6 Evaluation of Alternatives

Chapter 3, *Affected Environment and Environmental Consequences*, discusses the existing environmental conditions in the study area and the potential effects of the action corridor alternatives under consideration on the environment. Based on the results presented in Chapter 3 and in Chapter 4, *Indirect and Cumulative Impacts*, across all resource areas and based on stakeholder input, this chapter discusses how the study team screened the action corridor alternatives to identify a preferred corridor.

6.1 Evaluation Criteria and Performance Measures

Transportation and environmental effects of the No-Action Alternative and the action corridor alternatives were assessed in each segment of the Corridor at a level of detail sufficient to inform a decision regarding a preferred corridor from US 60 to I-10. The criteria used to evaluate the No-Action Alternative and the action corridor alternatives were based on the information developed in Chapters 3 and 4, with the addition of stakeholder input. The criteria were divided into six categories (Table 6.1-1). This information is summarized in the *Corridor Selection Report* (in Appendix C, *Alternatives Screening*). The *Corridor Selection Report* provides details regarding the various performance measures evaluated and the specific evaluation scale applied. Both the criteria and the initial evaluation results were reviewed with the cooperating and participating agencies; the evaluation criteria were finalized with their input.

6.1.1 Risk Approach to Evaluation

At this Tier 1 EIS level, with the exact location of the Tier 2 study alignment and project footprint unknown, the environmental impact assessment was based largely on qualitative analyses. Therefore, a risk-assessment approach was used to determine the likelihood of adverse impacts in the 1,500 foot-wide corridors.

Generally speaking, a five-value evaluation scale was applied to each performance measure that was individually defined for each measure, depending on the type of impact under consideration, as described below:

1. High degree of benefit to or no risk of impacts; resource is not present in the Corridor
2. Some benefit to or minimal risk of impacts; resource may be present but impacts are not likely
3. No effect or low risk of impacts; resource may be present but impacts likely avoided
4. Some adverse impact or moderate risk of impacts; resource present and impacts may occur
5. Substantial adverse impact or high risk of impacts; resource present and impacts are likely unavoidable

6.1.2 Evaluation Categories

For each action corridor alternative, the *Corridor Selection Report* considered six evaluation categories: (1) transportation and traffic operations, (2) land use planning, (3) human environment, (4) built environment, (5) natural environment, and (6) stakeholder input. The first five categories, described in Table 6.1-1, are related to the transportation and environmental analyses discussed in Chapters 3 and 4 and are primarily qualitative in nature. A quantitative approach was taken for resources where sufficient data were found to support a robust comparison of action corridor alternatives.

Table 6.1-1. Evaluation categories and performance measures used to compare action corridor alternatives

Evaluation category	Performance measures
Transportation and traffic operations	• average weekday traffic volumes on each action corridor alternative in 2040 • level of service on each action corridor alternative in 2040 • service traffic interchange access to regionally significant routes in 2040 • local access issues • Corridor length • travel times between regional origin and destination locations • reduced travel time through the Corridor compared with No-Action Alternative • arterial street congestion relief, measured by fewer miles of congested arterial streets, compared with No-Action Alternative
Land use planning	• existing land use impacts • compatibility with general and comprehensive plans • impacts on development plans and conceptual plans • impacts associated with property acquisitions • 2040 population, employment, and activity centers within 2 miles of action corridor alternative
Human environment	• impacts on community facilities • impacts on low-income and minority populations • risk of residential, business, and other displacements • risk of change in visual setting • risk of conversion of prime or unique farmlands to transportation use
Built environment	• risk of impacts on existing and planned parks and recreation facilities, including trails • risk of impacts on noise-sensitive receptors • risk of impacts on or from environmental listings of concern • risk of adverse impacts on National Register of Historic Places-eligible archaeological sites or historical districts, buildings, or structures • risk of impacts on existing linear utilities (that is, canals, railroads, transmission lines, pipelines)
Natural environment	• risk of impacts on air quality • risk of land subsidence or earth fissure impacts • risk of impacts on wildlife, wildlife habitat, conservation and wildlife management land, and protected native plants • number of ephemeral drainage crossings • risk of floodplain encroachment and groundwater well relocation • consideration of the potentially least environmentally damaging practicable alternative
Stakeholder input	• preference of Four Southern Tribes (Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation) • preference of cooperating and participating agencies • preference of public, obtained through website and other outreach methods

Note: Corridor = North-South Corridor

The sixth category of the evaluation criteria is the stated preferences of the Native American tribes, cooperating agencies, participating agencies, and other stakeholders, including the public. Throughout the NSCS planning process, these stakeholders have been actively engaged in the study and have provided input at multiple decision points, starting at scoping and continuing through the ASR, and most recently during the development of this Tier 1 DEIS. Jurisdictions and landowners anticipate the projected growth in the study area and have been planning accordingly, including adopting plans for their preferred corridor alignment. The input and stated preferences of these stakeholders are an important consideration in evaluating alternatives and selecting a preferred corridor.

6.2 Comparison of Alternatives

This section compares the No-Action Alternative and the action corridor alternatives, discussed by segment of the study area.

6.2.1 No-Action Alternative

As a baseline for comparison, consistent with NEPA requirements, the study team defined and evaluated a No-Action Alternative that includes all reasonably foreseeable transportation and development projects in the study area.

While the No-Action Alternative would not result in impacts that would be associated with any of the action corridor alternatives, as discussed in Chapters 3 and 4, it would result in adverse impacts because the need for a high-capacity transportation corridor would be unmet. Between 2015 and 2040, the daily total VMT in the study area would increase from 5 million to 12.6 million, and the daily total VHT would increase from approximately 110,000 to over 370,000. These increases would result in more miles of congested roadways in the study area, from 47 in 2015 to 185 in 2040. Without the proposed action, numerous regionally significant routes in the study area would operate at an unacceptable LOS, with many routes operating at LOS F. Moreover, the absence of the proposed action would limit circulation and access in the study area as land uses are converted from undeveloped and low-density agriculture and a rural development pattern to higher-density residential neighborhoods, commercial centers with new job opportunities, and additional community and public facilities to serve the new neighborhoods.

The No-Action Alternative would not meet the proposed action's purpose and need because it would not provide the necessary transportation mobility, circulation, and access needs to accommodate the projected population and employment growth in the study area.

6.2.2 Action Corridor Alternatives

The results of the analyses presented in Chapters 3 and 4, the evaluation matrix included in the *Corridor Selection Report* (Appendix C, *Alternatives Screening*), and additional input from stakeholders are summarized in the subsections below for the action corridor alternatives, by segment.

