



SONORAN CORRIDOR STUDY

Draft Tier 1 Environmental Impact Statement

*Front Matter,
Executive Summary*

October 2020 | P9101 01P
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Federal Highway
Administration

ADOT

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Sonoran Corridor

Pima County, Arizona

Draft Tier 1 Environmental Impact Statement

**Project No. P9101 01P / Federal Aid No. 410-A(BFI)
Submitted pursuant to 42 U.S.C. § 4332(2)(c), 49 U.S.C. § 303, and 33 U.S.C.
§ 1251**

By the

FEDERAL HIGHWAY ADMINISTRATION

and

ARIZONA DEPARTMENT OF TRANSPORTATION

With the following Cooperating Agencies


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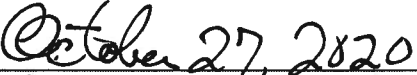
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US ENVIRONMENTAL PROTECTION AGENCY

ARIZONA GAME AND FISH DEPARTMENT


John S. Halikowski, Director
Arizona Department of Transportation


Karla S. Petty, Division Administrator
Federal Highway Administration, Arizona


Date of Approval


Date of Approval



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ABSTRACT

This Draft Tier 1 Environmental Impact Statement (Draft Tier 1 EIS) evaluates alternatives for the Sonoran Corridor located in Pima County, Arizona. The purpose of this study for the Sonoran Corridor is to identify a high-priority, high-capacity, access-controlled transportation corridor south of the Tucson International Airport that will improve access to high growth areas and existing activities; improve future traffic levels of service by reducing congestion levels anticipated by 2045; and provide a system linkage for regional, interstate, and international mobility needed for the study area. The Draft Tier 1 EIS evaluates a Reasonable Range of Corridors, which includes three corridor alternatives and the No-Build Alternative to characterize the potential effects of each on the social, economic, and natural environment. The No-Build Alternative represents the existing transportation system, with committed improvement projects that are programmed for funding.

The objective of this Draft Tier 1 EIS is to provide sufficient information for the public, agencies, and Tribes to comment on the overall analysis used to identify the Preferred Alternative for the Sonoran Corridor. Based on the analysis presented in this Draft Tier 1 EIS, Corridor Alternative 7 has been identified as the Preferred Alternative. After consideration of public and stakeholder input received during the Draft Tier 1 EIS public comment period, the Federal Highway Administration (FHWA) and Arizona Department of Transportation (ADOT) will identify a Selected Alternative in the Final Tier 1 EIS. The Record of Decision (ROD) will describe the basis for the decision, and provide strategies to avoid or minimize environmental impacts.

The FHWA will issue a single document that consists of the Final Tier 1 EIS and ROD pursuant to 49 U.S.C. 304a(b) and 23 U.S.C. 139(n)(2) unless FHWA determines that statutory criteria or practicability considerations preclude issuance of such a combined document. Should a corridor alternative be selected, further project design would take place, allowing more specific analysis of potential environmental impacts to be documented through a Tier 2 NEPA study.

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Draft Tier 1 EIS Public Comment Period

ADOT, in conjunction with the FHWA, have made the Draft Tier 1 EIS available for public review and comment. The Draft Tier 1 EIS was published in the Federal Register on November 6, 2020. Submit your comments on the Sonoran Corridor Draft Tier 1 EIS during the public review and comment period: November 6, 2020 through January 8, 2021. All comments received during the comment period will be documented and responded to in a combined Final Tier 1 EIS/ROD. All comment methods listed below are considered equal. After reading the Draft Tier 1 EIS, please provide specific written or spoken comments on its contents.

Comments can be provided in the following manner:

- During the public hearing or virtual public engagement event
- Online: <https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/documents>
- Phone: 1.855.712.8530 (bilingual)
- Mail: Sonoran Corridor Tier 1 EIS Study Team
c/o Joanna Bradley
1221 S. Second Avenue, MD T100
Tucson, AZ 85713
- Email: Projects@azdot.gov

The Draft Tier 1 EIS is available at <https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/documents>, and for review only and at no charge at the following locations:

Repositories for the Public Review of the Draft Tier 1 EIS

- ADOT Southcentral District Office, 1221 S. Second Ave., Tucson, AZ 85713, by appointment only between 8 a.m. and 5 p.m. weekdays. Call 520.235.3494 to make an appointment. Call at least 48 hours in advance to view the document. Only one person at a time will be granted access to the document. Please wear a mask and gloves to your appointment.
- Sahuarita Town Hall, Clerk's Office, 375 W. Sahuarita Way, Sahuarita, AZ, 520.822.8801 between 8 a.m. and 5 p.m. weekdays.
- Joyner-Green Valley Library, 601 N. La Canada Dr., Green Valley, AZ, 85614, 520.594.5295.
- Joel D. Valdez Main Library, 101 N. Stone Ave., Tucson AZ, 85701, 520.594.5564.

Vendor Locations for Purchase of the Draft Tier 1 EIS

- Hard copy versions of the Draft Tier 1 EIS are available for purchase and pick up at The UPS Store, 2004 E. Irvington Road, Tucson, AZ 85714, 520.889.0077. Contact the store for cost and details.
- A hard copy version can be ordered online at www.FedEx.com, with delivery at requestor's expense.

Public Hearing and Virtual Public Engagement events on the Draft Tier 1 EIS

A Public Hearing will be held to provide project information and accept formal comments on the Draft Tier 1 EIS. Date and location of the Public Hearing is provided below. Because of public health concerns and government requirements, attendance will be limited to provide for adequate social distancing. Participants must pre-register to reserve time to attend the Public Hearing in person. Please sign up at <https://tinyurl.com/SonCor> or call (520) 327-6077 (bilingual) to reserve a time slot to attend the Public Hearing event.

