative uses SR 85 and I-10 in the Buckeye area, eliminating new
30 crossings of the Gila River and Hassayampa River and minimizing impacts to critical riparian
31 habitat and federally protected species.
- 32 • The Preferred Alternative was shifted slightly west near US 93 in Yavapai County to
33 minimize impacts to residences, floodplains, wildlife linkages, and Sonoran Desert tortoise
34 habitat.

35 **Figure 6-13** shows the Preferred Alternative. **Table 6-2** compares the Recommended
36 Alternative and Preferred Alternative major geometric characteristics.

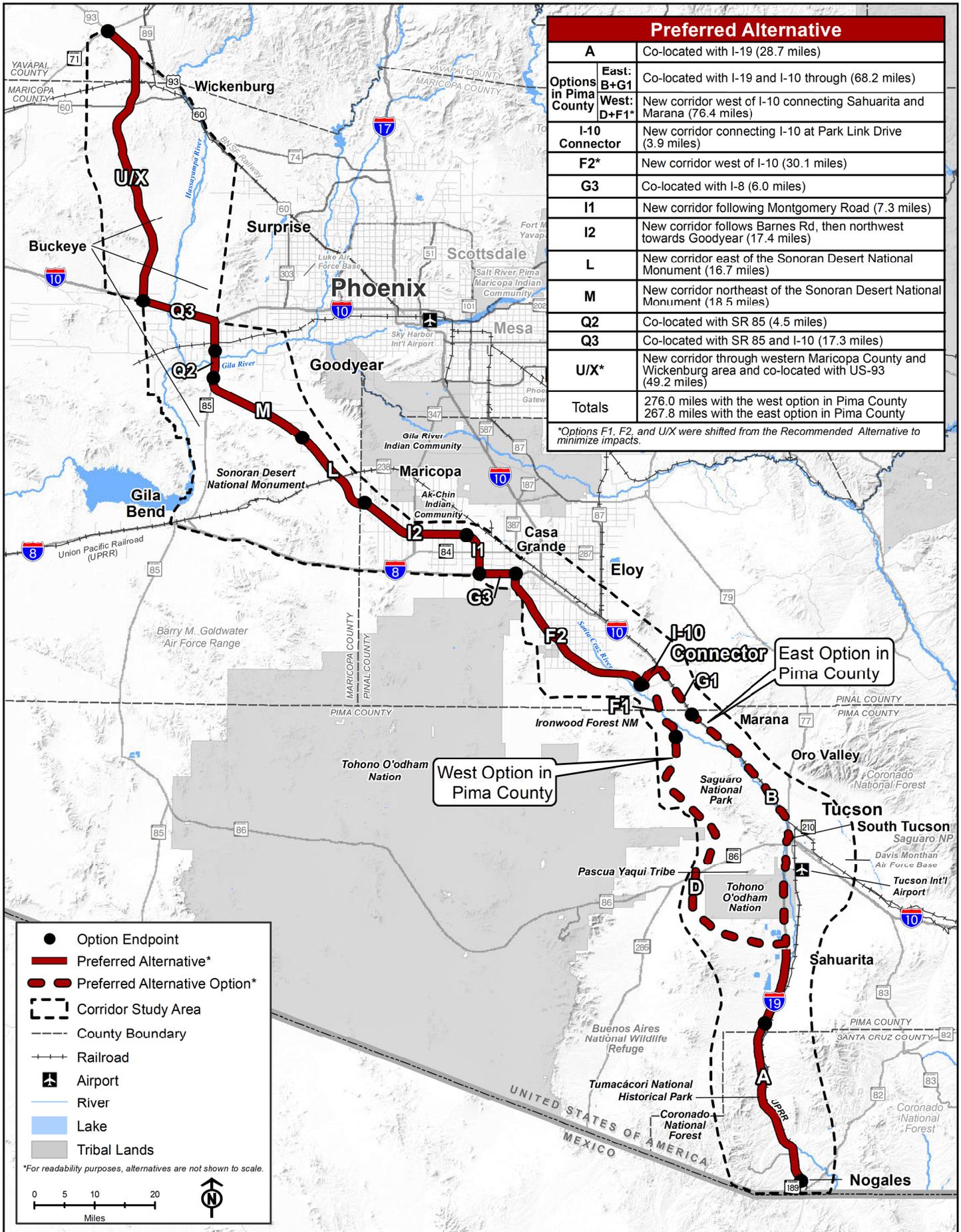


Figure 6-13. Preferred Alternative



1 **Table 6-2. Characteristics of the Recommended and Preferred Alternatives**

Characteristic	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Total Length (miles)	276.1	276.0	267.8
New Lane Miles	917	864	714

2 **6.5.2 Purpose and Need Comparison**

3 The Recommended and Preferred Alternative were evaluated using the same six purpose and
 4 need metrics first presented in the Draft Tier 1 EIS to determine how effectively they address
 5 the transportation needs in the Study Area. The results of this evaluation are summarized in
 6 **Table 6-3.**

7 **Table 6-3. Considerations in Meeting the I-11 Purpose and Need: Recommended**
 8 **and Preferred Alternatives**

Purpose and Need Metric	No Build Alternative	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Population and Employment Growth				
Provides Access to Planned Growth Areas ^a	Does not serve highest growth area (western Maricopa County, within the Study Area)	Best serves areas of greatest population and employment growth in the Study Area in Pinal and western Maricopa Counties (Casa Grande, Goodyear, Buckeye, and Wickenburg)	Best serves Casa Grande and Wickenburg growth areas	Best serves continued population and employment growth centered along existing I-10 and I-19 (Sahuarita, Tucson, Marana)
			Serves growth in Buckeye well, but does not provide as much access to the Goodyear/ SR 303L area as the Recommended Alternative	