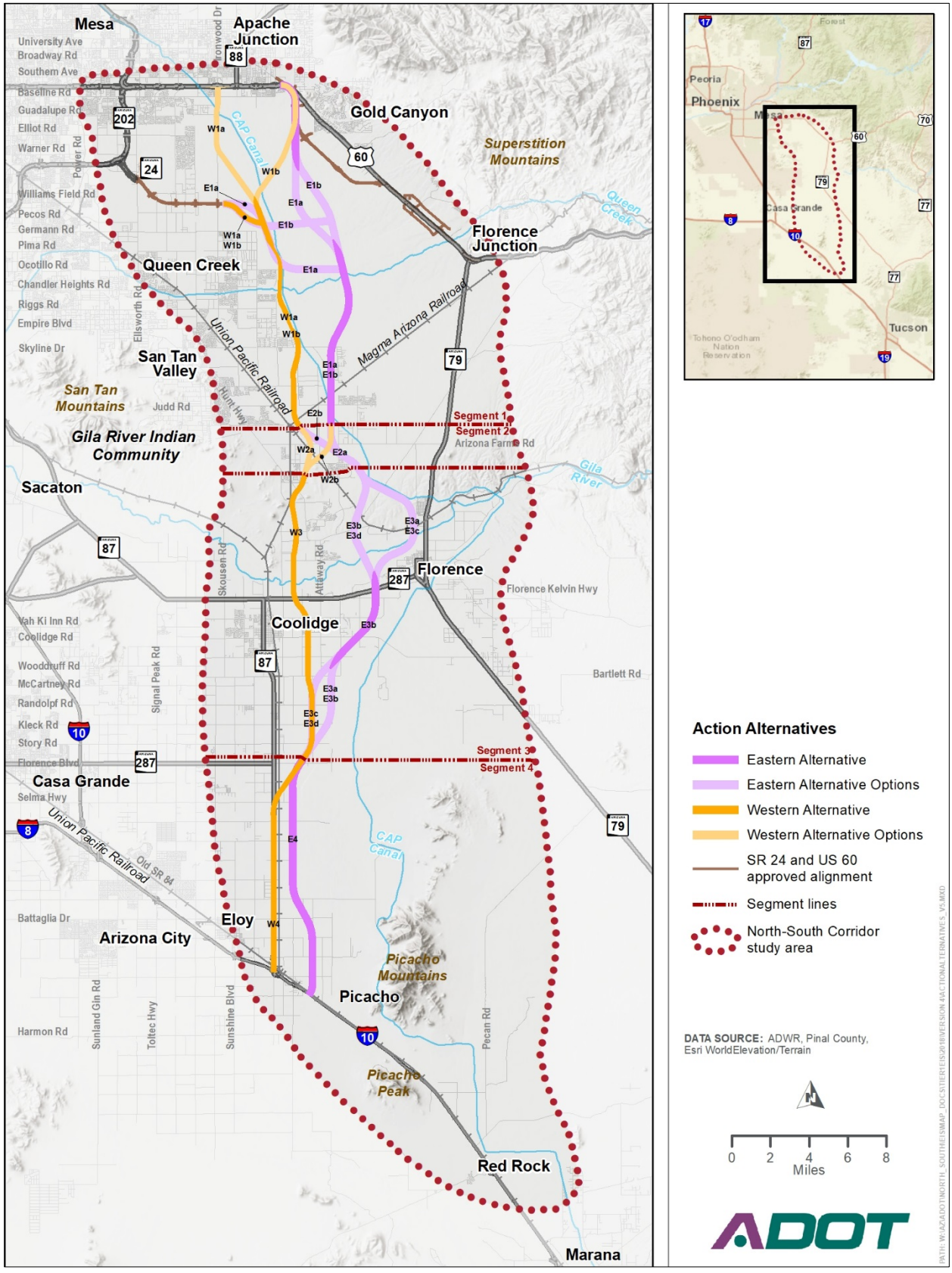
Focusing on performance measures helped determine to what degree each action corridor alternative would meet the proposed action's purpose and need, as described in Chapter 1.

In addition, Section 3.19, *Section 4(f) and Section 6(f) Resources*, contains sufficient data to inform an assessment of the risk of using Section 4(f) resources. Data collected through the planning process, including information in cultural resource reports prepared for the study for review and concurrence by SHPO for compliance with Section 106 of the NHPA, have informed the development and refinement of action corridor alternatives in this Tier 1 phase.

Similarly, Section 3.13, *Waters of the United States*, contains sufficient information regarding potential impacts on jurisdictional Waters to assess the risk of significant impacts that may trigger the need for an individual permit under Section 404 of the CWA and, consequently, the requirement that ADOT select the LEDPA.

Figure 6.2-1 shows the action corridor alternatives, and the following sections summarize the evaluation of the action corridor alternatives based on the criteria for each performance area, by segment.

Figure 6.2-1. Action corridor alternatives, by segment



6.2.2.1 Segment 1

Four action corridor alternatives (E1a, E1b, W1a, and W1b) are under consideration in Segment 1, and a summary of how the alternatives perform in comparison with each other is presented below for each of the six evaluation categories.

Transportation and Traffic Operations

As modeled, average weekday traffic volumes would be greatest with the W1a Alternative, and less with the eastern connection with US 60 (that is, with E1a, E1b, and W1b). While each of the action corridor alternatives would have a positive effect by reducing regional traffic congestion, the W1a Alternative would result in the greatest reduction in regional congestion, followed by W1b and E1a/E1b (no discernable difference exists between E1a and E1b). The W1a Alternative would require constructing collector and distributor roads to carry local traffic on Ironwood Drive, resulting in a wider freeway footprint to maintain freeway, local road, and traffic interchange operations. This would create a substantial barrier to east-to-west traffic through the area. The E1a, E1b, and W1b Alternatives would necessitate the development of Elliot Road to facilitate local access to the facility (currently, no plans exist to extend Elliot Road east of the CAP Canal), adding to the cost of these alternatives.

Excluding the SR 24 connection, the E1a, E1b, W1a, and W1b Alternatives are similar in length (19, 18.7, 18.8, and 19.1 miles, respectively). The SR 24 connections vary substantially between alternatives, with the W1a and W1b Alternatives being the shortest (at 2.35 and 2.36 miles, respectively), followed by the E1b Alternative at 5.93 miles, and the E1a Alternative being the longest at 8 miles. Shorter alternatives provide faster travel times for through Corridor drivers (although, the number of through-trips for the Corridor is relatively small).

Land Use Planning

Segment 1 jurisdictions' general plans are supportive of a North-South Freeway facility, which is referenced without identifying a preferred alternative.

All action corridor alternatives would be compatible with future land uses because they all cross areas planned for residential or business land uses. Of the alternatives, the W1a Alternative provides access to the largest existing and anticipated population, employment, and activity centers. Most land east of the CAP Canal is owned by ASLD, which has developed conceptual plans for this area, known as Superstition Vistas. Projections for the area are not reflected in the 2040 planning horizon as documented in the State Demographer's projections; however, the Superstition Vistas Conceptual Plan notes that anywhere from 250,000 to 1 million people may live there in the future. The Rittenhouse Army Heliport (an active military training facility) would be affected by the E1a, W1a, and W1b Alternatives.

Human Environment

The W1a Alternative would have the greatest potential impact on residential properties. The W1b Alternative would avoid many of the potential W1a Alternative residential impacts at US 60; however, it would have the same potential impacts on single-family homes as the E1a and E1b Alternatives at the US 60 juncture, with additional potential impacts south of the SR 24 connection. The E1a and E1b Alternatives would have the fewest potential residential impacts. A Tier 2 alignment, developed to avoid impacts to the extent possible, would affect fewer properties. A system traffic interchange at Ironwood Drive with the W1a Alternative would likely require the acquisition of nonresidential property as well, whereas the connection with the E1a, E1b, and W1b Alternatives east of Goldfield Road may have less of a potential impact on nonresidential properties.

Regarding social conditions, the E1a, E1b, and W1b Alternatives have the potential to affect substantially fewer community facilities than the W1a Alternative. However, the E1a, W1a, and W1b Alternatives risk

affecting access to and use of the Rittenhouse Army Heliport, while the E1b Alternative would not. The E1a and E1b Alternatives would have little effect on identified low-income and minority populations. The W1a and W1b Alternatives both would result in potential disproportionately high and adverse effects on minority and low-income populations. The E1a and E1b Alternatives would result in a moderate risk of impacts on farmland, while the W1a and W1b Alternatives would result in a high risk of farmland impacts.

Built Environment

In Segment 1, all of the action corridor alternatives would have a high risk of impacts on existing or planned parks and recreational facilities. The E1a, E1b, and W1b Alternatives would affect the planned expansion area of Silly Mountain Park; however, the actual impacts of a Tier 2 alignment may avoid impacts on the park since planning documents for the park identify a future transportation facility through the park (see Section 3.5, *Parkland and Recreational Facilities*). The W1a Alternative would directly affect a golf course along Ironwood Drive at the system traffic interchange with US 60, and trails that cross the alternative. All the action corridor alternatives have a moderate risk of impacts on trails; however, potential impacts may be avoided or minimized during Tier 2 studies.

The W1a Alternative would result in a high risk of noise impacts based on existing land uses; a low risk of noise impacts is associated with the E1a, E1b, and W1b Alternatives.

Regarding cultural resources, the W1a and W1b Alternatives would result in a high risk of impacts on archaeological sites and no risk of impacts on historical districts, buildings, or structures. The E1a and E1b Alternatives would result in a minimal risk of impacts on known archaeological sites and no risk of impacts on historical districts, buildings, or structures.

Natural Environment

The W1a and W1b Alternatives have a high risk of land subsidence or earth fissure impacts, while the E1a and E1b Alternatives have a moderate risk of these impacts. Regarding biological resources, the E1a and E1b Alternatives would affect wildlife slightly more than the W1a and W1b Alternatives (moderate versus low risk, respectively); however, a moderate risk of impacts on wildlife habitat is associated with all alternatives. The E1b and W1b Alternatives would cross flood control structures, resulting in potential impacts on mesquite/shrub habitat that is not unique and that could be mitigated. Therefore, between the E1a and E1b Alternatives, virtually no difference exists in potential adverse impacts on biological resources. The E1b and W1b Alternatives would result in moderate risks of impacts on conservation and wildlife management land, while the other two alternatives would present no risk to these resources. All the action corridor alternatives have a high risk of impacts on protected native plants.