- **PUBLIC HEARING**

- **Tuesday, December 1, 2020, 5p.m.–8 p.m.**
DoubleTree Suites – Tucson International Airport
Ballroom Royale
7051 South Tucson Boulevard
Tucson, AZ 85756

In addition, you can participate in the Virtual Public Engagement event either online or by phone. The Virtual Public Engagement event supplements the Public Hearing, and it provides another opportunity for you to give official, recorded comments on the Draft Tier 1 EIS. To participate in the Virtual Public Engagement event, click on the online access link or call the phone access number provided below.

- **VIRTUAL PUBLIC ENGAGEMENT EVENT**

Thursday, December 3, 2020, 5p.m. – 8p.m.

- **Online Access:** bit.ly/SCEIS2020 (or you can use the full webex link: <https://meetings.webex.com/meetings/onstage/g.php?MTID=e755bc109da6c91bac638939e717a2837>)
 - Meeting Number (Access code): 146 242 8979
 - Event Password: SCEIS2020
- **Phone Access:** 1 (408) 418-9388
 - Meeting Number (Access code): 146 242 8979

Table of Contents

A	Acronyms and Initialisms.....	A-1
ES	Executive Summary	S-1
	ES.1 Project Background	S-1
	ES.2 Scope of this Draft Tier 1 EIS.....	S-1
	ES.3 Study Area.....	S-5
	ES.4 Need for the Proposed Facility	S-5
	ES.5 Purpose of the Proposed Facility	S-7
	ES.6 Corridor Alternatives Considered	S-7
	ES.6.1 Corridor Alternatives Connection Points	S-8
	ES.6.2 Corridors Eliminated from Further Consideration.....	S-12
	ES.6.3 Reasonable Range of Corridor Alternatives Evaluated in the Tier 1 EIS.....	S-13
	ES.6.4 No-Build Alternative	S-19
	ES.7 Summary of Key Environmental Factors.....	S-21
	ES.8 Agency, Tribal, and Public Coordination and Outreach	S-22
	ES.8.1 Agency Coordination Opportunities	S-22
	ES.8.2 Public Outreach.....	S-23
	ES.8.3 Tribal Outreach	S-23
	ES.8.4 Key Outreach and Coordination Milestones.....	S-24
	ES.8.5 Scoping.....	S-25
	ES.8.6 Cooperating and Participating Agencies.....	S-28
	ES.8.7 Continuing Coordination and Outreach.....	S-28
	ES.9 How Effectively Does Each Alternative Meet the Need and Purpose?	S-30
	ES.9.1 Population and Employment Growth	S-30
	ES.9.2 Congestion Reduction.....	S-30
	ES.9.3 System Linkages Associated with Regional, Interstate and International Mobility.....	S-30
	ES.10 Differentiating and Mitigating Potential Environmental Impacts	S-32
	ES.11 Preferred Alternative Identified.....	S-34
	ES.12 Next Steps	S-35
1	Need and Purpose	1-1
	1.1 Introduction	1-1
	1.2 Project Development Status	1-5
	1.3 Study Area and Context	1-7
	1.3.1 Multimodal Characteristics.....	1-7
	1.3.2 Utilities	1-8
	1.3.3 Technology.....	1-9

1.4	Identification of Need and Purpose	1-9
1.4.1	Need for the Proposed Transportation Facility	1-9
1.5	Purpose of Proposed Transportation Facility	1-25
1.6	Other Benefits or Desirable Outcomes	1-26
1.6.1	Conformance with Local, Regional, and State Plans	1-26
1.6.2	Support the Protection of Environmental Resources in Accordance with Applicable Regulations and Policies	1-26
1.6.3	Limit Freight Traffic on Low-Volume Routes	1-27
1.6.4	Provide the Opportunity for Multimodal and Utility Use Where Appropriate, Should Needs Arise	1-27
2	Alternatives Considered	2-1
2.1	Alternatives Development	2-1
2.1.1	Other Studies and Reports Consulted	2-1
2.1.2	Scoping and Technical Recommendations	2-2
2.1.3	Modal Alternatives and Public Facilities Considered	2-3
2.2	Corridor Connection Points as a Basis for Alternative Refinement	2-5
2.2.1	Interstate 19 Connection Points	2-5
2.2.2	Interstate 10 Connection Points	2-7
2.3	Comprehensive Set of Corridors	2-7
2.3.1	Refinement and Optimization Process	2-9
2.4	Evaluation Process	2-12
2.4.1	Alternatives Screening	2-12
2.4.2	Corridors Eliminated from Further Consideration	2-14
2.5	Reasonable Range of Corridor Alternatives	2-15
2.5.1	Shift of Corridor Alternatives to Avoid Use of Section 4(f) Resources	2-17
2.6	Comparison of Reasonable Range of Corridor Alternatives	2-26
2.6.1	Corridor Characteristics	2-26
2.6.2	Serve Population and Employment Growth	2-26
2.6.3	Reduce Traffic Congestion	2-32
2.6.4	Improve System Linkages	2-34
2.7	Further Detailed Analysis	2-36