Traffic Growth and Travel Time Reliability				
Reduces Travel Time for Long-Distance Traffic (2040 northbound travel time from Nogales to Wickenburg) ^b	297 minutes	234 minutes	236 minutes	250 minutes



Purpose and Need Metric	No Build Alternative	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Achieves LOS C or better in rural areas, LOS D or better in urban areas on I-11 ^b	LOS F on existing roads in some areas	LOS C or better on I-11	LOS C or better on I-11	LOS C in rural areas outside of Tucson LOS D on I-11 in urban areas (Tucson)
System Linkages and Regional Mobility				
Effectively attracts/diverts traffic from existing roadways, as measured by:				
Percent increase in VMT	No diversion of passenger vehicles or trucks	6 percent increase in passenger car and truck VMT	5 percent increase in passenger car and truck VMT	6 percent increase in passenger car and truck VMT
Percent increase in truck VMT		23 percent increase in truck VMT	21 percent increase in truck VMT	23 percent increase in truck VMT
Access to Economic Activity Centers				
Serves Key Economic Centers ^c	Serves 8 existing economic centers	Serves 16 economic centers, 8 existing and 8 emerging	Serves 15 economic centers, 6 existing and 9 emerging	Serves 17 economic centers, 8 existing and 9 emerging
Homeland Security and National Defense				
Provides an Alternate Regional Route ^d	No	Yes, for 247.4 miles of the total 276.1-mile-long alternative	Yes, for 219.5 miles of the total 276.0-mile-long alternative	Yes, for 143.1 miles of the total 267.8-mile-long alternative

1 ^a Planned growth areas included in this metric are shown as areas of growth on **Figure 1-4**.
 2 ^b Measured in the afternoon peak period.
 3 ^c Key economic centers shown as existing and emerging employment clusters on **Figure 1-4**.
 4 ^d Alternate regional route was reported by segment (lettered option) in the Draft Tier 1 EIS. The Final Tier 1 EIS reports this metric
 5 by miles because segmentation has changed, and mileage provides a consistent measurement across all alternatives.