The E1b and W1a Alternatives would have a moderate risk of floodplain encroachment, and the E1a and W1b Alternatives would have a low risk. The W1a and W1b Alternatives would result in a moderate risk of groundwater impacts, while the E1a and E1b Alternatives would have no groundwater impact risk. All action corridor alternatives cross ephemeral washes, freshwater (livestock) ponds, Queen Creek, and the CAP Canal, some of which may be considered jurisdictional Waters during Tier 2 studies. The W1a and W1b Alternatives each cross several unnamed canals.

Stakeholder Input

In 2017, the Four Southern Tribes (Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation) noted that they were not supportive of the Corridor; however, if an action corridor alternative were selected, their preference among the alternatives was identified during a series of meetings held in May 2017. In Segment 1, the Four Southern Tribes preferred the E1a Alternative.

Additional input was solicited from the public and the cooperating and participating agencies as part of the public outreach conducted in November and December of 2017. Of the 10 agencies that submitted preferences in Segment 1, 6 identified the W1a Alternative as preferred, 3 identified the E1b Alternative as preferred, and 1 identified the W1b Alternative as preferred. The public input provided no consensus regarding the Segment 1 alternatives, with the greatest preference for the W1a Alternative (40 positive comments), followed closely by E1b (39 positive comments). Opposition was greatest for the W1b Alternative (42 negative comments), followed by W1a (35 negative comments).

6.2.2.2 Segment 2

Four action corridor alternatives (E2a, E2b, W2a, and W2b) are under consideration in Segment 2, and a summary of how the alternatives perform in comparison with each other is presented below for each of the six evaluation categories.

Transportation and Traffic Operations

The alternatives in Segment 2 primarily serve as connectors between the Eastern and Western Alternatives, with the E2a and E2b Alternatives providing the eastern connections to Segment 3 and the W2a and W2b Alternatives providing the western connections to Segment 3. The W2a Alternative, at 2.6 miles, is the shortest alternative. The E2b Alternative is the longest alternative, at 3.7 miles.

Land Use Planning

The Town of Florence *2020 General Plan* future land use map identifies the Town's preferred alternative for the proposed action in Segment 2 as the E2a Alternative; this was later reaffirmed in the Town of Florence Resolution 1490-14 (December 2014, see Appendix A, *Agency Coordination*).

In Segment 2, the alternatives are close to each other, with few variations in existing land uses within 2 miles. The E2b Alternative is closest to the most employment centers. None of the alternatives is close to many homes or activity centers. All the alternatives would affect planned and conceptual development plans in Segment 2, although the E2a and W2a Alternatives would minimize such impacts by following a more north-to-south alignment through the area as opposed to the E2b and W2b Alternatives, which cross east-to-west through the area.

Human Environment

In Segment 2, the risk of impacts on community facilities is low because no community facilities would be affected; however, the action corridor alternatives may affect populations with minority concentrations (note that the census geographies do not allow differentiation of the alternatives in Segment 2). No homes or businesses are at risk of displacement in Segment 2. A moderate risk of farmland impacts is associated with all the alternatives.

Built Environment

The W2a and W2b Alternatives would result in a moderate risk of impacts on existing or planned parks and trails because they cross the proposed Copper Basin Railroad Trail and may trigger Section 4(f) impacts, whereas the E2a and E2b Alternatives would result in a low risk to these facilities. No noise impacts on sensitive receptors are associated with any of the Segment 2 alternatives. No known cultural resources would be affected in Segment 2.

Natural Environment

All alternatives in Segment 2 would have a minimal risk of land subsidence or earth fissure impacts. All alternatives have a low risk of impacts on wildlife and wildlife habitat, a minimal risk of impacts on

protected native plants, a minimal number of ephemeral drainage crossings, and no risk of floodplain encroachment.

Stakeholder Input

Of the six agencies that submitted preferences in Segment 2, the E2a Alternative was preferred by three, the W2a Alternative was preferred by two, and the E2b Alternative was preferred by one. In Segment 2, the Four Southern Tribes preferred the W2b Alternative. The public input provided no consensus regarding the Segment 2 alternatives, with the E2a Alternative receiving the most support (12 positive comments) and the most opposition (7 negative comments).

6.2.2.3 Segment 3

Five action corridor alternatives (E3a, E3b, E3c, E3d, and W3) are under consideration in Segment 3, and a summary of how the alternatives perform in comparison with each other is presented below for each of the six evaluation categories.

Transportation and Traffic Operations

As modeled, average weekday traffic volumes with the action corridor alternatives in Segment 3 are greatest with the W3 Alternative and less with the E3a, E3b, E3c, and E3d Alternatives. While any of the alternatives would reduce regional congestion, the W3 Alternative would result in the greatest reduction, followed by, in order, the E3b, E3d, E3a, and E3c Alternatives. The W3 Alternative is the shortest (15 miles), while the Eastern Alternatives range from nearly 10 percent longer (E3b and E3d) to 23 percent longer (E3a and E3c), resulting in longer travel times for through Corridor drivers (when evaluating the Corridor length, it is worth noting that the number of through-trips for the Corridor is estimated to be a small percentage of all trips along the Corridor).

Land Use Planning

The City of Coolidge *General Plan* identifies the E3a or E3b Alternative (with modifications) as the City's preferred alternative. The Town of Florence *2020 General Plan* identifies the E3a Alternative (with modifications) as the Town's preferred alternative. Land use planning in the area is most consistent with the E3a Alternative, which is generally consistent with the Town of Florence's *2020 General Plan*. The Town has worked with landowners in the area to plan around a conceptual corridor, and the Town Council has passed a resolution supporting the E3a Alternative (December 2014, see Appendix A, *Agency Coordination*).

The W3 Alternative is closest to the biggest existing population and a high number of activity centers within 2 miles. Given their proximity to Florence, the E3a and E3c Alternatives are closest to a substantially high number of existing activity centers, and the E3c Alternative captures the most existing employment in the segment. The City of Coolidge has submitted agency stakeholder comments opposing the W3 Alternative, which is described as inconsistent with the City's adopted general plan and development plans that are planned throughout the alternative. While all alternatives cross areas planned for residential growth, the E3a, E3b, E3c, and E3d Alternatives would provide the most direct access to large planned commercial and industrial centers in the study area.

Human Environment

In Segment 3, the E3c and E3d Alternatives would perform best with regard to social conditions—with either benefits to or no effects on community facilities and minority and low-income populations. The E3a and E3c Alternatives would enhance access to community facilities in Florence for areas to the north and for other neighboring communities, whereas no community facilities would be affected by or benefit directly from the E3b or E3d Alternatives. The W3 Alternative would reduce access to an existing

community church and would result in the greatest potential adverse impacts on minority and low-income populations. The E3a and E3b Alternatives have the potential to affect the greatest number of homes in Segment 3, whereas the E3c Alternative, E3d Alternative, and the W3 Alternative have a lower risk of impacts on residences.

Each of the Segment 3 alternatives would affect active or anticipated sand and gravel mining operations near the Gila River, with the E3b and E3d Alternatives also affecting the western end of the Florence Copper mine. All alternatives have a high risk of impacts on farmland.

Built Environment

In Segment 3, the Eastern Alternatives would have a moderate risk of impacts on existing and planned parks and recreational facilities, and the Western Alternative would have a higher risk of impacts on these facilities. The W3 Alternative would likely affect a portion of the Pinal County Existing Multiuse Trail Corridor that runs adjacent to the Pima Lateral Canal in Coolidge.

The E3a and E3b Alternatives would have a moderate risk of noise impacts, whereas the E3c, E3d, and W3 Alternatives would have a low risk of noise impacts.

All alternatives in Segment 3 have a moderate risk of impacts on archaeological resources, while the W3 Alternative would have a low risk of impacts on known historic districts, buildings, or structures. The Southern Pacific Railroad Wellton-Phoenix-Eloy Line intersects the W3 Alternative. The Southern Pacific Railroad Mesa-Winkelman Line intersects the E3a, E3b, E3c, and E3d Alternatives. The North Side Canal intersects the E3a, E3b, E3c, and E3d Alternatives. The Pima Lateral Canal intersects the E3a, E3b, E3c, E3d, and W3 Alternatives. The Kenilworth Elementary School, a historic property, extends 400 feet into the W3 Alternative.

