



1 **3.14 Biological Resources**

2 **3.14.1 Summary of Draft Tier 1 EIS**

3 The Project Team identified biological resources by coordinating with local, state, and federal
4 agencies and by reviewing available literature, websites, and digital spatial data. The regulatory
5 framework for biological resources includes federal laws, regulations, and executive orders,
6 state laws and regulations, and local ordinances and plans. The Orange Alternative overall
7 would have the least potential direct impacts on biological resources, mainly because this
8 alternative would be the most co-located along existing transportation corridors. In contrast, the
9 Green Alternative, which has a larger amount of new alignment compared to the other
10 alternatives, and based on its greater impacts to riparian areas and to wildlife connectivity,
11 would cause the most deleterious impacts to biotic communities, Important Bird Areas, Species
12 of Economic and Recreational Importance, and special status species, compared to the other
13 alternatives. The Green Alternative also would have the greatest potential to increase the
14 spread of invasive species compared to the other alternatives. The biological resources that
15 were investigated are described in the following sections, along with a summary comparison of
16 the alternatives.

17 **3.14.1.1 Biotic Communities**

18 The Purple Alternative, followed by the Green Alternative, would impact the greatest surface
19 area of biotic communities overall. The overall footprint of the Orange Alternative, and to a
20 lesser extent that of the Purple Alternative, would be reduced compared to the Green
21 Alternative because these two alternatives would be partially co-located along existing
22 transportation routes.

23 The Green Alternative would have the greatest potential impact to overall riparian habitat
24 because it parallels the Santa Cruz River to a greater extent than the other alternatives.
25 However, even though the Purple Alternative would have a smaller surface area of impacts to
26 overall riparian habitat than the Green Alternative, it may have the greatest impact to perennial
27 riparian areas due to the new crossing of the Gila River. The Orange Alternative would have the
28 least potential impact to riparian habitat.

29 The Purple Alternative would have the greatest potential impact to Important Bird Areas
30 because it introduces a new crossing of the Gila River and then parallels the river. The Orange
31 Alternative would have the least potential impact to Important Bird Areas as it crosses the Gila
32 River along the existing SR 85 alignment.

33 All Build Corridor Alternatives would result in loss of potential habitat and impact species
34 movement within the vicinity of the I-11 Corridor. The Green and Purple Alternatives would have
35 the greatest potential to impact Species of Economic and Recreational Importance. The Orange
36 Alternative would have the least potential direct impact on habitat for Species of Economic and
37 Recreational Importance because this alternative would be the most co-located along existing
38 transportation corridors. The Orange Alternative would likely have the smallest impact (the least
39 increase in wildlife mortality).

1 The Purple and Green Alternatives would generate an increased threat of noxious and invasive
2 species spreading and impacting native species along new alignments in rural, undeveloped
3 areas. The Orange Alternative would be co-located along the existing highway in the South and
4 Central Sections where many noxious and invasive species have already become established.
5 As such, the Orange Alternative would likely have the least impact of the three Build Corridor
6 Alternatives.

7 3.14.1.2 Special Status Species

8 All Build Corridor Alternatives could impact Endangered Species Act (ESA)-listed species
9 associated with the Santa Cruz River. Unlike the Green and Orange Alternatives, the Purple
10 Alternative would require a new crossing of the Gila River in yellow-billed cuckoo (*Coccyzus*
11 *americanus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) habitat. A portion of
12 the Purple Alternative and Green Alternative would likely impact Pima pineapple cactus
13 (*Coryphantha scheeri* var. *robustispina*); substantial compensatory mitigation would be required
14 to avoid a Jeopardy decision by USFWS. The Orange Alternative would also likely impact Pima
15 pineapple cactus, but would require less ground disturbance, such that a Jeopardy decision by
16 USFWS is less likely. The Purple and Green Alternatives, which bisect Avra Valley, would likely
17 have the greatest impacts to parcels of land set aside as conservation areas by the *City of*
18 *Tucson Habitat Conservation Plan* (City of Tucson 2018), which provides specific conservation
19 measures to protect ESA-listed species.

20 None of the Build Corridor Alternatives would impact critical habitat for the Chiricahua leopard
21 frog (*Lithobates chiricahuensis*), southwestern willow flycatcher, and western yellow-billed
22 cuckoo associated with the Santa Cruz River. All the Build Corridor Alternatives could impact
23 critical habitat and proposed critical habitat associated with the Santa Cruz River for the
24 southwestern willow flycatcher and western yellow-billed cuckoo. Unlike the Green and Orange
25 Alternatives, the Purple Alternative would require a new crossing of the Gila River in critical
26 habitat for yellow-billed cuckoo, and in habitat for the southwestern willow flycatcher and Yuma
27 Ridgway's rail (*Rallus obsoletus yumanensis*).

28 The three Build Corridor Alternatives would have similar surface areas of habitat loss in the
29 North Section; however, the Green Alternative would likely result in the largest amount of habitat
30 loss and potential impacts to other sensitive species in the South and Central Sections. The
31 Orange Alternative would have the least impact on other sensitive species because it contains
32 the most co-located options and the smallest surface area of impacts to biotic communities.

33 3.14.1.3 Wildlife Connectivity

34 The Green Alternative is primarily situated in areas without existing major highways and
35 therefore would introduce more highway infrastructure within wildlife corridors than the Purple or
36 Orange Alternatives. The Orange Alternative is the most co-located alternative with existing
37 transportation routes and therefore would have the least potential negative impacts to wildlife
38 connectivity.

39 3.14.2 Summary of Changes Since Draft Tier 1 EIS

40 The following summarizes substantive comments on the Draft Tier 1 EIS and changes to
41 analysis or descriptions of affected environment and environmental consequences based on the



1 comments received. **Appendix E14** (Biological Resources Technical Memorandum) in the Final
2 Tier 1 EIS was also updated.

3 Pima County, the DOI, and the Coalition for Sonoran Desert Protection requested that the text
4 on the Pima County Conservation Lands System and other Pima County ordinances be
5 updated, and that potential effects to Pima County's Conservation Lands System be analyzed.
6 Therefore, the following changes were made to **Appendix E14** (Biological Resources Technical
7 Memorandum).

- 8 • **Section E14.1.3** (Local Ordinances) was updated to include information on the Pima County
9 Maeveen Marie Behan Conservation Lands System and Pima County Floodplain and
10 Erosion Hazard Management Ordinance (Pima County 2010).
- 11 • **Section E14.3.2** (Habitat Conservation Plans) was updated to include more information on
12 Pima County's *Sonoran Desert Conservation Plan* (Pima County 2016b), including a
13 discussion of the Conservation Lands System and its components.
- 14 • **Section E14.3.3** (Wildlife Connectivity) was updated to include a discussion of the Pima
15 County Buffer Overlay Zone. **Table E14-4** was updated to include the Pima County Buffer
16 Overlay Zone.
- 17 • A qualitative analysis of potential effects to Pima County's Conservation Lands and the
18 Pima County Buffer Overlay Zone was added to the Purple, Green, and Orange Build
19 Corridor Alternative discussion.

20 BLM requested that BLM Wildlife Movement Corridors also be considered. BLM also pointed out
21 that the Gila River corridor was only discussed as a natural wildlife corridor, not as a designated
22 linkage, even though it is part of an important linkage identified in the Arizona Wildlife Linkages.
23 Therefore, the following changes were made:

- 24 • The Gila/Salt River Corridor Granite Reef Dam Potential Linkages Zone was added to
25 **Figure 3.14-6** and **Figure E14-12** in **Appendix E14** (Biological Resources Technical
26 Memorandum). Potential impacts were analyzed and discussed in the text.
- 27 • Additional information was included in **Appendix E14** (Biological Resources Technical
28 Memorandum) to describe the additional BLM wildlife corridors, including which corridors
29 were, and were not, added to the wildlife linkage maps.

30 AGFD requested mitigation for habitat loss throughout the corridor. Therefore, the topic "Wildlife
31 Habitat" is added to **Section 3.14.6** requiring ADOT to coordinate with AGFD to determine
32 compensation as needed. The need for this coordination was also added to **Section 3.14.6**.

33 The following changes were made to **Appendix E14** (Biological Resources Technical
34 Memorandum) due to errors discovered in the Draft Tier 1 EIS:

- 35 • **Table E14-2** was revised to show corrected acreage values of riparian habitat in the South,
36 Central, and North Sections.
- 37 • Corrections were made to **Table E14-22**. The total surface area of Large Intact Block 2D is
38 corrected to 140,605 hectares. The surface area values for Large Intact Block 2D are



1 corrected to Purple Alternative: 104,535 and 36,070 hectares; and Green Alternative:
2 117,003; 22,808; 787; 5; and 1 hectares.

- 3 • Corrections were also made to **Table E14-23**. The surface area values for Large Intact
4 Block Cluster 2, Green Alternative, is corrected to 5,233 (5,706) hectares. The total surface
5 area lost for the Green Alternative is corrected to 11,594 (12,067) hectares.

6 **3.14.3 No Build Alternative**

7 If the No Build Alternative is selected, I-11 would not be constructed, and vehicles would
8 continue to use the existing transportation network. Only programmed projects would be
9 implemented under this alternative, including pavement preservation and other maintenance
10 projects. The No Build Alternative would not result in impacts to biological resources beyond
11 those from already identified projects.