6 6.5.3 Comparison of Impacted Resources

7 **Table 6-4** compares impacts for the Recommended and Preferred Alternatives where they have
 8 been quantified in **Chapter 3** (Affected Environment and Environmental Consequences) and
 9 **Chapter 4** (Draft Preliminary Section 4(f) Evaluation). Note there were no quantified differences
 10 for **Section 3.11** (Hazardous Materials); **Section 3.12** (Geology, Soils, and Prime and Unique
 11 Farmlands); **Section 3.15** (Temporary and Construction-Related Impacts); **Section 3.16**
 12 (Irreversible and Irrecoverable Commitment of Resources); and **Section 3.17** (Indirect and
 13 Cumulative Effects) as impacts are similar for these resources.

14 Under all Build Corridor Alternatives, construction of new transportation facilities could indirectly
 15 affect the type or pace of land use changes through the introduction of new access and more
 16 efficient travel corridors to undeveloped areas. Additionally, the Build Corridor Alternatives
 17 would add to the cumulative efficiency and mobility benefits provided by the transportation



1 system through the diversion of traffic, improved travel times, improved safety, and more direct
 2 routes. Indirect and cumulative impacts for all alternatives from potential future actions are
 3 discussed further in **Section 3.17** (Indirect and Cumulative Effects).

4 **Table 6-4. Comparison of Resources in the 2,000-foot-wide Corridors of the**
 5 **Recommended and Preferred Alternatives**

Title	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Land Use (Section 3.3)			
BLM Land (acres)	6,415	10,861	10,323
Private Land (acres)	40,939	38,596	39,999
State Trust Land (acres)	12,629	17,241	12,487
Community Resources, Title VI, and Environmental Justice (Section 3.5)			
Project Area within Minority or Low-Income Communities (# of acres)	29,257	15,786	18,790
Project Area within Minority or Low-Income Communities (% of total Project Area acres)	39%	24%	29%
Economic Impacts (Section 3.6)			
Gross Regional Product (\$ Billions)	\$12.2	\$11.7	\$9.6
Personal Income (\$ Billions)	\$10.3	\$10.1	\$8.5
Employment (Thousands of Job-Years)	136.2	130.2	106.7
Archaeological, Historical, Architectural, and Cultural Resources (Section 3.7)			
Percent covered by previous cultural resource surveys (% of total Project Area acres)	23%	28%	39%
Total recorded archaeological sites and historic structures within surveyed areas (number)	215	246	420
Estimated potentially NRHP-eligible archaeological sites and historic structures affected (number)	100	110	70
Total NRHP-listed or determined eligible historic districts and buildings affected (number)	0	0	4
Estimated unrecorded potentially NRHP-eligible historic districts and buildings affected (number)	4	3	5
Traditional Cultural Properties Potentially Directly Affected (number)	2	2	2

Title	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Visual and Aesthetics (Section 3.9)			
BLM Visual Resource Management Class I (acres)	0	0	0
BLM Visual Resource Management Class II (acres)	0	0	0
BLM Visual Resource Management Class III (acres)	2,988	3,097	2,568
BLM Visual Resource Management Class IV (acres)	3,495	7,583	7,583
Water Resources (Section 3.13)			
Within Active Management Areas for Groundwater (miles)	258	270	247
Within Sole Source Aquifers (miles)	106	119	98
Groundwater Wells (number)	887	636	1,183
Impaired Waters in Proximity (miles)	35	32	41
Potential Waters of the US (miles)	306	323	312
National Wetlands Inventory (NWI) and Key Potential Wetlands (acres / number)	187 / 5	282 / 3	286 / 5
FEMA Floodplains (acres)	15,817	13,261	10,809
Biological Resources (Section 3.14)			
Riparian Areas (acres)	1,209	694	590
Important Bird Areas (acres)	1,464	1,133	572
Fragments Lost from Existing Large Intact Blocks (acres)	13,072	8,368	3,550
Section 4(f) Properties (Chapter 4)			
Potential Use of Section 4(f) Properties (number)	2	2	8