Natural Environment

All alternatives in Segment 3 have a high risk of land subsidence or earth fissure impacts. Regarding biological resources, the impacts are mostly the same for all Segment 3 alternatives: a moderate risk of impacts on wildlife, wildlife habitat, and protected native plants, and no risk of impacts on conservation and wildlife management land. The E3a and E3c Alternatives have a high risk of floodplain encroachment, while the E3b and E3d Alternatives have a moderate risk and the W3 Alternative has a low risk.

The E3a, E3c, E3d, and W3 Alternatives would result in a moderate number of ephemeral drainage crossings, whereas the E3b Alternative would result in a low number of crossings. All action corridor alternatives also cross the Gila River and several unnamed canals and either freshwater, livestock, or other ponds.

Stakeholder Input

Of the eight agencies that provided preferences in Segment 3, the E3a Alternative was preferred by four agencies, the E3b Alternative was preferred by three agencies, the W3 and E3c Alternatives were each supported by two agencies, and the E3d Alternative was preferred by one agency (note that several agencies identified multiple preferred alternatives in the same segment). In Segment 3, the Four Southern Tribes preferred the W3 Alternative. The public input on the Segment 3 alternatives resulted in the E3a Alternative receiving the most support (23 positive comments), followed by E3c (17 positive comments). Opposition was consistent across all Segment 3 alternatives (3 negative comments for each).

6.2.2.4 Segment 4

Two action corridor alternatives (E4 and W4) are under consideration in Segment 4, and a summary of how the alternatives perform in comparison with each other is presented below for each of the six evaluation categories.

Transportation and Traffic Operations

As modeled, average weekday traffic volumes on the Segment 4 alternatives are greatest with the W4 Alternative, the difference being a function of whether the Corridor is east or west in Segment 1 (the W1a Alternative would generate the most traffic in Segment 4, while the E1a and E1b Alternatives would generate the least traffic in Segment 4). The W4 Alternative is 11.7 miles long, while the E4 Alternative is 12.8 miles long. Where the W4 Alternative is coincident with SR 87, access would need to be provided to properties along the route.

Land Use Planning

The City of Coolidge has identified a preferred alternative in its *2025 General Plan* that is similar to the E4 Alternative. The Eloy *2010 General Plan Update* Circulation Element map shows the City's preferred alternative as the W4 Alternative.

In Segment 4, both alternatives are within 2 miles of moderate population and employment; however, the W4 Alternative is near more activity centers because it is closer to the developed parts of Eloy. The City of Coolidge anticipates the development of the Inland Port Arizona and Pinal Logistics Park east of SR 87 in its incorporated area.

Human Environment

Both Segment 4 alternatives would adversely affect community facilities, but the W4 Alternative would also adversely affect low-income and minority populations. The W4 Alternative would have a moderate risk of both residential and business displacements, with 57 homes and 7 businesses located in the corridor. The E4 Alternative would have a minimal and low risk of residential and business displacements, with 3 homes and 1 business in the corridor. The number of affected properties would likely be less with the actual alignment developed during Tier 2 studies. Both alternatives have a high risk of farmland impacts.

Built Environment

In Segment 4, both alternatives would have a moderate risk of impacts on existing and planned parks and recreational facilities. The W4 Alternative would have a moderate risk of noise impacts, whereas the E4 Alternative would have a minimal risk of noise impacts. Both alternatives would have a moderate risk of impacts on archaeological resources. However, the W4 Alternative would have a moderate risk of impacts on known historic districts, buildings, or structures, while the E4 Alternative would have no risk. The Southern Pacific Railroad Main Line Sunset Route intersects the E4 and W4 Alternatives. The Southern Pacific Railroad Wellton-Phoenix-Eloy Line intersects the W4 Alternative. The Casa Grande Canal intersects the E4 and W4 Alternatives. The Florence-Casa Grande Canal Extension intersects the E4 and W4 Alternatives. The El Paso Natural Gas Pipeline No. 1007 intersects the E4 and W4 Alternatives.

Natural Environment

Both alternatives in Segment 4 would have a high risk of land subsidence or earth fissure impacts. The biological conditions are about the same, with both alternatives having a low risk of impacts on wildlife, wildlife habitat, conservation and wildlife management land, and protected plant species. Also, both

Segment 4 alternatives would have a minimal number of ephemeral drainage and other crossings of potentially jurisdictional Waters. The E4 Alternative would have a moderate risk of floodplain encroachment, while the W4 Alternative would have no risk of floodplain encroachment.

Stakeholder Input

Of the five agencies that provided preferences in Segment 4, the E4 Alternative was preferred by three agencies and the W4 Alternative was preferred by two agencies. The Four Southern Tribes did not identify a preferred alternative in Segment 4. In Segment 4, the greatest public preference and opposition was registered for the W4 Alternative (12 positive comments and 2 negative comments), compared with the E4 Alternative, which received 7 positive comments and 1 negative comment.

6.2.2.5 Summary

Table 6.2-1 provides a summary comparison of the action corridor alternatives, by segment.

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Land use planning		
Segment 1	E1a	• Positive: compatible with future land uses because it would cross areas planned for residential or business development • Positive: would provide access to large proposed developments, such as Superstition Vistas • Negative: would affect operations of Rittenhouse Army Heliport
	E1b	• Positive: compatible with future land uses because it would cross areas planned for residential or business development • Positive: would provide access to large proposed developments, such as Superstition Vistas
	W1a	• Positive: compatible with future land uses because it would cross areas planned for residential or business development • Positive: would provide access to the largest existing and anticipated population, employment, and activity centers • Negative: would affect operations of Rittenhouse Army Heliport
	W1b	• Positive: compatible with future land uses because it would cross areas planned for residential or business development • Negative: would affect operations of Rittenhouse Army Heliport
Segment 2	E2a	• Positive: most closely aligns with Town of Florence *General Plan* and with Resolution 1490-14 • Positive: minimal impact on planned development by following a more north-to-south alignment
	E2b	• Positive: would be closest to the most employment centers • Negative: larger impact on planned development by following a diagonal alignment through area
	W2a	• Positive: minimal impact on planned development by following a more north-to-south alignment
	W2b	• Negative: larger impact on planned development by following a diagonal alignment through area

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Land use planning (continued)		
Segment 3	E3a	• Positive: most consistent with City of Coolidge and Town of Florence *General Plans* • Positive: most consistent with land use planning in the area • Positive: closest to a substantially high number of existing activity centers • Positive: would provide access to large planned commercial and industrial centers in the area
	E3b	• Positive: consistent with City of Coolidge *General Plan* • Positive: would provide access to large planned commercial and industrial centers in the area
	E3c	• Positive: closest to a substantially high number of existing activity centers • Positive: would capture the most existing employment in the segment • Positive: would provide access to large planned commercial and industrial centers in the area
	E3d	• Positive: would provide access to large planned commercial and industrial centers in the area
	W3	• Positive: would be closest to the biggest existing population and the most activity centers • Negative: inconsistent with City of Coolidge and Town of Florence *General Plans*
Segment 4	E4	• Positive: most consistent with City of Coolidge *General Plan* • Positive: would be closest to planned Inland Port Arizona and Pinal Logistics Park
	W4	• Positive: most consistent with City of Eloy *General Plan* • Positive: near more activity centers close to the developed parts of Eloy
Human environment		
Segment 1	E1a	• Positive: would affect fewest existing residential properties • Negative: risk of affecting access to and use of the Rittenhouse Army Heliport • Positive: little effect on identified low-income and minority populations • Negative: moderate risk of farmland impacts
	E1b	• Positive: would affect fewest existing residential properties • Positive: little effect on identified low-income and minority populations • Negative: moderate risk of farmland impacts
	W1a	• Negative: greatest potential impact on residential and nonresidential properties • Negative: would affect the most community facilities • Negative: risk of affecting access to and use of the Rittenhouse Army Heliport • Negative: potential disproportionately high and adverse effects on minority and low-income populations • Negative: high risk of farmland impacts
	W1b	• Negative: would affect more existing residential properties than Eastern Alternatives • Negative: risk of affecting access to and use of the Rittenhouse Army Heliport • Negative: potential disproportionately high and adverse effects on minority and low-income populations • Negative: high risk of farmland impacts
Segment 2	E2a	• Positive: for all alternatives, no risk of impacts on community facilities • Positive: for all alternatives, no risk of impacts on existing residential or commercial properties • Negative: for all alternatives, may affect populations with minority concentrations • Negative: for all alternatives, moderate risk of farmland impacts
	E2b	
	W2a	
	W2b	