12 **3.14.4 Recommended Alternative**

13 The Recommended Alternative would impact biotic communities, special status species, and
14 wildlife connectivity.

15 **3.14.4.1 Biotic Communities**

16 **Table 3.14-1** summarizes the number of acres of each biotic community within the 2,000-foot-
17 wide corridor. The Recommended Alternative would impact four biotic communities. The
18 greatest impact would be to Lower Colorado River Desertscrub, followed by Arizona Upland
19 Sonoran Desertscrub, Semidesert Grassland, and Mohave Desertscrub. The Recommended
20 and Preferred Alternatives are shown on **Figure 3.14-1**, **Figure 3.14-2**, and **Figure 3.14-3** in
21 relation to biotic communities.

22 **Table 3.14-1. Summary of Biotic Communities and Acreage in the 2,000-foot-wide**
23 **Corridors of the Recommended and Preferred Alternatives**

Biotic Community	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Semidesert Grassland	14,018	13,856	9,206
Arizona Upland Sonoran Desertscrub	9,864	9,638	15,682
Lower Colorado River Desertscrub	42,656	42,771	39,432
Mohave Desertscrub	570	570	570

24

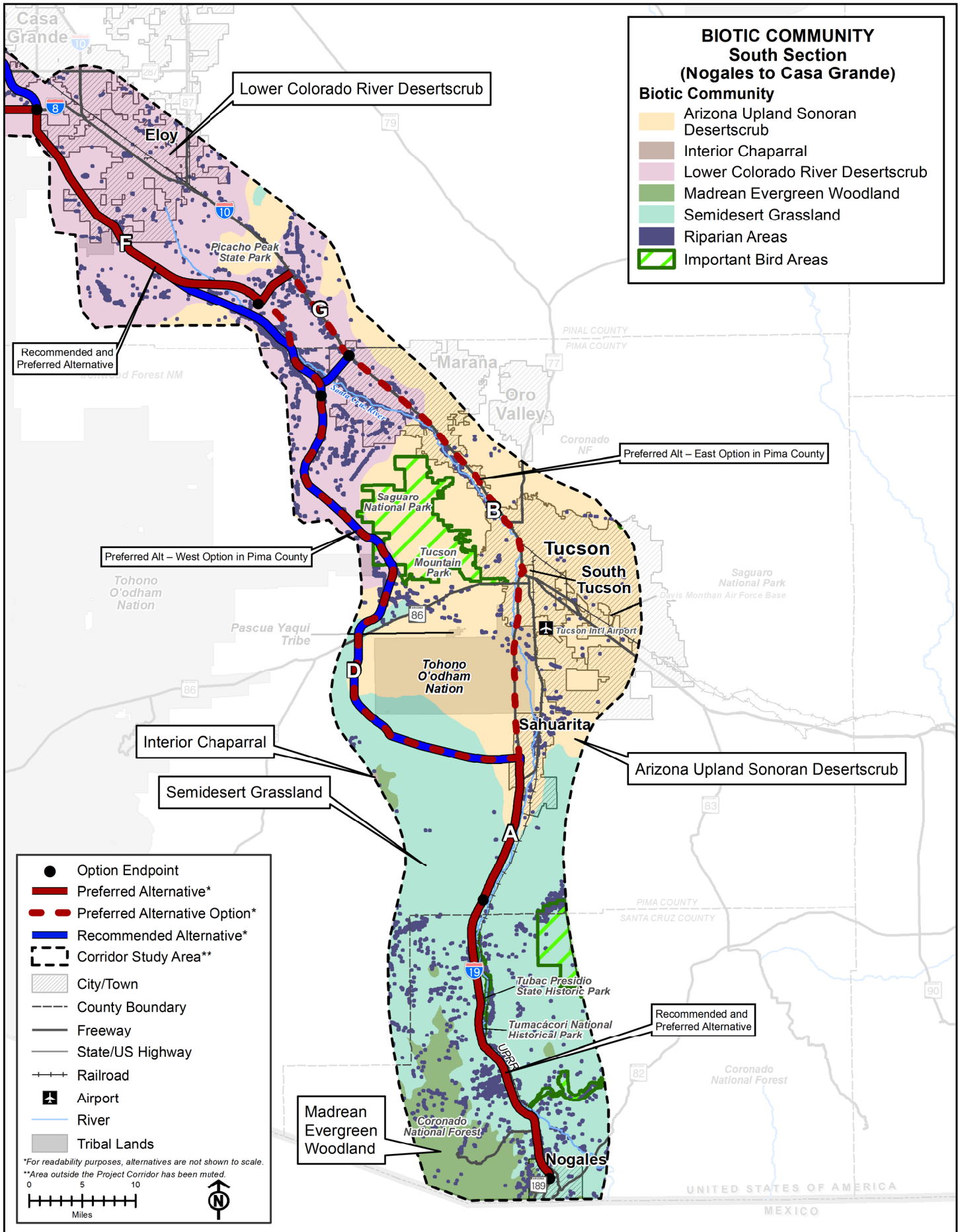


Figure 3.14-1. Biotic Communities in the South Section

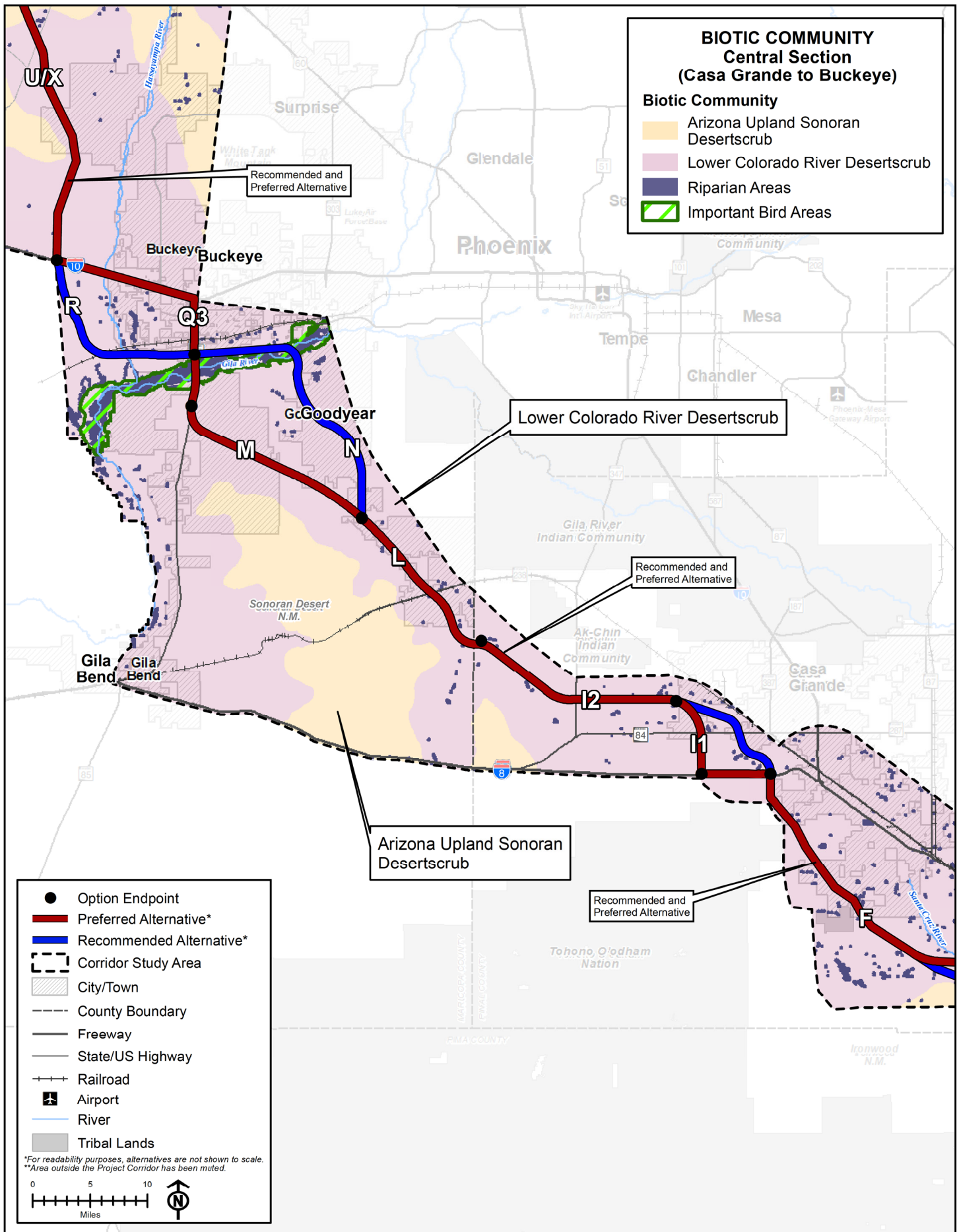


Figure 3.14-2. Biotic Communities in the Central Section

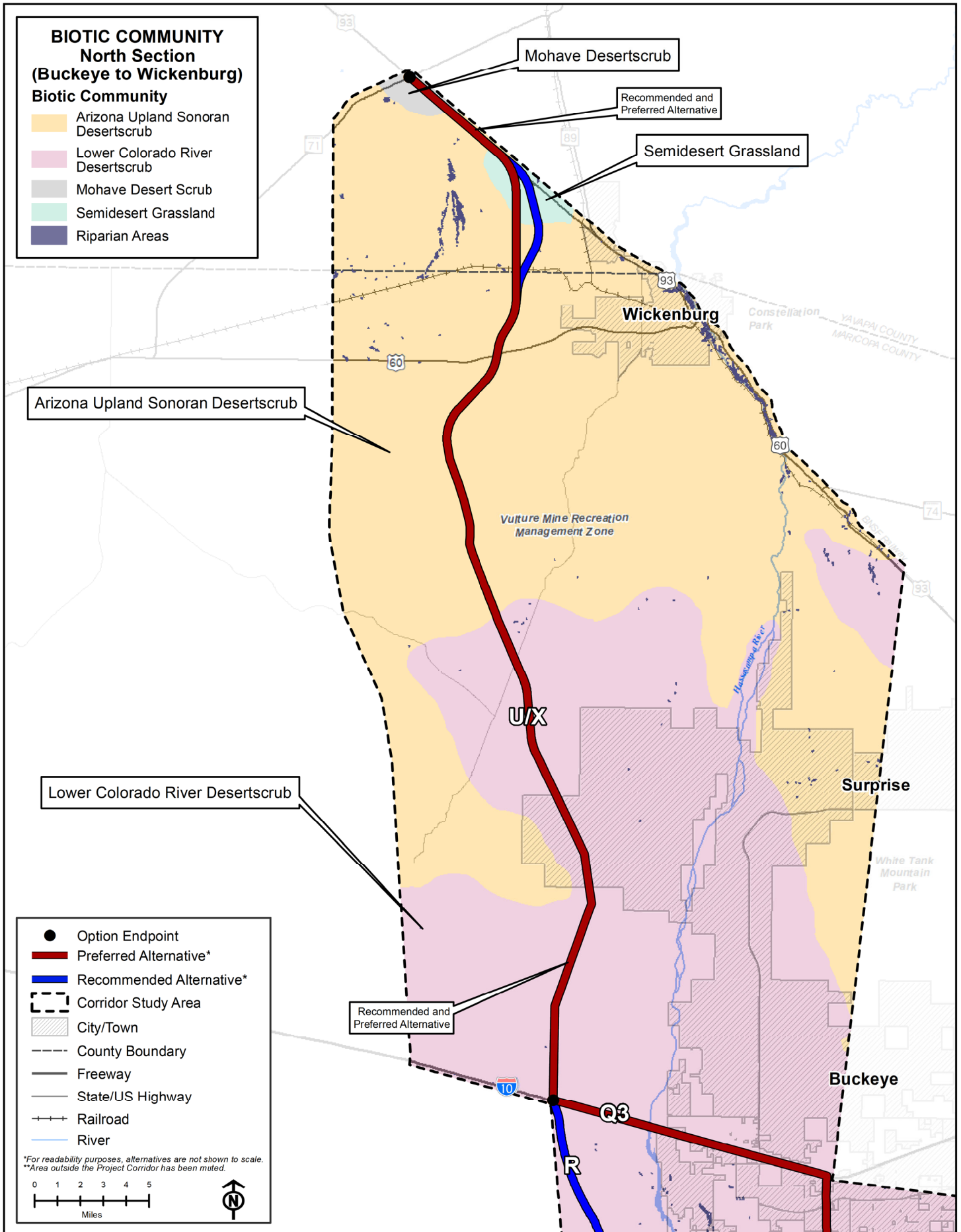


Figure 3.14-3. Biotic Communities in the North Section



1 In addition to crossing major biotic communities, the Recommended Alternative also crosses
2 unique habitat types, including several riparian areas. Several Important Bird Areas coincide
3 with riparian areas. **Table 3.14-2** summarizes the potential impacts to riparian areas and
4 Important Bird Areas for the Recommended and Preferred Alternatives.

5 **Table 3.14-2. Acreage of Riparian and Important Bird Area Habitats in the 2,000-**
6 **foot-wide Corridors of the Recommended and Preferred Alternatives**

Habitat	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
Riparian Areas	1,209	694	590
Important Bird Areas	1,464	1,133	572

7

8 Direct impacts to Species of Economic and Recreational Importance and their habitat would be
9 similar to the impacts on other wildlife species within the Study Area. The Recommended
10 Alternative would result in the loss of potential habitat, and there would be potential for
11 increased mortality of Species of Economic and Recreational Importance due to animal-vehicle
12 collisions.

13 The greatest potential indirect impact during construction of the Recommended Alternative
14 would be the introduction of invasive and noxious species, particularly in areas that are currently
15 undeveloped, such as those in the area from Buckeye to Wickenburg. Surrounding lands would
16 also be impacted as invasive species gradually disperse from the roadway. The spread of
17 invasive and noxious species can negatively impact native species through the introduction of
18 interspecific competition and altered fire regimes.

19 **3.14.4.2 Special Status Species**

20 The Recommended Alternative could impact ESA-protected species and sensitive habitats
21 associated with the Santa Cruz River where the Recommended Alternative occurs along the
22 existing I-19 alignment. Co-locating I-19 and I-11 could impact ESA species by increasing air,
23 noise, and light pollution, which would further degrade habitat quality and add stress to species'
24 biological life cycles, which include breeding, feeding, and resting periods. The Recommended
25 Alternative would also span the Gila River at a new roadway crossing upstream of the existing
26 SR 85 bridge crossing. The addition of this new bridge crossing would increase the potential for
27 negative impacts to ESA species and habitat quality by increasing noise, air, and light pollution
28 in the vicinity of the Gila River. The addition of a roadway segment crossing over the Gila River
29 and through the adjacent croplands would also cause the loss of agricultural lands, which in turn
30 could reduce a source of irrigation water runoff into the Gila River. Runoff of irrigation water into
31 the Gila River at the proposed crossing is an important source of water that helps to sustain