3	Existing Conditions and Potential Environmental Consequences	3-1
3.1	Corridor Alternatives.....	3-2
3.2	Land Use and Jurisdiction	3-4
3.2.1	Regulatory Setting.....	3-4
3.2.2	Methodology.....	3-6
3.2.3	Affected Environment.....	3-6
3.2.4	Environmental Consequences	3-14
3.2.5	Available Mitigation Measures	3-20
3.2.6	Conclusion.....	3-21
3.3	Socioeconomic Conditions, Displacements/Relocations	3-22
3.3.1	Regulatory Framework	3-22
3.3.2	Methodology.....	3-22
3.3.3	Affected Environment.....	3-23
3.3.4	Environmental Consequences	3-30
3.3.5	Available Mitigation Measures	3-36
3.3.6	Conclusion.....	3-36
3.4	Environmental Justice, Title VI, and Other Nondiscrimination Statutes	3-37
3.4.1	Regulatory Framework	3-37
3.4.2	Methodology.....	3-39
3.4.3	Affected Environment.....	3-41
3.4.4	Environmental Consequences	3-48
3.4.5	Available Mitigation Measures	3-52
3.4.6	Conclusion.....	3-52
3.5	Economic Resources	3-53
3.5.1	Affected Environment.....	3-53
3.5.2	Environmental Consequences	3-57
3.5.3	Conclusion.....	3-61
3.6	Cultural Resources	3-62
3.6.1	Regulatory Framework	3-62
3.6.2	Methodology.....	3-65
3.6.3	Affected Environment.....	3-69
3.6.4	Environmental Consequences	3-77
3.6.5	Available Mitigation Measures	3-81
3.6.6	Conclusion.....	3-82
3.7	Section 4(f) Resources.....	3-84
3.7.1	Regulatory Framework	3-85
3.7.2	Section 4(f) Use Definitions	3-85
3.7.3	Section 4(f) “Use” Approvals	3-86
3.7.4	Section 4(f) Evaluations for Tiered Projects.....	3-88
3.7.5	Methodology.....	3-88
3.7.6	Affected Environment.....	3-89

3.7.7	Environmental Consequences	3-89
3.7.8	Available Mitigation Measures	3-96
3.7.9	Conclusion.....	3-96
3.8	Section 6(f) Resources.....	3-97
3.8.1	Regulatory Framework	3-97
3.8.2	Affected Environment.....	3-97
3.8.3	Conclusion.....	3-97
3.9	Air Quality	3-98
3.9.1	Regulatory Framework	3-98
3.9.2	Methodology.....	3-105
3.9.3	Affected Environment.....	3-105
3.9.4	Environmental Consequences	3-109
3.9.5	Available Mitigation Measures	3-111
3.9.6	Conclusion.....	3-112
3.10	Noise and Vibration	3-113
3.10.1	Noise Impact Assessment	3-113
3.10.2	Vibration Impact Assessment	3-123
3.11	Hazardous Materials	3-125
3.11.1	Introduction	3-125
3.11.2	Regulatory Framework	3-125
3.11.3	Methodology.....	3-125
3.11.4	Affected Environment.....	3-129
3.11.5	Environmental Consequences	3-131
3.11.6	Available Mitigation Measures	3-132
3.11.7	Conclusion.....	3-132
3.12	Geology, Topography, Soils, and Prime and Unique Farmland	3-133
3.12.1	Introduction	3-133
3.12.2	Regulatory Framework	3-133
3.12.3	Methodology.....	3-134
3.12.4	Affected Environment.....	3-135
3.12.5	Environmental Consequences	3-137
3.12.6	Available Mitigation Measures	3-139
3.12.7	Conclusion.....	3-139
3.13	Biological Resources.....	3-140
3.13.1	Vegetation and Wildlife	3-140
3.13.2	Threatened and Endangered Species	3-153
3.13.3	Arizona Species of Greatest Conservation Need	3-165
3.13.4	Wildlife Connectivity	3-176

3.14	Water Resources	3-183
3.14.1	Waters of the US	3-183
3.14.2	Water Quality	3-195
3.14.3	Flood Hazard Evaluation and Floodplain Mitigation	3-204
3.15	Visual and Aesthetic Scenic Resources	3-210
3.15.1	Regulatory Framework	3-210
3.15.2	Methodology	3-210
3.15.3	Affected Environment	3-210
3.15.4	Environmental Consequences	3-212
3.15.5	Available Mitigation Measures	3-213
3.15.6	Conclusion	3-213
3.16	Utilities and Railroads	3-214
3.16.1	Existing Conditions	3-214
3.16.2	Environmental Consequences	3-216
3.17	Energy	3-218
3.17.1	Regulatory Context	3-218
3.17.2	Methodology	3-218
3.17.3	Affected Environment	3-218
3.17.4	Environmental Consequences	3-219
3.17.5	Potential Avoidance, Minimization, and Mitigation Strategies	3-219
3.17.6	Subsequent Tier 2 Analysis	3-219
3.17.7	Conclusion	3-220
3.18	Construction Impacts	3-221
3.18.1	Methodology	3-221
3.18.2	Environmental Consequences	3-221
3.18.3	Conclusion	3-225
3.19	Unavoidable Adverse Impacts	3-226
3.19.1	Methodology	3-226
3.19.2	Potential Impacted Resources	3-226
3.19.3	Potential Mitigation Strategies	3-227
3.19.4	Future Tier 2 Analysis	3-227
3.19.5	Conclusion	3-227
3.20	Indirect and Cumulative Effects	3-228
3.20.1	Regulatory Context	3-228
3.20.2	Methodology	3-228
3.20.3	Affected Environment: Previous Actions, Existing Conditions, and Reasonably Foreseeable Future Actions	3-234
3.20.4	Environmental Consequences	3-237
3.20.5	Summary	3-246
3.20.6	Mitigation Strategies	3-246
3.20.7	Conclusion/Future Tier 2 Analysis	3-246