1 6.6 Capital, Operations, and Maintenance Costs

2 **Table 6-5** summarizes total costs (including right-of-way and capital costs) for the
 3 Recommended and Preferred Alternatives. Total project cost includes estimated construction
 4 cost (materials, labor, and equipment) and right-of-way acquisition, and was calculated using
 5 2017 cost data. Maintenance costs were also developed and are provided in **Table 6-6**.



1 **Table 6-5. Total Project Cost of the Recommended and Preferred Alternatives**

Corridor Option	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
A	\$0	\$0	\$0
B	N/A	N/A	\$586 million to \$5.4 billion ^a
D	\$2,082,061,000	\$2.1 to \$3.2 billion ^b	N/A
F ^c	\$1,916,370,000	N/A	N/A
F1 ^c	N/A	\$349,831,000	N/A
F2 ^c	N/A	\$1,116,472,000	\$1,116,472,000
I-10 Connector ^d	\$602,784,000	\$602,784,000	\$602,784,000
G1	N/A	N/A	\$0
G3	N/A	\$0	\$0
I1	N/A	\$425,705,000	\$425,705,000
I2	\$233,464,000	\$233,464,000	\$233,464,000
L	\$252,613,000	\$252,613,000	\$252,613,000
M	N/A	\$568,067,000	\$568,067,000
N	\$1,186,438,000	N/A	N/A
Q2	N/A	\$79,000,000	\$79,000,000
Q3	N/A	\$412,413,000	\$412,413,000
R	\$796,206,000	N/A	N/A
U/X	\$1,113,019,000	\$1,097,545,000	\$1,097,545,000
Total	\$8.2 billion^e	\$7.2 to \$8.3 billion	\$5.4 to \$10.2 billion

2 Source: Preliminary Cost Estimates Memo Version 5 (ADOT 2020c)

3 Note: Total project cost includes construction cost and right-of-way cost and was calculated using 2017 cost data.

4 ^a This Tier 1 EIS does not determine a design concept for the east option. Range of cost for the east option includes at-grade widening (lowest cost), a collector-distributor road system, elevated structures, or tunneling (highest cost).

6 ^b This Tier 1 EIS does not determine a design concept for the west option near the Tucson Mitigation Corridor. Range of cost for the west option includes a new at-grade freeway (lowest cost), elevated structures, or tunneling (highest cost).

8 ^c Recommended Alternative cost is for the entire length of Option F. The Preferred Alternative breaks Option F into F1 (included only in the west option) and F2 (included in both the west and east options).

10 ^d Although the alignments of the I-10 connector are different across the alternatives, the length and costs are the same.

11 ^e The Draft Tier 1 EIS cited a cost of \$7.6 billion (page 4-100). It has been revised in the Final Tier 1 EIS to include the cost of the I-10 connector.



1 **Table 6-6. Annual Maintenance Costs for the Recommended and Preferred**
2 **Alternatives**