32 riparian habitat, thereby potentially benefitting the southwestern willow flycatcher and the
33 yellow-billed cuckoo at that location, as well as the marshes that provide habitat for Yuma
34 Ridgway's rail.

35 The Recommended Alternative would also cross BLM-designated habitat and USFWS-defined
36 predicted High Value Potential Habitat for Sonoran desert tortoise (*Gopherus morafkai*), which
37 is protected by a USFWS Candidate Conservation Agreement under ESA and is a BLM



1 sensitive species (USFWS 2015a). The Recommended Alternative would also cross Mexican
2 wolf (*Canis lupus baileyi*) and Sonoran pronghorn (*Antilocapra americana sonoriensis*) USFWS
3 10(j) Experimental Populations/Reintroduction Areas (USFWS 2011, 2015a).

4 Impacts to Semidesert Grassland within the Sonoran Desert may require substantial
5 compensatory mitigation due to the likely presence of Pima pineapple cactus and its habitat
6 within this biotic community. Destruction of grassland habitat for construction of the
7 Recommended Alternative would be a permanent impact to grassland plant species, including
8 Pima pineapple cactus. Dispersal of invasive and noxious weeds into Semidesert Grassland
9 following construction of the Recommended Alternative would negatively impact ESA-listed
10 species such as Pima pineapple cactus, and Candidate Conservation Agreement species such
11 as the Sonoran desert tortoise, due to competition and altered fire regimes (USFWS 2015a).

12 The *City of Tucson Habitat Conservation Plan* (City of Tucson 2018), as well as Pima County's
13 *Sonoran Desert Conservation Plan* (Pima County 2016b), and Pima County's Conservation
14 Lands System, would be affected by the Recommended Alternative.

15 Critical habitat for several species occurs within the Recommended Alternative, including critical
16 habitat and proposed critical habitat associated with the Santa Cruz River for the southwestern
17 willow flycatcher and western yellow-billed cuckoo. In addition, proposed critical habitat for the
18 yellow-billed cuckoo and habitat for the southwestern willow flycatcher and Yuma Ridgway's rail
19 occur within the Recommended Alternative in association with the Gila River.

20 The Recommended Alternative would impact other sensitive species, which include non-ESA-
21 listed species deemed sensitive by BLM, USFS, USFWS, or the counties; species protected
22 under the Bald and Golden Eagle Protection Act; AGFD Species of Greatest Conservation
23 Need; and plant species protected under the Arizona Native Plant Law (ARS 7, Section 3-901 et
24 seq.). Impacts associated with the Recommended Alternative include the potential for mortality
25 and injury from roadway/vehicle interactions, and the direct removal of potential habitat for
26 amphibians, birds, fish, invertebrates, mammals, and reptiles. Additional impacts to animal
27 species include increased habitat degradation due to the increased noise, air, and light pollution
28 from new or improved roadway facilities.

29 The Recommended Alternative would increase accessibility into adjacent lands in Pima, Pinal,
30 and Maricopa Counties and may increase accessibility to wildlife refuges and Important Bird
31 Areas used by migratory birds and other sensitive wildlife.

32 **3.14.4.3 Wildlife Connectivity**

33 The Recommended Alternative would directly fragment AGFD Large Intact Blocks by
34 introducing a new linear facility where a roadway does not currently exist. **Figure 3.14-4** shows
35 the Recommended and Preferred Alternatives in relation to large areas of relatively intact and
36 undeveloped habitat within the Study Area. In addition to fragmentation, habitat degradation
37 would occur within Large Intact Block portions adjacent to the Recommended Alternative due to
38 increased disturbances such as noise and light pollution, and the spread of invasive species.
39 The Recommended Alternative would fragment Large Intact Blocks within Clusters 2, 4, and 6.
40 **Table 3.14-3** shows which Large Intact Blocks would be fragmented by the Recommended and
41 Preferred Alternatives, and the number and size of the Large Intact Block fragments resulting
42 from the construction of the Recommended and Preferred Alternatives.