4	Coordination and Outreach	4-1
4.1	Interagency Coordination	4-1
4.1.1	Regulatory Requirements	4-1
4.1.2	Agency Designations/Roles and Responsibilities.....	4-2
4.1.3	Agency Coordination Opportunities	4-6
4.2	Public Outreach.....	4-7
4.2.1	Regulatory Requirements	4-7
4.2.2	Outreach Communication Tools and Techniques.....	4-8
4.2.3	Title VI and other Nondiscrimination Statutes	4-8
4.3	Key Outreach and Coordination Milestones.....	4-10
4.3.1	Scoping.....	4-12
4.3.2	Corridor Selection Process—Refined and Optimized Set of Corridors	4-15
4.4	Tribal Coordination	4-17
4.4.1	Allottee Preference Outreach for Alternative 1	4-18
4.5	Resolutions and Letters	4-18
4.6	Draft Tier 1 EIS Public Review Period.....	4-19
5	Preferred Alternative	5-1
5.1	Comparison of Corridor Alternatives	5-1
5.1.1	Meeting the Need and Purpose.....	5-1
5.1.2	Differentiating Environmental Effects and Substantive Differences	5-3
5.1.3	Impact Avoidance, Minimization, and Mitigation	5-6
5.2	Preferred Alternative	5-6
5.3	Implementation and Phasing	5-12
5.4	Funding and Financing Considerations	5-12
5.5	Next Steps	5-13
5.5.1	Solicit Input on Draft Tier 1 EIS	5-13
5.5.2	Evaluate Public Feedback, Identify the Selected Alternative, and Publish Final Tier 1 EIS/ROD	5-13
5.5.3	Tier 2 Studies.....	5-14
5.5.4	Future Corridor Opportunities.....	5-14
R	References	R-1
G	Glossary	G-1
P	List of Preparers	P-1

Appendices

- Appendix A Traffic Level of Service Comparison of Alternatives**
- Appendix B Cost Estimate Comparison of Alternatives**
- Appendix C Population Data for the Sonoran Corridor Study Area**
- Appendix D Section 106 Consultation**
- Appendix E Draft Programmatic Agreement**
- Appendix F Section 4(f) Resources within the Sonoran Corridor Study Area**
- Appendix G Hazardous Materials Search Record**
- Appendix H San Xavier District Allottee Letters**

Tables

Table ES-1.	Corridor Alternatives Eliminated from Further Consideration	S-12
Table ES-2.	Agency and Outreach Coordination Points.....	S-24
Table ES-3.	Measures in Meeting the Sonoran Corridor Need and Purpose	S-31
Table ES-4.	Comparison of Alternatives and Project Effects ¹ within the 2000-foot Corridor	S-33
Table 1-1.	Population Growth in the PAG Region and Sonoran Corridor Study Area, 2015 to 2045	1-10
Table 1-2.	Employment Growth in the PAG Region and Sonoran Corridor Study Area, 2015 to 2045 RMAP and Sonoran Corridor Study Technical Advisory Committee Scenarios	1-15
Table 1-3.	Average Weekday Traffic, Volume /Capacity Ratio, and Level of Service, 2016 and 2045	1-20
Table 1-4.	Need and Purpose Measures.....	1-26
Table 2-1.	Corridor Evaluation Results from Corridor Selection Report.....	2-13
Table 2-2.	Listing of Key Study Area Planned Projects in 2045 RMAP.....	2-24
Table 2-3.	Corridor Length and Lane-Miles	2-26
Table 2-4.	Comparison of How Corridors Serve Growth in Population and Employment	2-31
Table 2-5.	Comparison of Corridor Alternatives' Access to Identified Activity Centers.....	2-31
Table 2-6.	Comparison of Volume-to-Capacity Congestion Reduction Performance of Corridor Alternatives	2-32
Table 2-7.	Study Area Volume-to-Capacity Ratios Comparison of Corridor Alternatives and No-Build Alternative	2-32
Table 2-8.	Summary Comparison of System Linkages Performance of Corridor Alternatives	2-34
Table 2-9.	Travel Time between El Toro South and Fairgrounds (in minutes) and Travel Speeds on Sonoran Corridor (in miles/hour) as a Measure of System Linkage Performance	2-35
Table 2-10.	2045 Vehicle Miles Traveled and Vehicle Hours Traveled.....	2-35
Table 3-1.	Corridor Segments by Alternative	3-2
Table 3-2.	Potential Land Management (Owned or Maintained by) Conversion Impacts by Corridor Alternative (in acres)	3-15
Table 3-3.	Potential Land Management (by Jurisdiction) Conversion Impacts by Corridor Alternative (in acres).....	3-15
Table 3-4.	Potential Existing Land Use Conversion Impacts by Corridor Alternative (in acres)	3-16
Table 3-5.	Potential Planned Land Use Conversion Impacts by Corridor Alternative (in acres).....	3-16
Table 3-6.	General Socioeconomic Composition of Communities within the Study Area	3-24
Table 3-7.	Other Nondiscrimination Statutes.....	3-39
Table 3-8.	Languages other than English Spoken in the Study Area	3-46