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Human environment (continued)		
Segment 3	E3a	• Positive: would enhance access to community facilities in Florence • Negative: would affect the most residential properties • Negative: would affect active or anticipated sand and gravel mines near the Gila River • Negative: high risk of farmland impacts
	E3b	• Positive: would have no effects on access to community facilities • Negative: would affect the most residential properties • Negative: would affect active or anticipated sand and gravel mines near the Gila River • Negative: would affect Florence Copper mine • Negative: high risk of farmland impacts
	E3c	• Positive: would enhance access to community facilities in Florence • Positive: low risk of disproportionately high and adverse impacts on minority and low-income populations • Positive: lower risk of impacts on residential properties • Negative: would affect active or anticipated sand and gravel mines near the Gila River • Negative: high risk of farmland impacts
	E3d	• Positive: would have no effects on access to community facilities • Positive: low risk of disproportionately high and adverse impacts on minority and low-income populations • Positive: lower risk of impacts on residential properties • Negative: would affect active or anticipated sand and gravel mines near the Gila River • Negative: would affect Florence Copper mine • Negative: high risk of farmland impacts
	W3	• Positive: lower risk of impacts on residential properties • Negative: would reduce access to an existing community church • Negative: greatest potential for disproportionately high and adverse impacts on minority and low-income populations • Negative: would affect active or anticipated sand and gravel mines near the Gila River • Negative: high risk of farmland impacts
Segment 4	E4	• Positive: minimal and low risk of residential and business displacements • Negative: would adversely affect community facilities • Negative: high risk of farmland impacts
	W4	• Negative: would adversely affect community facilities • Negative: potential for disproportionately high and adverse impacts on minority and low-income populations • Negative: moderate risk of both residential and business displacements • Negative: high risk of farmland impacts

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Built environment		
Segment 1	E1a	• Positive: low risk of noise impacts • Positive: no risk of impacts on historical districts, buildings, or structures • Positive: minimal risk of impacts on known archaeological sites • Negative: high risk of impacts on existing or planned parks and recreational facilities, including expansion area of Silly Mountain Park[a] • Negative: moderate risk of impacts on trails[b]
	E1b	• Positive: low risk of noise impacts • Positive: no risk of impacts on historical districts, buildings, or structures • Positive: minimal risk of impacts on known archaeological sites • Negative: high risk of impacts on existing or planned parks and recreational facilities, including expansion area of Silly Mountain Park[a] • Negative: moderate risk of impacts on trails[b]
	W1a	• Positive: no risk of impacts on historical districts, buildings, or structures • Negative: high risk of impacts on existing or planned parks and recreational facilities, including a golf course • Negative: moderate risk of impacts on trails[b] • Negative: high risk of noise impacts on existing land uses • Negative: high risk of impacts on archaeological sites
	W1b	• Positive: low risk of noise impacts • Positive: no risk of impacts on historical districts, buildings, or structures • Negative: high risk of impacts on existing or planned parks and recreational facilities, including expansion area of Silly Mountain Park[a] • Negative: moderate risk of impacts on trails[b] • Negative: high risk of impacts on archaeological sites
Segment 2	E2a	• Positive: low risk of impacts on existing or planned parks and trails • Positive: no risk of noise impacts • Positive: no risk of impacts on known cultural resources
	E2b	• Positive: low risk of impacts on existing or planned parks and trails • Positive: no risk of noise impacts • Positive: no risk of impacts on known cultural resources
	W2a	• Positive: no risk of noise impacts • Positive: no risk of impacts on known cultural resources • Negative: moderate risk of impacts on existing or planned parks and trails[b]
	W2b	• Positive: no risk of noise impacts • Positive: no risk of impacts on known cultural resources • Negative: moderate risk of impacts on existing or planned parks and trails[b]

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Built environment (continued)		
Segment 3	E3a	• Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of noise impacts • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Mesa-Winkelman Line, North Side Canal, and Pima Lateral Canal
	E3b	• Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of noise impacts • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Mesa-Winkelman Line, North Side Canal, and Pima Lateral Canal
	E3c	• Positive: low risk of noise impacts • Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Mesa-Winkelman Line, North Side Canal, and Pima Lateral Canal
	E3d	• Positive: low risk of noise impacts • Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Mesa-Winkelman Line, North Side Canal, and Pima Lateral Canal
	W3	• Positive: low risk of noise impacts • Positive: low risk of impacts on known historic districts, buildings, or structures • Negative: higher risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Wellton-Phoenix-Eloy Line and Pima Lateral Canal
Segment 4	E4	• Positive: minimal risk of noise impacts • Positive: no risk of impacts on known historic districts, buildings, or structures • Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of impacts on archaeological resources • Negative: intersected by the Southern Pacific Railroad Main Line Sunset Route, Casa Grande Canal, Florence-Casa Grande Canal Extension, and El Paso Natural Gas Pipeline No. 1007
	W4	• Negative: moderate risk of noise impacts • Negative: moderate risk of impacts on existing and planned parks and recreational facilities • Negative: moderate risk of impacts on archaeological resources • Negative: moderate risk of impacts on known historic districts, buildings, or structures • Negative: intersected by the Southern Pacific Railroad Main Line Sunset Route and Wellton-Phoenix Eloy Line, Casa Grande Canal, Florence-Casa Grande Canal Extension, and El Paso Natural Gas Pipeline No. 1007

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Natural environment		
Segment 1	E1a	• Positive: low risk of floodplain encroachment • Positive: no risk of groundwater impacts • Negative: moderate risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife and wildlife habitat • Negative: high risk of impacts on protected native plants • Negative: would cross ephemeral washes, livestock ponds, Queen Creek, and the Central Arizona Project Canal, which may be considered waters of the United States
	E1b	• Negative: moderate risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife and wildlife habitat • Negative: would cross flood control structures, resulting in potential impacts on mesquite/shrub habitat • Negative: moderate risk of impacts on conservation and wildlife management land • Negative: high risk of impacts on protected native plants • Negative: moderate risk of floodplain encroachment • Negative: would cross ephemeral washes, livestock ponds, Queen Creek, and the Central Arizona Project Canal, which may be considered waters of the United States
	W1a	• Positive: low risk of impacts on wildlife • Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife habitat • Negative: high risk of impacts on protected native plants • Negative: moderate risk of floodplain encroachment • Negative: moderate risk of groundwater impacts • Negative: would cross ephemeral washes, livestock ponds, Queen Creek, and the Central Arizona Project Canal, which may be considered waters of the United States • Negative: would cross several unnamed canals
	W1b	• Positive: low risk of impacts on wildlife • Positive: low risk of floodplain encroachment • Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife habitat • Negative: would cross flood control structures, resulting in potential impacts on mesquite/shrub habitat • Negative: moderate risk of impacts on conservation and wildlife management land • Negative: high risk of impacts on protected native plants • Negative: moderate risk of groundwater impacts • Negative: would cross ephemeral washes, livestock ponds, Queen Creek, and the Central Arizona Project Canal, which may be considered waters of the United States • Negative: would cross several unnamed canals
Segment 2	E2a	• Positive: for all alternatives, minimal risk of land subsidence or earth fissure impacts • Positive: for all alternatives, low risk of impacts on wildlife and wildlife habitat • Positive: for all alternatives, minimal risk of impacts on protected native plants • Positive: for all alternatives, minimal number of ephemeral drainage crossings
	E2b	
	W2a	
	W2b	

Table 6.2-1. Summary comparison of land use and environmental impacts of the action corridor alternatives, by segment

Segment	Action corridor alternative	Discussion
Natural environment (continued)		
Segment 3	E3a	• Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife, wildlife habitat, and protected native plants • Negative: high risk of floodplain encroachment • Negative: moderate number of ephemeral drainage crossings • Negative: would cross Gila River, several unnamed canals, and freshwater/livestock/other ponds
	E3b	• Positive: low number of ephemeral drainage crossings • Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife, wildlife habitat, and protected native plants • Negative: moderate risk of floodplain encroachment • Negative: would cross Gila River, several unnamed canals, and freshwater/livestock/other ponds
	E3c	• Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife, wildlife habitat, and protected native plants • Negative: high risk of floodplain encroachment • Negative: moderate number of ephemeral drainage crossings • Negative: would cross Gila River, several unnamed canals, and freshwater/livestock/other ponds
	E3d	• Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife, wildlife habitat, and protected native plants • Negative: moderate risk of floodplain encroachment • Negative: moderate number of ephemeral drainage crossings • Negative: would cross Gila River, several unnamed canals, and freshwater/livestock/other ponds
	W3	• Positive: low risk of floodplain encroachment • Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of impacts on wildlife, wildlife habitat, and protected native plants • Negative: moderate number of ephemeral drainage crossings • Negative: would cross Gila River, several unnamed canals, and freshwater/livestock/other ponds
Segment 4	E4	• Positive: low risk of impacts on wildlife, wildlife habitat, conservation and wildlife management land, and protected plant species • Positive: minimal number of ephemeral drainage and other crossings of potential waters of the United States • Negative: high risk of land subsidence or earth fissure impacts • Negative: moderate risk of floodplain encroachment
	W4	• Positive: low risk of impacts on wildlife, wildlife habitat, conservation and wildlife management land, and protected plant species • Positive: minimal number of ephemeral drainage and other crossings of potential waters of the United States • Positive: no risk of floodplain encroachment • Negative: high risk of land subsidence or earth fissure impacts

[a] A Tier 2 alignment may avoid impacts on Silly Mountain Park since planning documents for the park identify a future transportation facility through the park (see Section 3.5, *Parkland and Recreational Facilities*).