Corridor Option	Lane Miles on Existing Routes	Lane Miles on New Routes	Cost per Lane Mile	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
A ^a	206.9	–	\$14,040	\$2,905,000	\$2,905,000	\$2,905,000
B ^{a, b}	597.0	–	\$14,040	N/A	N/A	\$8,383,000
D ^b	–	354.5	\$11,200	\$3,970,000	\$3,970,000	N/A
F ^d	–	356.2	\$11,200	\$3,990,000	N/A	N/A
F1 ^d	–	72.1	\$11,200	N/A	\$808,000	N/A
F2 ^d	–	205.8	\$11,200	N/A	\$2,305,000	\$2,305,000
I-10 Connector		31.5	\$11,200	\$353,000	\$353,000	\$353,000
G1 ^a	52.5	–	\$14,040	N/A	N/A	\$737,000
G3 ^a	42.0	–	\$14,040	N/A	\$590,000	\$590,000
I1	–	51.1	\$11,200	N/A	\$572,000	\$572,000
I2	–	130.5	\$11,200	\$1,461,000	\$1,461,000	\$1,461,000
L	–	105.3	\$11,200	\$1,180,000	\$1,180,000	\$1,180,000
M	–	129.4	\$11,200	N/A	\$1,450,000	\$1,450,000
N	–	179.3	\$11,200	\$2,009,000	N/A	N/A
Q2 ^a	40.9	–	\$14,040	N/A	\$574,000	\$574,000
Q3 ^a	155.4	–	\$14,040	N/A	\$2,182,000	\$2,182,000
R	–	122.4	\$11,200	\$1,371,000	N/A	N/A
U/X ^{a, c}	43.0	300.6– 305.5	\$11,200	\$3,904,000	\$3,849,000	\$3,849,000
Total	–	–	–	\$21,143,000	\$22,199,000	\$26,541,000

3 ^a Maintenance costs for co-located options include all I-11 travel lanes.
4 ^b Maintenance costs for Options B and D are for at-grade facilities.
5 ^c Hybrid Option U/X assumes a unit cost for a new facility for the entire length.

6 **6.7 Areas of Controversy and Issues to be Resolved**

7 Due to the nature of the Tier 1 EIS process, there are outstanding issues and areas of
8 controversy to be resolved in the Tier 2 process. Specific commitments for additional analysis
9 are summarized succinctly in **Chapter 7** (Summary of Mitigation and Tier 2 Analysis) for
10 reference if ADOT embarks on a Tier 2 study.

11 The Preferred Alternative carries forward both the west option in Pima County (Recommended
12 or Green Alternative) and the east option in Pima County (Orange Alternative). Including these
13 two options in the Preferred Alternative will give ADOT the opportunity to make a more informed
14 decision after completing more detailed environmental studies and engineering in Tier 2.

1 Because both options impact Section 4(f) properties such as parks and cultural resources,
2 additional analysis is needed to identify the least overall harm to Section 4(f) properties.
3 Therefore, Tier 2 studies will analyze outstanding issues for both the west option and east
4 option in Pima County.

- 5 • For the west option in Pima County, agencies and the public requested additional
6 information on traffic, noise, and impacts to air quality, water quality, wildlife, historic
7 resources, and night skies. Sensitive resources in this area include Saguaro National Park,
8 Tucson Mitigation Corridor, Tucson Mountain Park, water recharge areas
9 (CAVSARP/SAVSARP), lands being set aside for conservation, and the Sonoran Desert
10 ecosystem as a whole.
- 11 • For east option in Pima County, Tier 2 studies will analyze options to expand I-10, such as
12 widening at grade, tunneling, or elevated structures, and associated impacts to surrounding
13 business, neighborhoods, Section 4(f) properties, parks, and historic resources. The City of
14 Tucson also requested that the option of eliminating frontage roads and using the space to
15 widen I-10 be studied further. Tier 2 engineering studies would address whether system and
16 service interchanges would need to be reconstructed.

17 Of particular importance to several agencies is the commitment that ADOT develop and fund
18 wildlife studies to inform design, as described in more detail in T2-Biological Resources-3 and
19 T2-Biological Resources-4 in **Chapter 7** (Summary of Mitigation and Tier 2 Analysis).

20 The final draft Tier 1 Section 106 programmatic agreement (PA) was distributed to consulting
21 parties on May 5, 2021, for final review and comment. Consultation is ongoing. The final draft
22 PA, included in this Final Tier 1 EIS in **Appendix E7** (Section 106 Consultation Summary and
23 Programmatic Agreement), reflects Section 106 consultation to date. If the PA is not executed
24 before the Tier 1 EIS Record of Decision is issued, it may be executed subsequently.
25 Construction on Tier 2 projects would not proceed until appropriate Section 106 agreement
26 documents are executed.