Table 3-9.	Minority Populations within Corridor Alternative 1	3-49
Table 3-10.	Low-Income, LEP and EJ Indicator Populations within Corridor Alternative 1	3-49
Table 3-11.	Minority Populations within Corridor Alternative 7	3-50
Table 3-12.	Low-Income, LEP, and EJ Indicator Populations within Corridor Alternative 7	3-50
Table 3-13.	Minority Populations within Corridor Alternative 8A.....	3-51
Table 3-14.	Low-Income, LEP and EJ Indicator Populations within Corridor Alternative 8A.....	3-51
Table 3-15.	Arizona Merchandise Exports to Mexico by Industry (millions of dollars)	3-56
Table 3-16.	Economic Impact, 2026–2045—Corridor Alternative 1.....	3-58
Table 3-17.	Economic Impact, 2026–2045—Corridor Alternative 7.....	3-59
Table 3-18.	Economic Impact, 2026-2045—Corridor Alternative 8A	3-60
Table 3-19.	Cultural Resource Laws, Regulations, Executive Orders, and Other Authorities	3-64
Table 3-20.	Data Sources for Archaeological Survey and Site Records	3-68
Table 3-21.	Meetings with Tribes	3-69
Table 3-22.	Estimated Total Archaeological Resources per Corridor Alternative	3-70
Table 3-23.	Known Archaeological Sites per Corridor Alternative by Type.....	3-71
Table 3-24.	National Register Eligibility of Archaeological Sites and Historic Structures.....	3-73
Table 3-25.	Estimated Total Historic Buildings, Trails, and Landscapes and Recommended Eligibility by Corridor Alternative	3-76
Table 3-26.	Potential for Impacts on Archaeological Sites and Historic Structures along the Corridor Alternatives	3-80
Table 3-27.	Summary of the Potential Impacts on Cultural Resources	3-82
Table 3-28.	Public parks, recreation area, historic sites or wildlife and waterfowl refuge Section 4(f) Resources Within the Study Corridor	3-91
Table 3-29.	National Ambient Air Quality Standards for Criteria Pollutants	3-99
Table 3-30.	Noise Abatement Criteria.....	3-115
Table 3-31.	Existing Ambient Noise Monitoring Data.....	3-117
Table 3-32.	Noise Receivers along Study Area	3-118
Table 3-33.	Summary of Predicted Future Traffic Noise Levels	3-121
Table 3-34.	Hazardous Materials Regulations	3-126
Table 3-35.	Regulated Sites by Segment/Corridor	3-129
Table 3-36.	Regulated Findings by Corridor Alternative.....	3-130
Table 3-37.	Applicable General Vegetation and Wildlife Regulations.....	3-140
Table 3-38.	Biotic Community Acreage	3-142
Table 3-39.	USGS LANDFIRE Land and Vegetation Cover Acreage	3-145
Table 3-40.	Applicable Threatened and Endangered Species Regulations.....	3-153
Table 3-41.	ESA-Protected Species and Habitat	3-155
Table 3-42.	Potentially Suitable Pima Pineapple Cactus Habitat Acreage.....	3-157

Table 3-43.	Potentially Suitable Sonoran Desert Tortoise Habitat Acreage	3-160
Table 3-44.	Applicable Arizona Species of Greatest Conservation Need Regulations	3-165
Table 3-45.	Species of Greatest Conservation Need and BLM-sensitive Species	3-167
Table 3-46.	Movement Areas by Corridor Alternative	3-179
Table 3-47.	Potential Waters of the US by Corridor Segment	3-188
Table 3-48.	Potential Waters of the US Classified as Wetlands by Corridor Segment	3-190
Table 3-49.	Potential Waters of the US Classified as Wetlands by Corridor Segment	3-191
Table 3-50.	Potential Waters of the US by Corridor Alternative	3-191
Table 3-51.	Tier 2 Section 404 Permitting Scenarios	3-195
Table 3-52.	Wells and Groundwater Depth by Corridor Alternative	3-200
Table 3-53.	Daily Fuel Consumption, 2045	3-219
Table 3-54.	Short-term Construction Impacts	3-222
Table 3-55.	Previous Actions Affecting the Study Area	3-234
Table 3-56.	Proposed and Funded Roadway Improvements within the Study Area.....	3-235
Table 3-57.	Unfunded Future Projects in Study Area	3-236
Table 3-58.	Future Non-Transportation Projects.....	3-237
Table 3-59.	Potential Indirect Effects of the Sonoran Corridor	3-238
Table 3-60.	Cumulative Effects Summary	3-244
Table 4-1.	Agency Roles and Responsibilities	4-3
Table 4-2.	Invited Cooperating Agencies	4-4
Table 4-3.	Invited Participating Agencies	4-5
Table 4-4.	Agency and Outreach Coordination Points.....	4-10
Table 5-1.	Need and Purpose Measures.....	5-2
Table 5-2.	Comparison of Alternatives and Project Effects ¹ within the 2000-foot Corridor	5-4
Table 5-3.	Potential Mitigation Strategies	5-7