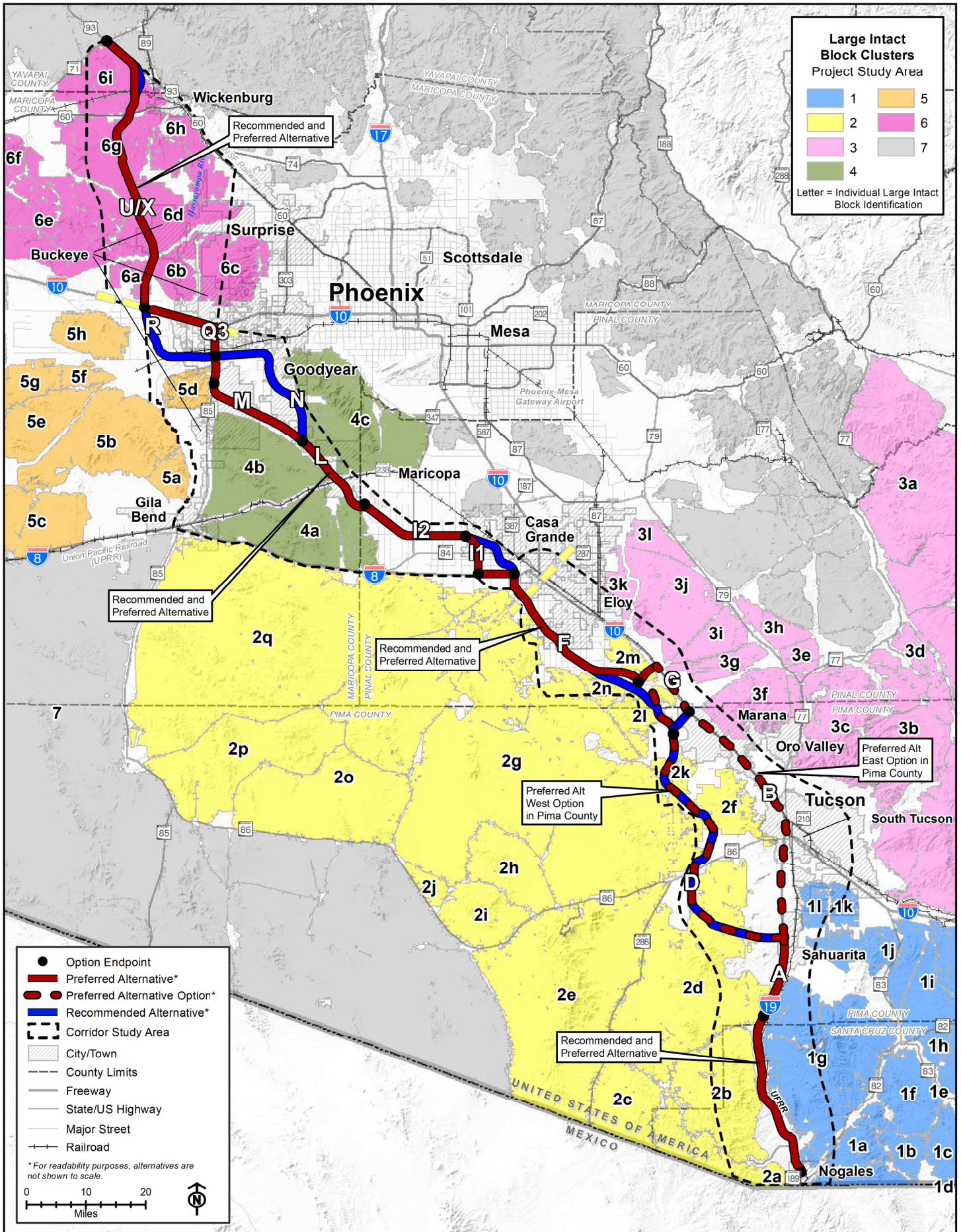


Figure 3.14-4. Large Intact Block Clusters



1 **Table 3.14-3. Summary of Large Intact Block Fragmentation and Area (hectares)**
2 **in the 2,000-foot-wide Corridors of the Recommended and Preferred Alternatives**

Large Intact Block Cluster	Large Intact Block Fragmented by Alternatives	Total Area (hectares)	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
2	2D	140,605	116,978 22,845 754 22 5 1	116,978 22,845 754 22 5 1 <1 (n=7)	–
2	2F	21,159	20,578 580	20,578 580	–
2	2G	451,786	451,537 219 30	451,537 219 30 <1	–
2	2K	5,414	5,104 243 65 2	5,104 243 65 2	–
2	2L	15,699	12,373 3,237 49 23 14 3	12,803 2,876 14 3 2 <1	–
2	2M	–	–	7,895 885 5	7,895 885 5
2	2N	6,562	6,093 469	–	–
4	4A	58,164	57,666 488 10	57,666 488 10	57,666 488 10
4	4C	74,030	73,900 92 22 16	73,923 92 16	73,923 92 16



Large Intact Block Cluster	Large Intact Block Fragmented by Alternatives	Total Area (hectares)	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
6	6A	7,410	6,911 496 2	6,911 496 2	6,911 496 2
6	6B	13,709	13,644 64	13,644 64	13,644 64
6	6D	28,436	27,059 656 628 93	27,059 656 628 93	27,059 656 628 93
6	6E	86,421	–	–	–
6	6G	42,848	29,005 13,821 16 6 <1	29,005 13,821 16 6 <1	29,005 13,821 16 6 <1
6	6I	34,479	29,712 4,756 4 4 2	28,870 5,514 54 36 4	28,870 5,514 54 36 4
Total Large Intact Blocks Fragmented			13	13	8

1 SOURCE: AGFD 2018b. Large Intact Blocks (GIS dataset). AGFD. Version LIBCategory2_I11REV.SHP. Edition Date March 19,
2 2018.

3
4 **Table 3.14-4** indicates, for the Recommended and Preferred Alternatives, the total surface area
5 represented by Large Intact Block fragments that no longer fulfill the required 5,000-hectare
6 threshold under which a habitat block is no longer considered functional in terms of wildlife
7 connectivity, following construction of the alternatives. A total of 13,072 hectares of Large Intact
8 Blocks would be reduced by the Recommended Alternative to fragments below the AGFD
9 5,000-hectare requirement.



1 **Table 3.14-4. Summary of Area (hectares) of Fragments Lost from Existing Large**
 2 **Intact Blocks in the 2,000-foot-wide Corridors of the Recommended and Preferred**
 3 **Alternatives**

Large Intact Block Cluster	Large Intact Blocks Fragmented by Alternatives	Recommended Alternative	Preferred Alternative with West Option in Pima County	Preferred Alternative with East Option in Pima County
2	2D, 2F, 2G, 2K, 2L, 2N	5,716	5,707	889
4	4A, 4C	628	606	606
6	6A, 6B, 6D, 6E, 6G, 6I	6,728	2,055	2,055
Total		13,072	8,368	3,550

4 SOURCE: AGFD 2018b. Large Intact Blocks (GIS dataset). AGFD. Version LIBCategory2_I11REV.SHP. Edition Date March 19,
 5 2018.

6
 7 The Recommended Alternative would create new infrastructure and therefore affect habitat
 8 quality and add impediments to wildlife movement in the following wildlife connectivity features:

- 9 • Coyote-Ironwood-Tucson Detailed Linkage
- 10 • Ironwood-Picacho Linkage
- 11 • Tucson Mitigation Corridor
- 12 • Gila Bend-Sierra Estrella Linkage
- 13 • White Tank-Belmont-Hieroglyphic Mountains Linkage
- 14 • Wickenburg-Hassayampa Linkage
- 15 • Several BLM Wildlife Movement Corridors
- 16 • Pima County Buffer Overlay Zone
- 17 • Brawley Wash/Black Wash Pima County Wildlife Linkage

18 The Tucson Mitigation Corridor, which was established by the Bureau of Reclamation west of
 19 Tucson Mountain Park, preserves habitat from urbanization while maintaining an open wildlife
 20 movement corridor connecting the Tucson Mountains to Roskruge and Silver Bell Mountains. In
 21 addition, the western portion of the Tucson Mitigation Corridor occurs within the Coyote-
 22 Ironwood-Tucson Detailed Linkage. The Recommended Alternative would bisect the Tucson
 23 Mitigation Corridor and require extensive mitigation to minimize potential impacts.