[b] Impacts on trails may be avoided through local agency coordination and/or design modifications to avoid or minimize impacts.

6.3 Preferred Alternative

This section describes how the study team identified a preferred action corridor alternative in each segment, and how the alternatives from each segment combine to create the preferred corridor alternative.

The identification of a preferred alternative was based on how well each action corridor alternative met the proposed action's purpose and need and to what degree other desirable outcomes would be achieved. To address transportation needs in the study area and the purpose of the proposed action (described in Section 1.5, *Purpose of the Proposed Action*), the preferred alternative should meet the following objectives:

- Enhance the transportation network to accommodate existing and future populations – Consistent with state, regional, and municipal planning initiatives, the new corridor would accommodate anticipated growth in the study area and across the larger region.
- Improve access to future activity centers – The new corridor would benefit the study area's new activity and population centers and undeveloped lands identified for conversion that are in various stages of the local or regional planning processes.
- Improve regional mobility – The new corridor would provide additional roadway capacity ahead of full development build-out to avoid congestion associated with anticipated growth.
- Provide an alternative to avoid congestion on I-10 – The new corridor would provide an unfragmented alternative to I-10 to reduce traffic delays at full development build-out.
- Improve north-to-south connectivity – The new corridor would connect eastern portions of the Phoenix metropolitan area with Pinal County and destinations to the south, including Tucson.
- Integrate the region's transportation network – The new corridor would provide a critical link, currently missing, in the transportation network to provide regional connectivity.

These objectives address the need for a continuous, unfragmented north-to-south transportation facility in the study area to facilitate regional mobility, to improve access to a growing population and activity centers, and to improve connectivity between Phoenix, southeastern Maricopa County, Pinal County, and Tucson. However, the benefits of a new transportation facility must be balanced with potential impacts on the environment and other likely effects. Other desired outcomes of the proposed action to balance likely effects (described in Section 1.6, *Other Desired Outcomes of the Proposed Action*) are as follows:

- protect and enhance the natural environment along the Corridor
- support local and regional land use plans and preservation goals
- support equitable economic opportunities
- complement other planned transportation improvements along new and established corridors in the study area

Finally, the identification of a preferred alternative was informed by a qualitative LEDPA consistency analysis performed for each segment. As described in Section 3.13, *Waters of the United States*, at the Tier 2 phase, if an individual permit is needed, USACE requires that the preferred alternative be the LEDPA with regard to impacts on Waters, in accordance with Section 404(b)(1) of the CWA (33 USC § 1344). At this Tier 1 level, given the unavailability of exact quantities of potential fill, dredging, or other impacts on Waters protected under Section 404 of the CWA, an assessment of the *risks* of impacts on protected Waters has been presented in this draft Tier 1 EIS. Accordingly, a qualitative LEDPA consistency analysis regarding the risk of impacts on protected Waters and other elements of the

Section 404(b)(1) guidelines is presented in the following subsections. Based on the risks identified in this qualitative LEDPA consistency analysis, a preliminary LEDPA determination was made for each segment. Future Tier 2 studies will provide the quantitative analysis necessary to support a final LEDPA determination.

The qualitative LEDPA consistency analysis discussed here is based on the USACE requirement to evaluate alternatives that are practicable and reasonable, outlined in the Section 404(b)(1) guidelines,[1] with consideration of each of the following:

- There must be no practicable alternative to the proposed discharge that would have a less adverse impact on the aquatic ecosystem, so long as the alternative does not have any other significant adverse environmental consequences;
- The project must not cause or contribute to a violation of state water quality standards or toxic effluent standards and must not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats;
- The project must not cause or contribute to a significant degradation of the Waters; and
- The project must include appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

6.3.1 Identification of Action Corridor Alternatives in Each Segment

The following sections compare the action corridor alternatives in each segment to identify which is the preferred alternative based on how well it meets the proposed action's objectives (purpose and need) and how it fared after the study team's evaluation, as presented in Section 6.2, *Comparison of Alternatives,* regarding the degree to which each action corridor alternative achieves other desirable outcomes. The following sections also describe the qualitative LEDPA consistency analysis conducted to help inform the identification of a preferred corridor in each segment.

6.3.1.1 Segment 1

Ability to Meet the Project Objectives

Each of the action corridor alternatives would reduce regional congestion, although the W1a Alternative performed better in modeling because it is close to population and employment centers. All the alternatives would meet the purpose and need to improve regional mobility and provide improved connectivity; however, the E1b Alternative would best improve access to future activity centers and ASLD's planned development areas of Lost Dutchman Heights and Superstition Vistas.

Ability to Achieve Other Desired Outcomes of the Project

In Segment 1, the E1b Alternative is the most compatible with land use planning in the area and would result in the lowest risk of impacts on the human environment. Considering the built environment in Segment 1, the E1a and E1b Alternatives would result in fewer impacts than the W1a and W1b Alternatives. Overall, the E1a Alternative would have the lowest potential for impacts on natural resources, considering all potential geological, hydrological, biological, and jurisdictional Waters impacts, although both the E1a and E1b Alternatives would result in a greater risk of impacts on wildlife.

[1] 40 CFR Part 230 – Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, Subpart B – Compliance with the Guidelines, § 230.10 – Restrictions on discharge

In Segment 1, the risk of Section 4(f) impacts associated with the W1a and W1b Alternatives is greater than the risk of Section 4(f) impacts associated with the E1a and E1b Alternatives, which have either no impacts on Section 4(f) resources or impacts that may be avoided or minimized during Tier 2 studies.

In considering the other desirable outcomes of the proposed action, the W1a Alternative may better protect the natural environment, with mitigation, compared with the E1a, E1b, and W1b Alternatives. However, the E1a and E1b Alternatives better support regional land use plans and better complement other planned transportation improvements in the study area, with direct access to the US 60 bypass (also provided by the W1b Alternative) and the ability to expand the transportation network to the east as development occurs. All the alternatives support equitable economic opportunities with access to employment and activity centers.

LEDPA Consistency

All action corridor alternatives in Segment 1 would cross potential Waters. Most impacts on the smaller crossings may be avoided or minimized with any of the alternatives, and all alternatives would face similar challenges crossing Queen Creek and the CAP Canal. Applying the four LEDPA considerations described in the introduction to Section 6.3, the following consistency analysis supports the identification of the Segment 1 preliminary LEDPA at this Tier 1 phase as the E1b Alternative:

- The preliminary analysis presented in this Tier 1 EIS and summarized in Section 6.2 shows that there is no practicable alternative with a less adverse impact on the aquatic ecosystem that does not have any other significant adverse environmental consequences. All alternatives would cross multiple drainages as well as Queen Creek and the CAP Canal; however, the E1b Alternative would have a slightly lower risk of impacts on land use planning, the human environment, and the built environment, compared with other alternatives.
- The E1b Alternative would not cause or contribute to violation of state water quality standards or toxic effluent standards and would not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats. There is a risk to protected native plants that is common among all alternatives.
- With avoidance and minimization measures identified and applied during Tier 2 studies, such as design features to avoid fill or dredging in Waters, the E1b Alternative would not cause or contribute to a significant degradation of Waters.
- The Tier 2 studies will include appropriate and practicable steps to minimize potential adverse impacts of discharge on the aquatic ecosystem.

Preferred Segment Corridor

Considering the proposed action's objectives, the analysis of potential impacts and the other desirable outcomes, and the LEDPA consistency analysis, the E1b Alternative is the preferred action corridor alternative in Segment 1.