Figures

Figure ES-1.	Tier 1 and Tier 2 Environmental Analyses	S-3
Figure ES-2.	Cross-section of Corridor Width and Possible Future Right-of-Way Uses.....	S-4
Figure ES-3.	Project Study Area	S-6
Figure ES-4.	Corridor Connection Points	S-9
Figure ES-5.	Comprehensive Set of Corridor Alternatives.....	S-10
Figure ES-6.	Final Refined and Optimized Set of Corridor Alternatives.....	S-11
Figure ES-7.	Reasonable Range of Corridor Alternatives.....	S-14
Figure ES-8.	Corridor Alternative 1	S-15
Figure ES-9.	Corridor Alternative 7	S-16
Figure ES-10.	Corridor Alternative 8A.....	S-18
Figure ES-11.	No-Build Alternative	S-20
Figure ES-12.	Tier 1 EIS Decision Steps	S-29
Figure ES-13.	Preferred Alternative	S-34
Figure 1-1.	State Map.....	1-2
Figure 1-2.	Sonoran Corridor Study Area Jurisdictions	1-3
Figure 1-3.	Sonoran Corridor Study Area Land Ownership.....	1-4
Figure 1-4.	Tier 1 and Tier 2 Environmental Analyses	1-6
Figure 1-5.	Population Densities in the Tucson Metropolitan Region, 2015 and 2045.....	1-11
Figure 1-6.	Employment Densities in the Tucson Metropolitan Region, 2015 and 2045.....	1-13
Figure 1-7.	Major Employment Centers in the Sonoran Corridor Study Area	1-16
Figure 1-8.	Activity Centers Accessibility Need in the Sonoran Corridor Study Area	1-17
Figure 1-9.	Proposed Future I-10 Airport Access Routes.....	1-18
Figure 1-10.	Levels of Service (LOS)	1-19
Figure 1-11.	2045 Levels of Service on Study Area Roadway Network Based on PAG's RMAP.....	1-22
Figure 1-12.	Distribution of Truck Trips from Nogales to I-10	1-24
Figure 2-1.	Corridor Width for Tier 1 Study and Possible Uses in Tier 2 Right-of-Way	2-4
Figure 2-2.	Connection Points Considered in Developing Corridor Alternatives.....	2-6
Figure 2-3.	Comprehensive Set of Corridor Alternatives.....	2-8
Figure 2-4.	Preliminary Refined and Optimized Set of Corridor Alternatives.....	2-10
Figure 2-5.	Final Set of Refined and Optimized Corridor Alternatives.....	2-11
Figure 2-6.	Preliminary Reasonable Range of Corridor Alternatives	2-16
Figure 2-7.	Reasonable Range of Corridor Alternatives (including the No-Build Alternative)	2-18
Figure 2-8.	Corridor Alternative 1	2-20
Figure 2-9.	Corridor Alternative 7	2-21
Figure 2-10.	Corridor Alternative 8A.....	2-23

Figure 2-11.	No-Build Alternative (2016 Adopted RMAP with 2045 Multimodal Roadway Projects)	2-25
Figure 2-12.	Corridor Alternatives with Population Growth Projections.....	2-27
Figure 2-13.	Corridor Alternatives with Employment Growth Projections.....	2-29
Figure 2-14.	No-Build Network Segments Used to Compare LOS as a Congestion Measure	2-33
Figure 3-1.	Corridor Analysis Segments	3-3
Figure 3-2.	Study Area Jurisdictions	3-5
Figure 3-3.	Current Land Use	3-8
Figure 3-4.	Planned Land Use.....	3-10
Figure 3-5.	Specific Land Use Plans	3-11
Figure 3-6.	Land Management in the Study Area	3-13
Figure 3-7.	Population Densities in the Sonoran Corridor Study Area, 2015 and 2045	3-25
Figure 3-8.	Employment Densities in the Tucson Metropolitan Region, 2005 and 2045	3-27
Figure 3-9.	Study Area Affected Communities.....	3-29
Figure 3-10.	Community Facilities within the Study Area.....	3-31
Figure 3-11.	Residential and Commercial Properties within and Adjacent to the Corridor Alternatives	3-32
Figure 3-12.	Census Block Groups within the Study Area.....	3-42
Figure 3-13.	Generalized Distribution of Minorities by Block Group.....	3-43
Figure 3-14.	Generalized Distribution of Low-Income Individuals by Block Group	3-45
Figure 3-15.	Generalized Distribution of Limited-English Proficiency Individuals by Block Group	3-47
Figure 3-16.	Real GDP Growth Rate Trends, 2002-2017	3-54
Figure 3-17.	Industry Shares of GDP, 2016	3-55
Figure 3-18.	Tucson Employment Shares by Industry, 2018.....	3-55
Figure 3-19.	Impact of Corridor Alternative 1 on Tucson MSA Employment	3-57
Figure 3-20.	Impact of Corridor Alternative 7 on Tucson MSA Employment	3-58
Figure 3-21.	Impact of Corridor Alternative 8A on Tucson MSA Employment	3-59
Figure 3-22.	Tucson MSA Job Growth Under the No-Build Alternative.....	3-60
Figure 3-23.	Historic Buildings, Trails, and Landscapes in the Study Corridor.....	3-74
Figure 3-24.	Section 4(f) Resources within or adjacent to the Study Corridor	3-93
Figure 3-25.	FHWA Predicted National MSAT Trends 2010–2050 for Vehicles on Roadways	3-101
Figure 3-26.	Air Quality in the Study Area	3-106
Figure 3-27.	Annual Statewide Highway Emissions of Carbon Monoxide	3-107
Figure 3-28.	Annual Statewide Highway Emissions of Oxides of Nitrogen and Volatile Organic Compounds.....	3-108
Figure 3-29.	Annual Statewide Highway Emissions of Particulate Matter	3-108