24 The Recommended Alternative would contribute to the isolation of Large Intact Blocks where it
 25 is co-located with existing high-traffic highways (greater than 5,000 annual average daily traffic),
 26 and where widening would be needed. However, in these roadway segments, the potential
 27 exists to improve wildlife connectivity by implementing wildlife crossing mitigation during the



1 process of upgrading these highways to the proposed I-11. Thus, wildlife movement through the
2 following linkages could potentially be improved:

- 3 • Santa Rita-Tumacácori Linkage
- 4 • Santa Rita-Sierrita Detailed Linkage
- 5 • Gila/Salt River Corridor Granite Reef Dam Potential Linkage Zone

6 The Recommended and Preferred Alternatives are shown in relation to wildlife linkages on
7 **Figure 3.14-5, Figure 3.14-6, and Figure 3.14-7**. These figures depict wildland blocks, which
8 represent the core areas used for modeling connectivity in the Arizona Wildlife Linkages and
9 AGFD Detailed Wildlife Connectivity Designs, and other wildlife corridors. Given that multiple,
10 often overlapping, wildlife connectivity features occur in the Study Area, only features that have
11 little to no overlap with each other are represented in the figures, including the Arizona Wildlife
12 Linkages, the AGFD Detailed Wildlife Connectivity Designs, the Tucson Mitigation Corridor, and
13 the Gila/Salt River Corridor Granite Reef Dam Potential Linkage Zone.

14 **3.14.5 Preferred Alternative**

15 Overall, the Preferred Alternative, with either option (west option in Pima County or east option
16 in Pima County), is co-located with existing transportation routes to a greater extent than the
17 Recommended Alternative, and the Preferred Alternative with west option is less co-located with
18 existing routes than the Preferred Alternative with east option.

19 **3.14.5.1 Biotic Communities**

20 The Preferred Alternative, with either option, would impact a smaller surface area of Semidesert
21 Grassland and Arizona Upland Sonoran Desertscrub than the Recommended Alternative. The
22 Recommended Alternative would impact approximately 8 percent more acres of Lower
23 Colorado River Desertscrub than the Preferred Alternative with east option and would have
24 similar impacts compared to the Preferred Alternative with west option in Pima County. The
25 Recommended and Preferred Alternatives would have identical impacts on Mohave
26 Desertscrub.

27 The Preferred Alternative with east option in Pima County would have the smallest potential
28 impact to riparian habitat, including perennial riparian areas, compared to the Recommended
29 Alternative, which would have greater potential impacts because it parallels the Santa Cruz
30 River and the Gila River to a greater extent than the Preferred Alternative. The Preferred
31 Alternative with east option would also have the lowest potential impacts to Important Bird Areas
32 compared to the Recommended Alternative. For both the Recommended and Preferred
33 Alternatives, the actual impacts to riparian habitat would be much less than the impacts
34 analyzed here for the 2,000-foot-wide corridor because the final 400-foot corridor would be
35 designed to avoid riparian habitat wherever possible.

36 Given that the Preferred Alternative, especially the Preferred Alternative with east option, would
37 be co-located along existing transportation corridors to a greater extent than the Recommended
38 Alternative, it would have the least potential direct impact on habitat for Species of Economic
39 and Recreational Importance, and likely would cause a smaller increase in wildlife mortality.