27 **6.8 Funding, Implementation, and Phasing**

28 **6.8.1 Funding**

29 At this time, no funding has been identified to plan, design, or construct any part of I-11,
30 including any Tier 2 analysis. The implementation of the corridor could entail federal, state, or
31 local funding; tolling; or private-public partnerships.

32 Federal spending on surface transportation is currently authorized under the 2015 Fixing
33 America's Surface Transportation Act, or "FAST Act," which includes the many formula,
34 discretionary grant, and loan programs that distribute federal transportation funds. A number of
35 federal funding programs could be explored to further develop I-11.

36 Public-private partnerships assist transportation and other government agencies through
37 collaborative funding and financing techniques that share risks and rewards for infrastructure
38 investments. Many public-private partnership projects apply alternative delivery techniques such
39 as design/build strategies to reduce costs and accelerate schedules. Public-private partnerships
40 also may apply managed lane or toll road methods to provide funding for the project.



1 6.8.2 Planning and Programming

2 Programming funds for a transportation projects in Arizona begins with a long-range planning
3 process, moves into a more realistic 20-year plan, and finally yields a 5-year program. ADOT's
4 current long-range transportation plan, *What Moves You Arizona*, does not specify a list of
5 projects (ADOT 2018c). The plan established an investment strategy that identifies what
6 percentage of the funds that pass through ADOT will go to preservation, modernization, and
7 expansion. Further study and construction of I-11 would be considered an expansion project.

8 ADOT's design and construction budget for highways, transit, airports, and highway support
9 facilities is covered in the Five-Year Transportation Facilities Construction Program (ADOT
10 2019b). The Five-Year Program is the lineup of projects funded for design and/or construction
11 and is revised annually. ADOT prioritizes projects for inclusion in the Five-Year Program
12 through a Planning to Programming (P2P) process. The P2P process begins by compiling a list
13 of prospective projects from ADOT Planning staff, Council of Governments, municipal planning
14 organizations, and ADOT District nominations. After the nominations are compiled, ADOT
15 undergoes a rigorous scoring process based on technical studies, policy considerations, and
16 safety service values to prioritize which projects will get funded for design and/or construction.
17 I-11 Tier 2 studies would follow this process as well, and would be considered for inclusion in
18 the Five-Year Program after first being nominated by local planning organizations and
19 community leaders that work closely with ADOT in the P2P process.

20 A potential project goes through several levels of review to become part of the tentative program
21 before being presented to the State Transportation Board for consideration and approval. A
22 public comment period and public hearings are also part of the process.

23 The regional planning organizations within the Study Area undertake a metropolitan planning
24 process to guide transportation investments and identify priority projects for funding in their
25 planning area. These also provide a process through which federal, state, regional, or local
26 funds could be allocated to advance I-11. Major revenue sources at a regional level can include
27 voter-approved taxes dedicated to transportation.

28 The ADOT and metropolitan planning processes that guide transportation investments consider
29 a number of factors when prioritizing potential projects such as I-11. These include:

- 30 • Availability of funding
- 31 • Stakeholder collaboration and feedback
- 32 • Integration into the current network and addressing areas with the greatest transportation
33 and redundancy needs
- 34 • Leveraging current and planned investments
- 35 • Ability to accommodate the full I-11 build configuration by acquiring right-of-way and
36 preserving access control
- 37 • Economic development needs



1 **6.8.3 Phasing**

2 Following the public review period for this Final Tier 1 EIS, FHWA and ADOT will publish a
3 Record of Decision that affirms a Selected Alternative. If FHWA and ADOT select a Build
4 Corridor Alternative in the Record of Decision, the build alternative would be implemented in
5 segments as funding is available. If the No Build Alternative is selected, no project would occur.