Figure 3-30.	FHWA PM ₁₀ Emissions Factors by Speed for Light-Duty Vehicles and Trucks, 2018 ...	3-109
Figure 3-31.	Common Outdoor and Indoor Noise Levels	3-114
Figure 3-32.	Noise Sensitive Land Uses within Study Area	3-119
Figure 3-33.	Prime and Unique Farmland in the Corridor Alternatives	3-136
Figure 3-34.	Biotic Communities	3-143
Figure 3-35.	USGS LANDFIRE Land and Vegetation Cover	3-146
Figure 3-36.	Potentially Suitable Sonoran Desert Tortoise Habitat	3-159
Figure 3-37.	Critical Habitat within the Study Area	3-161
Figure 3-38.	Wildlife Movement Corridors	3-178
Figure 3-39.	Potential Waters of the US	3-187
Figure 3-40.	Potential Wetlands	3-189
Figure 3-41.	Groundwater Resources	3-201
Figure 3-42.	Mapped Floodplains and Lee Moore Wash Basin	3-207
Figure 3-43.	Visual and Aesthetic Scenic Resources in and around the Study Area	3-211
Figure 3-44.	Existing and Planned Utilities within the Study Area	3-215
Figure 3-45.	Growth Areas and Corridor Alternative 1 Area of Influence	3-230
Figure 3-46.	Growth Areas and Corridor Alternative 7 Area of Influence	3-231
Figure 3-47.	Growth Areas and Corridor Alternative 8A Area of Influence	3-232
Figure 5-1.	Tier 1 EIS Decision Steps	5-1
Figure 5-2.	Preferred Corridor Alternative 7	5-11

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A ACRONYMS AND INITIALISMS

ACRONYM/ INITIALISM	EXPANSION
AAC	Arizona Administrative Code
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ACHP	Advisory Council on Historic Preservation
ADA	<i>Americans with Disabilities Act</i>
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AMA	Active Management Area
AMC	Arizona-Mexico Commission
AMSL	Above Mean Sea Level
APE	area of potential effects
ARO	Archaeological Records Office
ASLD	Arizona State Land Department
AST	above-ground storage tanks
AWLWG	Arizona Wildlife Linkages Workgroup
AZPDES	Arizona Pollutant Discharge Elimination System
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAA	<i>Clean Air Act of 1970</i>
CAAA	<i>Clean Air Act Amendments of 1990</i>
CAVSARP	Central Avra Valley Storage and Recovery Project
CCA	Candidate Conservation Agreement
CDP	census designated places
CEQ	Council on Environmental Quality

ACRONYM/ INITIALISM	EXPANSION
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
Corps	United States Army Corps of Engineers
COVID-19	2019 novel coronavirus disease
CSR	Corridor Selection Report
CWA	<i>Clean Water Act</i>
dB	decibel
dBA	A-weighted decibel
DOT	Department of Transportation
EIS	environmental impact statement
EJ	environmental justice
EO	Executive Order
EPA	Environmental Protection Agency
EPNG	El Paso Natural Gas
ESA	<i>Endangered Species Act</i>
ESRI	Environmental Systems Research Institute
FAST	<i>Fixing America's Surface Transportation</i>
FEMA	Federal Emergency Management Administration
FFPA	<i>Farmland Protection Policy Act</i>
FHWA	Federal Highway Administration
FR	Federal Register
GDP	gross domestic product
GHG	greenhouse gas
GIS	geographic information system
HCP	<i>Habitat Conservation Plan</i>
HSHS	Historic State Highway System

ACRONYM/ INITIALISM	EXPANSION
I-10	Interstate 10
I-19	Interstate 19
IPaC	Information, Planning, and Consultation
ITS	Intelligent Transportation System
JD	jurisdictional delineation
LEDPA	Least Environmentally Damaging Practicable Alternative
LEP	limited-English proficiency
LOS	level of service
LUST	leaking underground storage tanks
LWCF	<i>Land and Water Conservation Fund Act of 1965</i>
MAP-21	<i>Moving Ahead for Progress in the 21st Century Act</i>
MBTA	<i>Migratory Bird Treaty Act</i>
MS4	Municipal Separate Stormwater Sewer Systems
MSA	Tucson Metropolitan Statistical Area
MSAT	mobile source air toxics
MSCP	<i>Multi-Species Conservation Plan</i>
NA	nonattainment area
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAR	Noise Abatement Requirements
National Register	National Register of Historic Places
NEPA	<i>National Environmental Policy Act of 1969</i>
NESOI	Not Elsewhere Specified or Included
NHPA	<i>National Historic Preservation Act</i>
NO ₂	nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System

ACRONYM/ INITIALISM	EXPANSION
NPS	National Park Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
O ₃	ozone
OHWM	ordinary high-water mark
P.L.	Public Law
PA	programmatic agreement
PAG	Pima Association of Governments
Pb	lead (chemical element)
PIP	Public Involvement Plan
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 microns
PM _{2.5}	particulate matter less than or equal to 2.5 microns
PPC	Pima pineapple cactus
RCRA	<i>Resource Conservation and Recovery Act</i>
RDG	Roadway Design Guidelines
RGP	Regional General Permit
RIMS II	Regional Input-Output Model Systems
RITA	Research and Innovative Technology Administration
RMAP	<i>Regional Mobility and Accessibility Plan</i>
ROD	Record of Decision
ROW	right-of-way
SAFETEA-LU	<i>Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users</i>
SAVSARP	Southern Avra Valley Storage and Recovery Project
SDT	Sonoran desert tortoise
SECAP	<i>Sahuarita East Conceptual Area Plan</i>
SERI	Species of Economic and Recreational Importance

ACRONYM/ INITIALISM	EXPANSION
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office (or Officer)
SIB	State Infrastructure Banks
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SR	State Route
SRER	Santa Rita Experimental Range
SSA	sole source aquifer
study area	Sonoran Corridor Study Area
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SXD	San Xavier District of the Tohono O'odham Nation
TAA	Tucson Airport Authority
TAZ	transportation analysis zone
TCP	traditional cultural properties
TI	traffic interchange
TIFIA	<i>Transportation Infrastructure Finance and Innovation Act</i>
Title VI	<i>Title VI of the Civil Rights Act of 1964</i>
TON	Tohono O'odham Nation
TUS	Tucson International Airport
U.S.C.	United States Code
UA	University of Arizona
UA Tech Park	University of Arizona Technology Park
UPRR	Union Pacific Railroad
URA	<i>Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970</i>
US	United States
USDOT	United States Department of Transportation