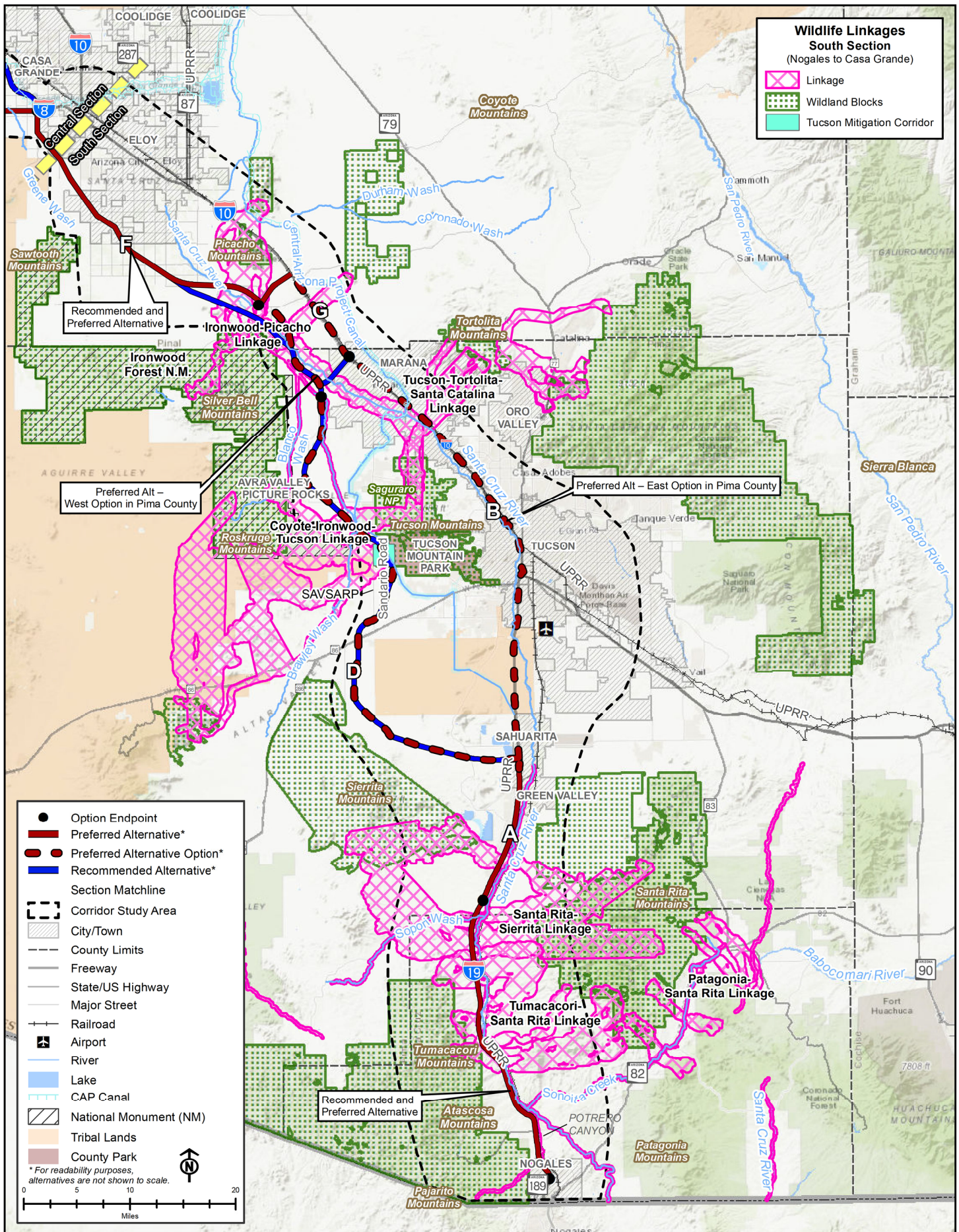


Figure 3.14-5. Wildlife Linkages in the South Section

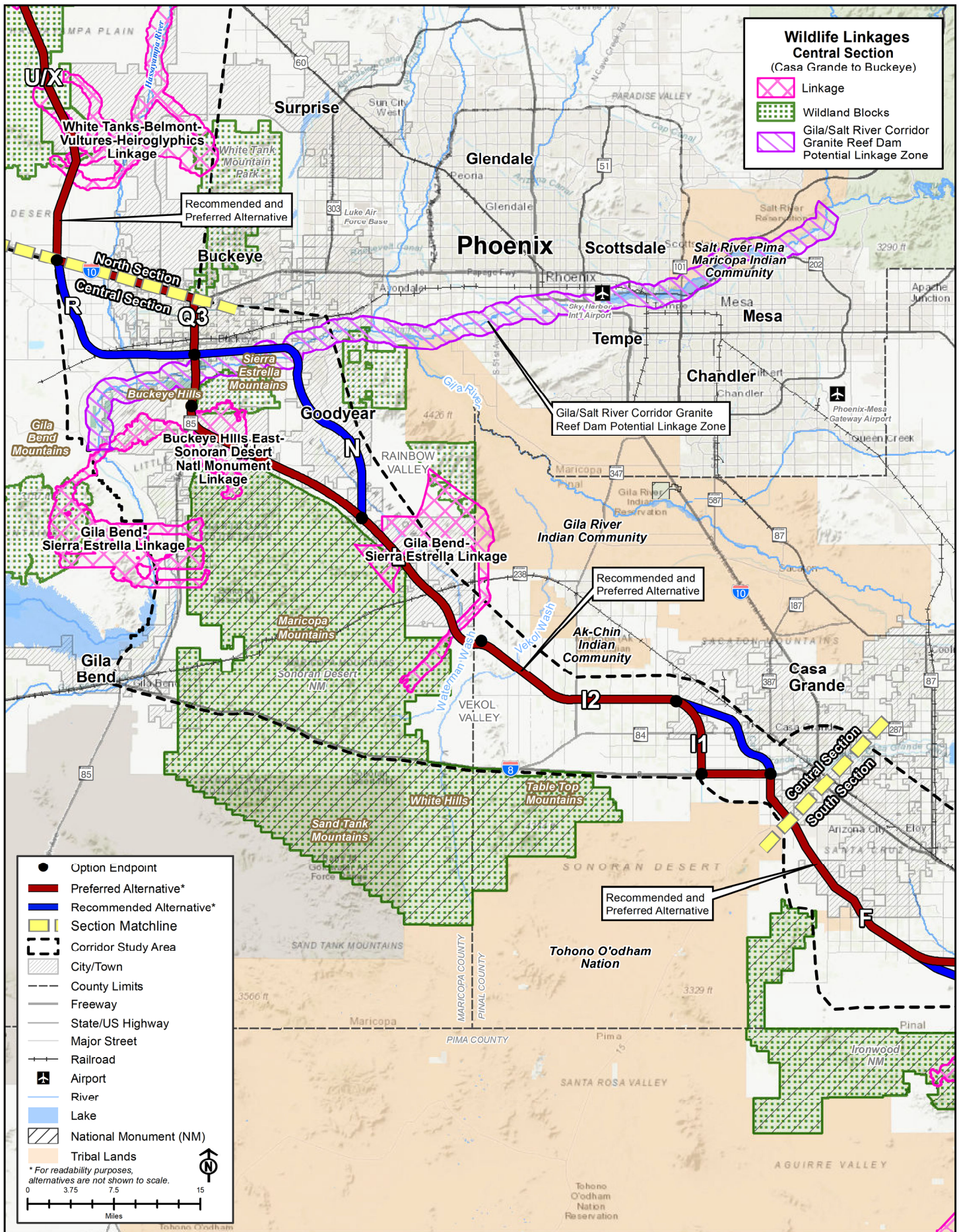


Figure 3.14-6. Wildlife Linkages in the Central Section



1 For both the Recommended and Preferred Alternatives, invasive and noxious species could
2 begin colonizing new road right-of-way and surrounding habitat in areas of urban development
3 where they are well established, such as Nogales, Tucson, Casa Grande, and Buckeye. The
4 Recommended and Preferred Alternatives would have a similar likelihood of introducing
5 invasive and noxious species in the area from Buckeye to Wickenburg, which is relatively
6 undeveloped and therefore supports minimal amounts of invasive and noxious species.

7 **3.14.5.2 Special Status Species**

8 The Preferred Alternative could impact ESA-protected species and sensitive habitats associated
9 with the Santa Cruz River where the Preferred Alternative occurs along the existing I-19
10 alignment. The Preferred Alternative would have fewer potential impacts to ESA-protected
11 species near Marana, where it parallels the Santa Cruz River, than the Recommended
12 Alternative. Co-locating I-19 and I-11 could impact ESA species by increasing air, noise, and
13 light pollution, which would further degrade habitat quality and add stress to species' biological
14 life cycles, which include breeding, feeding, and resting periods. Unlike the Recommended
15 Alternative, the Preferred Alternative, with either option, would span the Gila River at an existing
16 SR 85 bridge crossing as opposed to spanning the river at a new roadway crossing. Thus, the
17 Preferred Alternative would have fewer impacts to ESA species and their habitat along the Gila
18 River. By avoiding a new crossing of the river, the Preferred Alternative would avoid the loss of
19 croplands near the river and the loss of irrigation water runoff into the Gila River, which is an
20 important source of water that sustains riparian and marsh habitat.

21 The Preferred Alternative would also cross BLM-designated habitat and USFWS-defined
22 predicted High Value Potential Habitat for Sonoran desert tortoise (USFWS 2015a). The
23 Preferred Alternative would also cross Mexican wolf and Sonoran pronghorn USFWS 10(j)
24 Experimental Populations/Reintroduction Areas. The Preferred Alternative would cross BLM-
25 designated Sonoran desert tortoise habitat south of the Gila River that would not be crossed by
26 the Recommended Alternative, but a portion of I-11 would be co-located with SR 85 at this
27 location.

28 The Preferred Alternative with west option would have similar potential impacts to Semidesert
29 Grassland within the Sonoran Desert compared to the Recommended Alternative, and may also
30 require substantial compensatory mitigation due to the likely presence of Pima pineapple cactus
31 and its habitat within this biotic community. Destruction of grassland habitat for construction of
32 the Preferred Alternative would be a permanent impact to grassland plant species, including
33 Pima pineapple cactus, within the anticipated 400-foot roadway footprint. Dispersal of invasive
34 and noxious weeds into Semidesert Grassland following construction of the Preferred
35 Alternative would negatively impact protected species such as Pima pineapple cactus and
36 Sonoran desert tortoise due to competition and altered fire regimes (USFWS 2015a). Compared
37 to the other Build Corridor Alternatives, the Preferred Alternative with east option would have
38 the smallest potential impacts to Pima pineapple cactus as it is co-located with I-19 through
39 suitable habitat.

40 The *City of Tucson Habitat Conservation Plan* (City of Tucson 2018), as well as Pima County's
41 *Sonoran Desert Conservation Plan* (Pima County 2016b), and Pima County's Conservation
42 Lands System, would be affected by the Preferred Alternative with either option. However, the
43 Preferred Alternative with west option would have significantly greater impacts, because unlike
44 the Preferred Alternative with east option, it is not co-located with any existing roadways.



1 Critical habitat for several species occurs within the Preferred Alternative, including critical
2 habitat and proposed critical habitat associated with the Santa Cruz River, for the southwestern
3 willow flycatcher and western yellow-billed cuckoo, and proposed critical habitat for the yellow-
4 billed cuckoo, and habitat for the southwestern willow flycatcher and Yuma Ridgway's rail
5 associated with the Gila River.

6 The Preferred Alternative would impact other sensitive species, which include non-ESA-listed
7 species deemed sensitive by BLM, USFS, USFWS, or the counties; species protected under the
8 Bald and Golden Eagle Protection Act, AGFD Species of Greatest Conservation Need; and
9 plant species protected under the Arizona Native Plant Law (ARS 7, Section 3-901 et seq.).
10 Impacts associated with the Preferred Alternative include the potential for mortality and injury
11 from roadway/vehicle interactions, and the direct removal of potential habitats for amphibians,
12 birds, fish, invertebrates, mammals, and reptiles. Additional impacts to animal species include
13 increased habitat degradation due to the increased noise, air, and light pollution from new or
14 improved roadway facilities. The Preferred Alternative with east option would have lower
15 impacts to sensitive species than the Preferred Alternative with west option because the
16 Preferred Alternative with east option co-occurs with existing roadways, whereas the Preferred
17 Alternative with west option mainly occurs in the mostly undeveloped area west of the Tucson
18 Mountains.

19 The Preferred Alternative, especially with the west option, would increase accessibility into
20 adjacent lands in Pima, Pinal, and Maricopa Counties and may increase accessibility to wildlife
21 refuges and Important Bird Areas used by migratory birds and other sensitive wildlife. However,
22 this increase in accessibility would be smaller than that created by the Recommended
23 Alternative, which parallels the Santa Cruz River and the Gila River to a greater extent than the
24 Preferred Alternative.

25 **3.14.5.3 Wildlife Connectivity**

26 The Preferred Alternative would directly fragment AGFD Large Intact Blocks by introducing a
27 new linear facility where a roadway does not currently exist. In addition to fragmentation, habitat
28 degradation would occur within Large Intact Block portions adjacent to the Preferred Alternative
29 due to increased disturbances such as noise and light pollution, and the spread of invasive
30 species. The Preferred Alternative would fragment the same Large Intact Block Clusters as the
31 Recommended Alternative. However, the amount of fragmentation would be significantly
32 smaller with the Preferred Alternative with east option, which would fragment 8 Large Intact
33 Blocks, compared to the Preferred Alternative with west option and the Recommended
34 Alternative, which would each fragment 13 Large Intact Blocks.

35 Following construction of the Preferred Alternative, the total surface area represented by Large
36 Intact Block fragments that no longer fulfill the AGFD 5,000-hectare threshold under which a
37 habitat block is no longer considered functional in terms of wildlife connectivity would amount to
38 8,368 and 3,550 hectares for the west option and east option, respectively. This amount would
39 be significantly smaller than the 13,072 hectares for the Recommended Alternative, with either
40 option, and in particular for the east option, which has a greater degree of co-location with
41 existing corridors. Thus, the Preferred Alternative with east option and the Recommended
42 Alternative would generate the smallest and largest loss of Large Intact Blocks, respectively.

43 The Preferred Alternative would create new infrastructure and therefore affect habitat quality
44 and add impediments to wildlife movement in the following wildlife connectivity features:



- 1 • Coyote-Ironwood-Tucson Detailed Linkage (impacted by the Preferred Alternative with west
2 option in Pima County only)
- 3 • Ironwood-Picacho Linkage
- 4 • Tucson Mitigation Corridor (impacted by the Preferred Alternative with west option in Pima
5 County only)
- 6 • Gila Bend-Sierra Estrella Linkage
- 7 • Buckeye Hills East-Sonoran Desert National Monument Linkage
- 8 • White Tank-Belmont-Hieroglyphic Mountains Linkage
- 9 • Wickenburg-Hassayampa Linkage
- 10 • Several BLM Wildlife Movement Corridors
- 11 • Pima County Buffer Overlay Zone (impacted by the Preferred Alternative with west option in
12 Pima County only)
- 13 • Brawley Wash/Black Wash Pima County Wildlife Linkage (impacted by the Preferred
14 Alternative with west option in Pima County only)

15 Unlike the Recommended Alternative and the Preferred Alternative with west option, the
16 Preferred Alternative with east option would have no impact on the Tucson Mitigation Corridor.