6.3.1.2 Segment 2

Ability to Meet the Project Objectives

Each of the action corridor alternatives in Segment 2 serve as connections between Segments 1 and 3 and would reduce regional congestion. All of the alternatives would meet the project objectives.

Ability to Achieve Other Desired Outcomes of the Project

In Segment 2, the E2a and E2b Alternatives would result in less risk of impacts on environmental resources than the W2a and W2b Alternatives; however, neither the E2a nor E2b Alternative would perform better than the other.

LEDPA Consistency

Since all the action corridor alternatives pose a minimal risk to potential Waters, the better-performing alternatives in Segments 1 and 3 guided the selection of the E2a Alternative to connect the preferred action corridor alternatives in Segments 1 and 3.

Applying the four LEDPA considerations described in the introduction to Section 6.3, the following consistency analysis supports the identification of the Segment 2 preliminary LEDPA at this Tier 1 phase as the E2a Alternative:

- The preliminary analysis presented in this Tier 1 EIS and summarized in Section 6.2 shows that there is no practicable alternative with a less adverse impact on the aquatic ecosystem that does not have any other significant adverse environmental consequences.
- The E2a Alternative would not cause or contribute to violation of state water quality standards or toxic effluent standards and would not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats. There is a risk to protected native plants that is common among all alternatives.
- The E2a Alternative would not cause or contribute to a significant degradation of Waters.
- The Tier 2 studies will include appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Preferred Segment Corridor

Considering the proposed action's objectives, the analysis of potential impacts and the other desirable outcomes, and the LEDPA consistency analysis, the E2a Alternative is the preferred action corridor alternative in Segment 2.

6.3.1.3 Segment 3

Ability to Meet the Project Objectives

Each of the action corridor alternatives in Segment 3 would reduce regional congestion; however, the W3 Alternative would perform better because it is close to population and activity centers, followed by the E3b and E3d Alternatives. All the alternatives would meet the proposed action's purpose and need to improve regional mobility, connectivity, and access to future activity centers.

Ability to Achieve Other Desired Outcomes of the Project

The E3a Alternative is the most compatible with local land use planning, followed closely by the E3c Alternative. The E3b and E3d Alternatives would result in the least risk of impacts on the human environment, while the W3 Alternative would result in somewhat greater impacts. In addition, the risk of Section 4(f) impacts in Segment 3 with the W3 Alternative is higher than with any of the Eastern Alternatives. With regard to impacts on the built environment, each alternative would result in some impacts. Regarding the natural environment, the W3 Alternative would result in fewer impacts than the other alternatives. The adopted general plans of the local jurisdictions directly affected by the alternatives in Segment 3—the City of Coolidge and Town of Florence—support the E3a Alternative.

In considering the other desirable outcomes of the proposed action, all of the Segment 3 alternatives would result in comparable impacts on the natural environment. However, the Eastern Alternatives better support regional land use plans, with better access for planned developments and better support of equitable economic opportunities with access to employment and activity centers in Florence. The Eastern Alternatives complement other planned transportation improvements slightly better with the ability to expand the transportation network to the east as planned development occurs.

LEDPA Consistency

All action corridor alternatives in Segment 3 would cross potentially jurisdictional Waters, including the Gila River, and most impacts at smaller crossings may be avoided or minimized with any of the alternatives. The E3b and E3d Alternatives would have a more direct crossing of the Gila River, resulting in potentially fewer impacts on Waters, and the E3b Alternative would have the fewest drainage crossings. Applying the four LEDPA considerations described in the introduction to Section 6.3, the following consistency analysis supports the identification of the Segment 3 preliminary LEDPA at this Tier 1 phase as the E3b Alternative:

- The preliminary analysis presented in this Tier 1 EIS and summarized in Section 6.2 shows that there is no practicable alternative with less adverse impact on the aquatic ecosystem that does not have any other significant adverse environmental consequences. All alternatives would cross the Gila River; however, the E3b Alternative would have a more direct crossing of the river and fewer crossings of other drainage features.
- The E3b Alternative would not cause nor contribute to violation of state water quality standards or toxic effluent standards and would not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats. There is a risk to protected native plants that is common among all alternatives.
- With avoidance and minimization measures identified and applied during Tier 2 studies, such as design features to avoid fill or dredging in Waters, the E3b Alternative would not cause or contribute to significant degradation of Waters.
- The Tier 2 studies will includes appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Preferred Segment Corridor

Considering the proposed action's objectives, the analysis of potential impacts and the other desirable outcomes, and the LEDPA consistency analysis, the E3b Alternative is the preferred action corridor alternative in Segment 3.

6.3.1.4 Segment 4

Ability to Meet the Project Objectives

Both alternatives in Segment 4 would meet the proposed action's purpose and need to improve regional mobility, connectivity, and access to future activity centers.

Ability to Achieve Other Desired Outcomes of the Project

In Segment 4, the E4 Alternative would result in a lower risk of impacts on the human and built environments. Considering the natural environment, neither Segment 4 alternative outperforms the other across all performance measures. The risk of impacts on Section 4(f) properties is higher with the W4 Alternative than with the E4 Alternative.

In considering the other desirable outcomes of the proposed action, both alternatives would similarly protect the natural environment, support equitable economic opportunities, and complement other planned transportation improvements in the study area. However, the E4 Alternative would better support regional land use plans and the preservation of historic structures.

LEDPA Consistency

With regard to jurisdictional Waters, since both action corridor alternatives would have minimal crossings, the LEDPA at this Tier 1 phase may be located within either of Segment 4 alternatives. However, there is higher risk of displacements, as well as impacts on minority and/or low-income populations and historic properties, with the W4 Alternative.

Applying the four LEDPA considerations described in the introduction to Section 6.3, the following consistency analysis supports the identification of the Segment 4 preliminary LEDPA at this Tier 1 phase as the E4 Alternative:

- The preliminary analysis presented in this Tier 1 EIS and summarized in Section 6.2 shows that there is no practicable alternative with less adverse impact on the aquatic ecosystem that does not have any other significant adverse environmental consequences. Both Segment 4 alternatives would have similar impacts on Waters; however, the E4 Alternative has a much lower risk of adverse impacts on the human and built environment.
- The E4 Alternative would not cause nor contribute to violation of state water quality standards or toxic effluent standards and would not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats, nor protected native plants.
- With avoidance and minimization measures identified and applied during Tier 2 studies, such as design features to avoid fill or dredging in Waters, the E4 Alternative would not cause or contribute to significant degradation of Waters.
- The Tier 2 studies will include appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Preferred Segment Corridor

Considering the proposed action's objectives, the analysis of potential impacts and the other desirable outcomes, and the LEDPA consistency analysis, the E4 Alternative is the preferred action corridor alternative in Segment 4.

6.3.2 Identification of Full-length Action Corridor Alternatives

The preceding section provided a segment-by-segment evaluation of the action corridor alternatives, to facilitate an understanding of the environmental impacts of the action corridor alternatives at the segment level. Impacts of the eight full-length action corridor alternatives (and options) result from the combination of impacts described in the segment-by-segment evaluation.

For the eight full-length action corridor alternatives (and options), the following sections provide an end-to-end evaluation of transportation and traffic operations, land use planning, and the human, built, and natural environments. Stakeholder input is also described. The discussion compares the full-length action corridor alternatives to identify which is the preferred alternative based on how well it meets the proposed action's objectives (purpose and need) and how it fared after the study team's evaluation, as presented in Section 6.2, *Comparison of Alternatives*. Additional discussion regarding the degree to which each action corridor alternative achieves the other desirable outcomes is also included.

6.3.2.1 Transportation and Traffic Operations

All of the action corridor alternatives would meet the proposed action's purpose and need by improving transportation and traffic operations throughout the study area. The degree to which the action corridor alternatives address select evaluation criteria, however, varies by alternative. The quickest or most direct end-to-end route was a measured criterion; however, note that most trips in the Corridor are between destinations and are not through-trips. Access to activity centers, areas of existing and future population and employment, and regional connectivity were also considered when comparing the alternatives.

Corridor Length

A comparison of the action corridor alternatives' lengths is presented in Chapter 2, *Alternatives*. The full-length action corridor alternatives and their options result in a range of values. Because the Corridor is anticipated to operate at free-flow conditions (that is, LOS C or better), a shorter alternative results in a shorter travel time from one end of the Corridor to the other. Travel demand modeling of the alternatives shows that only a small number of trips are actually through-trips, with most trips originating in the study area. All of the action corridor alternatives (and options) would result in reduced travel time through the Corridor, relative to 2040 conditions with the No-Action Alternative. Alternative 1 (with W1a) would be the shortest through Corridor trip (48.1 miles north-to-south). Alternative 3 (with W1b, E2b, and E3c) would be the longest through Corridor trip (54 miles north-to-south)—approximately 12 percent longer than Alternative 1 (with W1a).