6 FHWA and ADOT have determined that the I-11 project from Nogales to Wickenburg has logical
7 termini and independent utility. ADOT will make a determination of logical termini and
8 independent utility before making a Tier 2 decision on smaller sections. Segments of
9 independent utility are portions of a project that may be constructed without other construction
10 projects or linkages; are not dependent upon other segments of the project to demonstrate
11 improvements to the transportation system; and would be considered complete and separate
12 projects.

13 ADOT may also phase Tier 2 projects according to the type of facility and extent of
14 improvements within a segment such as intersection improvements, additional access controls,
15 or construction of a two-lane or four-lane divided roadway that is later upgraded to interstate
16 standards.

17 For example, segments of I-11 that would be a new highway could follow a phased
18 implementation that first builds a smaller two-lane road (an interim facility), followed by projects
19 that incrementally widen the roadway or build and reconstruct interchanges, until the ultimate
20 facility is constructed to interstate standards. Segments of I-11 co-located with existing facilities
21 could also be incrementally widened as traffic needs warrant. Locations where I-11 connects
22 with existing facilities, such as the I-11/I-10 connection in Sahuarita, could first be implemented
23 as a normal service interchange and expanded to a system interchange when traffic needs
24 warrant. Care must be taken in a phased implementation plan to preserve the required right-of-
25 way; provide proper access controls; and implement the appropriate planning, design, and
26 construction methodology necessary for future interstate standards.

27 **6.8.4 Tier 2 Analysis**

28 ADOT will act as the lead agency on any future Tier 2 process for the I-11 project as FHWA and
29 ADOT entered a Memorandum of Understanding in April 2019 where ADOT was assigned
30 responsibility to conduct environmental reviews under NEPA (FHWA and ADOT 2019).

31 Before initiating a Tier 2 project, ADOT would verify the termini, identify the scope (two-lane,
32 four-lane, improvements to existing highway, etc.), and determine the specific class of NEPA
33 analysis. The Tier 2 process would include NEPA analysis to inform the selection of a specific
34 alignment within the 2,000-foot-wide corridor, site-specific environmental analyses, development
35 of site-specific mitigation measures, and preliminary design. The alignment is expected to be
36 approximately 400 feet wide, but will depend on site-specific constraints and requirements.
37 ADOT will continue to coordinate with tribes, public, and agencies prior to and during Tier 2
38 project-level analysis.

39 The Tier 2 analysis would be based on more specific corridor alignment information and design
40 features, allowing a more precise evaluation of the impacts. Additional air quality, noise,
41 biological resources, and other studies would be conducted to assess impacts to the natural



1 environment. The more specific corridor alignment and design information would allow a more
2 precise evaluation of the impacts related to individual parcels of land, displacements,
3 relocations, and communities within each Tier 2 study area. Further evaluation to identify and
4 quantify any adverse impacts and mitigation measures would occur and would comply with
5 requirements that the project not cause a disproportionately high and adverse effect on those
6 populations.

7 ADOT is not currently acquiring any right-of-way for I-11. The Tier 1 EIS identifies a 2,000-foot-
8 wide corridor within which ADOT will locate a 400-foot-wide specific alignment during future Tier
9 2 studies. ADOT does not anticipate acquiring right-of-way until after the Tier 2 environmental
10 process is underway and funding for the project is authorized. There is no specific timing for the
11 Tier 2 process as there is currently no funding for the future planning, design, right-of-way
12 needs, environmental studies, or construction for I-11.

13 See **Chapter 7** (Summary of Mitigation and Tier 2 Analysis) for a summary of specific Tier 2
14 studies and mitigation. Because this is a Tier 1 NEPA document, mitigation measures in the
15 Record of Decision represent commitments that will be implemented in I-11 Tier 2 projects.

16 A summary of future corridor opportunities, including emerging technologies, is provided in Draft
17 Tier 1 EIS **Section 2.5** (Future Corridor Opportunities).



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