17 The Preferred Alternative would contribute to the isolation of Large Intact Blocks where it is co-
18 located with existing high-traffic highways (greater than 5,000 annual average daily traffic), and
19 where widening would be needed. However, in these roadway segments, the potential exists to
20 improve wildlife connectivity by implementing wildlife crossing mitigation during the process of
21 upgrading these highways to the proposed I-11. Thus, wildlife movement through the following
22 linkages could potentially be improved:

- 23 • Santa Rita-Tumacácori Linkage
- 24 • Santa Rita-Sierrita Detailed Linkage
- 25 • Tucson-Tortolita-Santa Catalina Linkage (impacted by the Preferred Alternative with east
26 option only, where it would be co-located with the existing I-10)
- 27 • Gila/Salt River Corridor Granite Reef Dam Potential Linkage Zone

28 **3.14.6 Mitigation and Tier 2 Analysis**

29 **3.14.6.1 Tier 2 Analysis Commitments**

30 FHWA and ADOT completed an initial level of analysis in this Final Tier 1 EIS to identify a
31 2,000-foot-wide preferred Build Corridor Alternative. Additional analysis in Tier 2 will inform



- 1 (1) the selection of a specific alignment (approximately 400 feet wide) within the selected
2 2,000-foot-wide corridor and (2) the selection of the west option or east option in Pima County.
3 Tier 2 analysis will also identify measures to avoid, minimize, or mitigate impacts to biological
4 resources. Specifically, ADOT commits to carrying out the following analysis during the Tier 2
5 process:
- 6 • **T2-Biological Resources-1:** Continue to work with AGFD to determine compensation for
7 the loss of wildlife habitat. Also continue to work with agencies prior to and during the Tier 2
8 process to conduct surveys needed to identify occupied habitat for ESA-listed species at the
9 time of the Tier 2 project and to develop specific conservation measures to avoid, minimize,
10 or mitigate impacts to listed species.
 - 11 • **T2-Biological Resources-2:** Continue to work with federal and state agencies as well as
12 affected municipalities during the Tier 2 process to evaluate potential impacts to other
13 sensitive species listed by these entities. Work with tribes during the Tier 2 process to avoid
14 or minimize effects to tribal sensitive species.
 - 15 • **T2-Biological Resources-3:** Continue to work with AGFD and other stakeholders and
16 partners prior to and during the Tier 2 process to develop and fund appropriate studies to
17 evaluate wildlife movement and roadway mortality. Sufficient time (at least 2 to 4 years) will
18 be given to ensure the studies acquire adequate data for guiding the development of
19 mitigation measures. Tier 2 impact analyses will focus on refining information relating to
20 specific impact areas within known wildlife linkages and corridors identified now and in the
21 future.
 - 22 • **T2-Biological Resources-4:** Conduct tracking studies using camera traps, satellite
23 telemetry, track plates, or other methods to identify spatial and temporal use patterns of
24 target species within the Study Area. These tracking studies, as well as collision studies, will
25 be utilized to identify sites where overpasses or underpasses could be installed. ADOT will
26 implement on-the-ground mitigation based on recommendations generated by these
27 studies, such as constructing wildlife crossings where previous crossings by wildlife have
28 been documented and building culverts of a specific size and design for wildlife occurring in
29 specific locations in the Study Area. Also existing culverts, bridges, and other roadway
30 features that are in place along co-located highways will be monitored to identify the species
31 that use these and the degree to which these existing features are effective at maintaining
32 movement across the highway barriers.
 - 33 • **T2-Biological Resources-5:** Prepare biological evaluation for the Tier 2 studies and
34 negotiate compensatory mitigation with USFWS if impacts to ESA-listed species or habitat
35 are determined likely to occur.
 - 36 • **T2-Biological Resources-6:** Analyze impacts from the Preferred Alternative with west
37 option to Pima County Conservation Lands System lands and coordinate with Pima County
38 to minimize potential impacts and identify appropriate mitigation strategies.
 - 39 • **T2-Biological Resources-7:** Partner with state and federal agencies during the Tier 2
40 design process and use data obtained from habitat suitability studies to inform design
41 features to minimize impacts to the Sonoran desert tortoise and its habitat.



- 1 • **T2-BiologicalResources-8:** Continue to work with federal and state agencies as well as
2 affected municipalities during the Tier 2 process to evaluate potential impacts to other
3 wildlife corridors designated by these entities and not evaluated in detail in this Tier 1 EIS.

4 **3.14.6.2 Mitigation Commitments**

5 As required by NEPA, FHWA and ADOT considered measures to avoid, minimize, and mitigate
6 impacts to biological resources from the Project (generally referred to as mitigation measures)
7 during this Tier 1 process. Specific mitigation that ADOT is committing to implement if a Build
8 Alternative is selected includes:

- 9 • **MM-BiologicalResources-1:** Participate, support, and commit to long-term invasive and
10 noxious weed management efforts in the I-11 corridor. To effectively combat noxious and
11 invasive weeds, a coordinated effort across federal, state, and local levels is required.
12 Noxious and invasive weed control on BLM or USFS lands would occur in accordance with
13 previously approved environmental assessments. Long-term management of invasive and
14 noxious weeds would be necessary to minimize indirect and cumulative effects to the Pima
15 pineapple cactus and its habitat.
- 16 • **MM-BiologicalResources-2:** Notify the Arizona Department of Agriculture prior to the start
17 of construction, if needed, to compensate for impacts to native plants.
- 18 • **MM-BiologicalResources-3:** Discuss the need for habitat compensation with AGFD during
19 the Tier 2 process. Arizona Game and Fish Commission Policy A1.9 and Department Policy
20 12.3 (AGFD 1994) state the Department shall seek compensation at a 100 percent level,
21 when feasible, for actual or potential habitat losses resulting from land and water projects.
- 22 • **MM-BiologicalResources-4:** Coordinate with AGFD and relevant agencies and
23 stakeholders to determine wildlife connectivity data needs and study design. ADOT will then
24 fund and facilitate implementation of identified studies prior to the initiation of the Tier 2
25 process, due to the timeline required (likely 2 to 4 years) to collect and analyze sufficient
26 data before draft design plans begin to limit the mitigation measures possible. ADOT and
27 the stakeholders will identify the crossing structures, design features, and supporting
28 mitigation measure or conservation necessary to facilitate the movement of wildlife through
29 the roadway barrier and will incorporate the solutions into subsequent I-11 projects.
- 30 • **MM-BiologicalResources-5:** Establish partnering opportunities with key landowners (e.g.,
31 private, BLM, Bureau of Reclamation, Maricopa County, Pinal County, Pima County, and
32 Santa Cruz County) and appropriate municipal, county, state, and federal agencies prior to
33 and during the Tier 2 process for long-term planning strategies.
- 34 • **MM-BiologicalResources-6:** Evaluate the Wildlife Connectivity Assessment reports from
35 Pima, Pinal, Maricopa, Santa Cruz, and Yavapai Counties to identify and, if possible, avoid
36 I-11 impacts on the diffuse, landscape, and riparian wildlife movement areas identified in
37 each report prior to the Tier 2 analysis.
- 38 • **MM-BiologicalResources-7:** Evaluate structures designed to enhance wildlife connectivity,
39 such as wildlife overpasses and underpasses, and fencing to funnel wildlife to these
40 structures in association with AGFD and relevant agencies and stakeholders.



- 1 • **MM-BiologicalResources-8:** Avoid or minimize impacts to designated or proposed critical
2 habitat. If impacts to critical habitat cannot be avoided, consultation with USFWS will occur
3 during the Tier 2 analysis.
- 4 • **MM-BiologicalResources-9:** Conduct a thorough habitat assessment in all areas that have
5 potential habitat for ESA-listed species for the section being studied prior to the Tier 2
6 process. If suitable habitat occurs within the construction footprint, ADOT will avoid or
7 minimize impacts. Additionally, pre-construction surveys will be completed for all ESA-listed
8 species, or it will be assumed that the species occurs on-site. For the southwestern willow
9 flycatcher, western yellow-billed cuckoo, and Yuma Ridgway's rail, 2 years of breeding
10 season surveys will be conducted prior to the Tier 2 process.
- 11 • **MM-BiologicalResources-10:** Continue to honor commitments within the Candidate
12 Conservation Agreement for the Sonoran desert tortoise in Arizona (USFWS 2015a).
- 13 • **MM-BiologicalResources-11:** Conduct habitat suitability surveys within agency-mapped
14 tortoise habitat that may be impacted by the I-11 section being considered prior to the Tier 2
15 process.
- 16 • **MM-BiologicalResources-12:** Follow ADOT's existing mitigation strategies for any future
17 I-11 segments selected for construction that are located within Sonoran desert tortoise
18 habitat. ADOT has developed comprehensive Sonoran desert tortoise mitigation that
19 includes, but is not limited to, education of contractors and ADOT staff on tortoise
20 awareness, pre-construction surveys, relocation of tortoises, on-site monitoring of
21 construction activities, and best management practices designed to reduce potential tortoise
22 mortalities during construction.

23 In addition to the general strategies, more specific mitigation strategies for resources in each
24 corridor option are identified below. Only the mitigation strategies that pertain to the Selected
25 Alternative will be included in the Final Tier 1 EIS Record of Decision. These strategies would
26 be refined during the Tier 2 process.