Average Weekday Traffic Volumes

Average weekday traffic volumes would vary substantially along the extent of each of the full-length action corridor alternatives. In general, the Western Alternatives would draw more traffic, given the closer proximity to existing populations in Queen Creek, Mesa, the San Tan Valley area, and Coolidge. The projected traffic volumes through the Corridor would decrease from north to south, so that in the southern end of the Corridor at I-10, the volumes would be one-tenth the volumes at the northern end. This information is further discussed in Appendix B, *Traffic Information*.

Regional Traffic Congestion

As discussed in Chapter 2, *Alternatives*, all of the full-length action corridor alternatives would improve regional congestion throughout the study area compared with the No-Action Alternative. The amount of regional congestion relief varies by the action corridor alternative (and options). The No-Action Alternative would result in congested conditions for 46 percent of the VMT. Alternative 1 (with W1a) would result in the greatest reduction in congested conditions, with 33 percent of the VMT in congested conditions—a 28 percent reduction of VMT in congested conditions compared with the No-Action Alternative. Similar reductions in congested conditions would result with Alternatives 2, 3, and 4 and their options, with a range of 34 to 35 percent of the VMT in congested conditions. Alternatives 7 and 8 (with options) would result in 39 percent of VMT in congested conditions—still an improvement of 15 percent compared with the VMT in congested conditions with the No-Action Alternative.

6.3.2.2 Land Use Planning

With the exception of Coolidge and Florence, all of the MPAs of jurisdictions affected by the full-length action corridor alternatives are contained within one segment of the study area. Jurisdictions in the northern portion of the study area have not identified a preferred alternative.[2] The Town of Florence's

[2] Any additional input received by ADOT following the *Corridor Selection Report* and public review process in 2017 will be incorporated and considered following the public review of the DEIS and will be included in the FEIS and ROD.

2020 General Plan is generally consistent with Alternatives 6 or 7 (with E3a) in Segment 3. The City of Coolidge's *2025 General Plan* is generally consistent with Alternatives 3 or 7 (with E3a) in Segment 3. In the southern portion of the study area, the City of Eloy's *General Plan* is generally consistent with Alternatives 1, 2, 5, and 6.

Pinal County's *Comprehensive Plan* does not identify a preferred alternative; however, the plan recognizes the important role ASLD will play in development of the county as a result of Superstition Vistas, a 275-square-mile area entirely in Pinal County that is managed by ASLD on behalf of the State Trust beneficiaries. At the northern end of Superstition Vistas is another large ASLD parcel, Lost Dutchman Heights, within the Apache Junction MPA. Alternatives 5 through 8 are generally consistent with the planning for the Lost Dutchman Heights area.

6.3.2.3 Human Environment

Impacts on the human environment for each of the end-to-end action corridor alternatives are discussed as a sum of the parts—meaning the segment-by-segment evaluation of environmental impacts. Alternative 7 would have the lowest risk of impacts on the human environment because it incorporates the Eastern Alternatives in Segments 1, 3, and 4, which have lower risks of impacts on the human environment. Alternative 1 would have the greatest risk of impacts on the human environment because of the inclusion of the Western Alternatives in Segments 1, 3, and 4.

6.3.2.4 Built Environment

As with impacts on the human environment, impacts on the built environment for each of the end-to-end action corridor alternatives are also discussed as a sum of the parts. Alternative 7 would have the lowest risk of impacts on the built environment because it incorporates the Eastern Alternatives in Segments 1, 3, and 4, which have lower risks of impacts on the built environment. Alternative 1 would have the greatest risk of impacts on the built environment because it includes the Western Alternatives in Segments 1, 3, and 4.

6.3.2.5 Natural Environment

For the natural environment, the types of impacts evaluated varied throughout the Corridor's length. Other than earth fissures, none of the impacts are clear differentiators among the alternatives. Earth fissures are present throughout the Corridor; however, Alternatives 5 to 8 would avoid the high risk of earth fissures posed by the alternatives that use the Western Alternative in Segment 1 (Alternatives 1 to 4). A high risk of floodplain encroachment exists with Alternatives 2, 3, 6, and 7 (with E3a and E3c); however, this risk is mitigated when these alternatives are combined with E3b or E3d.

6.3.2.6 Stakeholder Input

Public input did not provide a clear consensus regarding a full-length action corridor alternative preference. Cooperating and participating agencies were asked for their preferences as part of the public input process. The jurisdictions provided responses consistent with their adopted land use plans, but in several instances provided additional information regarding their preferences, or stated preferences regarding alternatives outside of their MPAs (as summarized in Appendix C, *Alternatives Screening*, with the full comments of stakeholders in the appendix to the report). Table 6.3-1 summarizes agency responses received as part of the outreach effort.

Table 6.3-1. Cooperating and participating agency preferences for an action corridor alternative

Agency	Full-length action corridor alternative								Stated preferences
	1	2	3	4	5	6	7	8	
Arizona Game and Fish Department	X								W1a, W2a, W3, W4
Arizona State Land Department							X		E1b, E2a, E3b, E4
City of Apache Junction						X	X		E1b, E2a, E3a; no preference in Segment 4
City of Coolidge			X				X		No preference in Segments 1 and 2; E3a or E3b; E4
City of Eloy	X	X			X	X			No preference in Segments 1, 2, and 3; W4
City of Mesa	X	X	X	X					W1a; no preference in Segments 2, 3, and 4
Flood Control District of Maricopa County									—
Phoenix-Mesa Gateway Airport Authority	X	X	X	X					W1a or W1b; no preference in Segments 2, 3, and 4
Pinal County		X	X						W1b, E2b, E3a or E3c; no preference in Segment 4
Salt River Project						X	X		E1b, E2a, E3a or E3c; no preference in Segment 4
Town of Queen Creek	X	X	X	X					W1a; no preference in Segments 2, 3, and 4
Four Southern Tribes					X			X	E1b, W2b, W3; no preference in Segment 4[a]
U.S. Army Corps of Engineers									—
U.S. Bureau of Land Management									—
U.S. Bureau of Reclamation			X						W1a or W1b; E2a, E2b, or W2a; E3b, E3d, or W3; E4
U.S. Environmental Protection Agency	X								W1a, W2a, W3, W4

Notes: "X" indicated stated preference.

In instances where an agency commented, but did not provide a preference, the cell was left blank.

When preference in Segment 2 was left blank, connecting segment was noted where preferences in Segments 1 and 3 were stated.

Any additional input received by the Arizona Department of Transportation following the *Corridor Selection Report* and public review process in 2017 will be incorporated and considered following the public review of the Draft Environmental Impact Statement and will be included in the Final Environmental Impact Statement and Record of Decision.

[a] During a series of meetings in May 2017, the Four Southern Tribes noted that they preferred the No-Action Alternative; however, if an action corridor alternative is selected, their preference among the action corridor alternatives is noted. Refer to the *Corridor Selection Report, North-South Corridor Study* (in Appendix C, *Alternatives Screening*).

6.3.3 Preferred Corridor Alternative

Based on the results of the analyses presented in this Tier 1 DEIS and summarized in Sections 6.2 (*Comparison of Alternatives*), 6.3.1 (*Identification of Action Corridor Alternatives in Each Segment*) by segment, and 6.3.2 (*Identification of Full-length Action Corridor Alternatives*) by full-length alternative, the following action corridor alternatives form the preferred corridor alternative:

- Segment 1 – E1b Alternative
- Segment 2 – E2a Alternative
- Segment 3 – E3b Alternative
- Segment 4 – E4 Alternative

This combination of action corridor alternatives creates Alternative 7, with the E1b and E3b options (as described in Section 2.3.2, *Full-length Action Corridor Alternatives*), and is recommended as the preferred corridor alternative (Figure 6.3-1).

Alternative 7 best meets the proposed action's purpose and need while minimizing adverse effects on the human, built, and natural environments. During Tier 2 studies, when specific alignments are developed, evaluated, and advanced in the current 1,500 foot-wide preferred corridor, all efforts to avoid, minimize, or mitigate adverse impacts would be made.

Figure 6.3-1. Preferred corridor: Alternative 7, with the E1b and E3b options