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

- 28 • **MM-BiologicalResources-13:** Avoid widening I-19 to the east along the Santa Cruz River
29 and impacting southwestern willow flycatcher, yellow-billed cuckoo, and their critical habitat;
30 Gila topminnow; and Northern Mexican garter snake habitat; conduct pre-construction
31 surveys where appropriate; and consult with USFWS, as needed (Option A).
- 32 • **MM-BiologicalResources-14:** Minimize the construction footprint to the extent possible and
33 improve or construct wildlife crossings that jaguar and ocelots will use (Option A).
- 34 • **MM-BiologicalResources-15:** Avoid or minimize construction footprint through quality Pima
35 pineapple cactus habitat, survey suitable habitat 1 year prior to the Tier 2 process to inform
36 design; implement long-term control of invasive and noxious weeds; and negotiate
37 compensatory mitigation with USFWS, as needed (Option A).
- 38 • **MM-BiologicalResources-16:** Avoid or minimize impacts to the riparian corridor associated
39 with the Santa Cruz River. The need for potential additional wildlife crossings would be
40 assessed and implemented where warranted to preserve wildlife movement. Coordinate



1 with relevant agencies to implement modifications that will enhance wildlife movement
2 (Option A).

- 3 • **MM-BiologicalResources-17:** Avoid or minimize impacts to the Santa Rita-Tumacácori
4 Linkage and Santa Rita-Sierrita Detailed Linkage. Assess whether recommendations
5 provided in the specific or county linkage reports can be used to improve or construct wildlife
6 crossings in these linkages. Coordinate with relevant agencies to implement modifications
7 that will enhance wildlife movement (Option A).

8 Sahuarita to Marana

- 9 • **MM-BiologicalResources-18:** Conduct 2 years of pre-construction surveys during the
10 breeding season in suitable habitat for yellow-billed cuckoo; implement seasonal
11 restrictions; and consult with USFWS, as needed (Option B or Preferred Alternative with
12 east option). Avoid widening I-19 or I-10 into the Santa Cruz River floodplain.

- 13 • **MM-BiologicalResources-19:** If the Preferred Alternative with east option is selected during
14 Tier 2 studies, avoid or minimize impacts to the Santa Rita-Sierrita Detailed Linkage,
15 Tucson-Tortolita-Santa Catalina Linkage, and Coyote-Ironwood-Tucson Detailed Linkage.
16 Assess whether recommendations provided in the specific or county linkage reports can be
17 used to improve and construct wildlife crossings in these linkages. Coordinate with relevant
18 agencies to implement modifications that will enhance wildlife movement (Option B or
19 Preferred Alternative with east option).

- 20 • **MM-BiologicalResources-20:** Avoid or minimize construction footprint through quality Pima
21 pineapple cactus habitat; survey suitable habitat 1 year prior to the Tier 2 process to inform
22 design; implement long-term control of invasive and noxious weeds; and negotiate
23 compensatory mitigation with USFWS, as needed.

- 24 • **MM-BiologicalResources-21:** Avoid critical and occupied habitat for the Chiricahua leopard
25 frog that occurs adjacent to the southern end of this option (Options C, D, CAP Option, I-10
26 Connector).

- 27 • **MM-BiologicalResources-22:** Avoid or minimize impacts to the Santa Rita-Sierrita Detailed
28 Linkage, Coyote-Ironwood-Tucson Detailed Linkage. Assess whether recommendations
29 provided in the linkage-specific or county linkage reports can be used to improve and
30 construct wildlife crossings in these linkages. Coordinate with relevant agencies to
31 implement modifications that will enhance wildlife movement (Options C, D, CAP Option,
32 I-10 Connector).

- 33 • **MM-BiologicalResources-23:** If the Preferred Alternative with west option is chosen during
34 Tier 2, studies will be developed to avoid, minimize, or mitigate impacts to the Tucson
35 Mitigation Corridor, including coordination with Bureau of Reclamation, AGFD, and other
36 relevant agencies to improve and design wildlife crossings in and near the Tucson Mitigation
37 Corridor. Specific mitigation related to the Tucson Mitigation Corridor includes (1) relocating
38 and reclaiming Sandario Road; (2) conducting wildlife studies prior to the Tier 2 process;
39 (3) aligning I-11 wildlife crossing structures to match the existing CAP canal siphons (seven
40 crossings total); (4) creating additional wildlife crossing(s) near the Tucson Mitigation
41 Corridor depending on the results of wildlife studies; (5) acquiring property (at a minimum
42 1:1 ratio) to support additional wildlife connectivity corridors between the Tucson Mountains



1 and the Roskrige and Silver Bell Mountains for the number of acres of the Tucson
2 Mitigation Corridor that will be impacted by the project; and (6) implementing design
3 restrictions, such as no interchanges in the Tucson Mitigation Corridor or between Snyder
4 Hill Road and Manville Road, and minimizing the width of I-11, to limit the I-11 footprint in
5 the Tucson Mitigation Corridor area.

6 **Marana to Casa Grande**

7 • **MM-BiologicalResources-24:** Avoid or minimize impacts to the Santa Cruz River along this
8 option; conduct 2 years of pre-construction breeding season surveys for yellow-billed
9 cuckoo; implement seasonal restrictions; and consult with USFWS, as needed (Option F).

10 • **MM-BiologicalResources-25:** Avoid or minimize impacts to the Coyote-Ironwood-Tucson
11 Detailed Linkage, Ironwood-Picacho Linkage. Assess whether recommendations provided in
12 the linkage-specific or county linkage reports can be used to improve and construct wildlife
13 crossings in these linkages. Coordinate with relevant agencies to implement modifications
14 that will enhance wildlife movement (Option F).

15 • **MM-BiologicalResources-26:** Avoid or minimize impacts to the Ironwood-Picacho Linkage.
16 Assess whether recommendations provided in the linkage-specific or county linkage reports
17 can be used to improve and construct wildlife crossings in these linkages. Coordinate with
18 relevant agencies to implement modifications that will enhance wildlife movement (Option G,
19 not applicable to the Preferred Alternative).

20 **Casa Grande to Buckeye**

21 • **MM-BiologicalResources-27:** Avoid or minimize impacts to the Gila Bend-Sierra Estrella
22 Linkage. Assess whether recommendations provided in the linkage-specific or county
23 linkage reports can be used to improve and construct wildlife crossings in these linkages.
24 Coordinate with relevant agencies to implement modifications that will enhance wildlife
25 movement (Options K and L).

26 • **MM-BiologicalResources-28:** Avoid or minimize impacts to the Buckeye Hills East-
27 Sonoran Desert National Monument Linkage. Assess whether recommendations provided in
28 the linkage-specific or county linkage reports can be used to improve and construct wildlife
29 crossings in these linkages. Coordinate with relevant agencies to implement modifications
30 that will enhance wildlife movement (Option M).

31 • **MM-BiologicalResources-29:** Minimize the footprint of the bridge crossing the Gila River to
32 the extent possible; conduct 2 years of pre-construction breeding season surveys for yellow-
33 billed cuckoo, southwestern willow flycatcher, and Yuma Ridgway's rail suitable habitat;
34 implement seasonal restrictions; and consult with USFWS, as needed (Option N, not
35 applicable to the Preferred Alternative).

36 • **MM-BiologicalResources-30:** Avoid or minimize impacts to the Gila River riparian corridor.
37 The need for potential additional wildlife crossings will be assessed to preserve wildlife
38 movement, Coordination with relevant agencies would occur to implement modifications that
39 will enhance wildlife movement (Option N, not applicable to the Preferred Alternative).



- 1 • **MM-BiologicalResources-31:** Avoid or minimize impacts to the Gila Bend-Sierra Estrella
2 Linkage. Assess whether recommendations provided in the linkage-specific or county
3 linkage reports can be used to improve and construct wildlife crossings in these linkages.
4 Coordinate with relevant agencies to implement modifications that will enhance wildlife
5 movement (Option Q1, not applicable to the Preferred Alternative).
- 6 • **MM-BiologicalResources-32:** Minimize the footprint of bridge widening or new bridge
7 construction on the SR 85 crossing the Gila River to the extent possible; conduct two years
8 of pre-construction, breeding season surveys in suitable habitat for yellow-billed cuckoo,
9 southwestern willow flycatcher, and Yuma Ridgway's rail; implement seasonal restrictions;
10 and consult with USFWS, if species present, as needed (Option Q2).
- 11 • **MM-BiologicalResources-33:** Avoid or minimize impacts to the Gila River riparian corridor.
12 The need for potential additional wildlife crossings will be assessed to preserve wildlife
13 movement. Coordinate with relevant agencies to implement modifications that will enhance
14 wildlife movement (Option Q2).
- 15 • **MM-BiologicalResources-34:** Minimize construction in the Gila River floodplain to the
16 extent possible; conduct 2 years of pre-construction, breeding season surveys in suitable
17 habitat for yellow-billed cuckoo; implement seasonal restrictions; and consult with USFWS, if
18 species present, as needed (Options Q3 and R).

19 **Buckeye to Wickenburg**

- 20 • **MM-BiologicalResources-35:** Avoid, minimize, and mitigate impacts to the White Tank-
21 Belmont Hieroglyphics Linkage, Wickenburg-Hassayampa Linkage and primary and
22 secondary wildlife crossing structures on Reclamation's CAP canal. Assess whether
23 recommendations provided in the linkage-specific or county linkage reports can be used to
24 improve and construct wildlife crossings in these linkages. Coordinate with relevant
25 agencies to implement modifications that will enhance wildlife movement (Options S, U, and
26 X).

27 **3.14.6.3 Additional Mitigation to be Evaluated in Tier 2**

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

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