ACRONYM/ INITIALISM	EXPANSION
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tanks
V/C	volume-to-capacity ratio
VASR	visual and scenic resource
VMT	vehicle miles traveled
VRP	voluntary remediation program
WQARF	Water Quality Assurance Revolving Fund

ES EXECUTIVE SUMMARY

The Federal Highway Administration (FHWA) and Arizona Department of Transportation (ADOT) are conducting the environmental review process for the Sonoran Corridor from Interstate 19 (I-19) to Interstate 10 (I-10) south of Tucson International Airport (TUS) in Pima County, Arizona. This Draft Tier 1 Environmental Impact Statement (EIS) has been prepared as part of this process in accordance with the *National Environmental Policy Act* (NEPA) and other regulatory requirements. FHWA is the Federal Lead Agency responsible for compliance with NEPA and related statutes, and ADOT is the Local Project Sponsor under NEPA. FHWA, in conjunction with ADOT, has final decision-making responsibility for the contents of this document (23 CFR 771.109).

ES.1 Project Background

In December 2015, the US Congress approved the *Fixing America's Surface Transportation (FAST) Act*, which is a 5-year legislation plan to improve the nation's surface transportation infrastructure. The FAST Act formally designates the Sonoran Corridor as an Interstate freeway in Southern Arizona, reinforcing the overall concept for the Sonoran Corridor that emerged from prior studies. This designation recognizes the importance of the corridor to the nation's economy and mobility.

The concept of a high-capacity, east-west facility connecting I-19 to I-10 south of TUS to address growth and travel needs has been considered for many years. This NEPA process considers prior transportation studies, which includes a multimodal planning effort completed in 2014 that involved ADOT, FHWA, Pima Association of Governments (PAG), Pima County, and other key stakeholders. The study identified the Sonoran Corridor as a critical component of transportation infrastructure that would diversify, support, and connect the economies of southern Arizona and surrounding regions.

ES.2 Scope of this Draft Tier 1 EIS

FHWA and ADOT are following a tiered environmental process. A broad Tier 1 EIS analysis was completed for this study. A Tier 1 EIS is an effective method for managing the NEPA process across a geographic area, such as the Sonoran Corridor study area, in that it allows the NEPA process to move forward prior to the identification of funding and delineates a general outline of where the corridor would be located.

A Tier 1 EIS provides a programmatic approach for identifying existing and future conditions and evaluating the comprehensive effects of the Sonoran Corridor on the region. The decision made at the conclusion of the Tier 1 EIS process will select either (1) a 2,000-foot-wide corridor alternative that would advance to further design and Tier 2 analyses or (2) the No-Build Alternative. If a corridor alternative advances, the process would require Tier 2 environmental studies to determine the specific alignment and effects of the Sonoran Corridor. These studies would include more detailed design within an approximately 400-foot width, including traffic interchange locations. They also would evaluate more specific project-level issues, such as residential and business relocations, and specific mitigation

measures for identified impacts. Tier 2 environmental studies will occur as funding is available for further analysis and design to implement the Sonoran Corridor in potentially shorter, independent phases prior to constructing the complete corridor to Interstate highway standards. Figure ES-1 illustrates the difference in study approach between Tier 1 and Tier 2.

The Sonoran Corridor is intended to extend from I-19 to I-10; other transportation modes and utilities would not be precluded from being located within the same corridor. The analysis in this Draft Tier 1 EIS considers available space within an assumed typical cross-section that may be used for transportation or utility collocation if these infrastructure elements are implemented in the future. Planning for any future rail or utility infrastructure located within the same Sonoran Corridor would require a separate environmental review. Figure ES-2 shows a possible Sonoran Corridor cross-section, possible uses, and how a future detailed study would narrow the amount of space used once a preliminary design has been developed.

ADOT has assumed FHWA responsibility for carrying out NEPA under two separate Memorandums of Understanding executed by FHWA and ADOT: Responsibility for Categorical Exclusions MOU pursuant to 23 USC 326 (326 MOU), and Surface Transportation Project Delivery Program MOU pursuant under 23 USC 327 (327 MOU). Under these assignments of federal environmental review responsibility, ADOT is responsible for carrying out federal environmental review responsibilities and complying with all applicable federal environmental laws, regulations, Executive Orders and policies. ADOT will be solely liable for environmental decisions made on projects funded under federal-aid highway program pursuant to either the 326 MOU or the 327 MOU.

Only the Tier 1 EIS study for the Sonoran Corridor was excluded from the 327 MOU. If a build corridor is to be chosen as a result of this Tier 1 study, all future Tier 2 environmental reviews, consultation, and other actions required by applicable Federal environmental laws for this project will be carried out solely by ADOT as the Lead Agency under NEPA.

This Draft Tier 1 EIS recommends a Preferred Alternative. Agency, Tribal, and public input on the Draft Tier 1 EIS received during the public review period will be considered in determining the Selected Alternative, which will be described in a combined Final Tier 1 EIS and Record of Decision (ROD) document. The combined Final Tier 1 EIS/ROD will describe the basis for the decision, and, if a corridor alternative is selected, provides commitments and presents strategies to avoid and minimize environmental impacts associated with constructing an approximate 400-ft wide high-capacity transportation facility within the 2000-ft wide selected corridor.

Figure ES-1. Tier 1 and Tier 2 Environmental Analyses

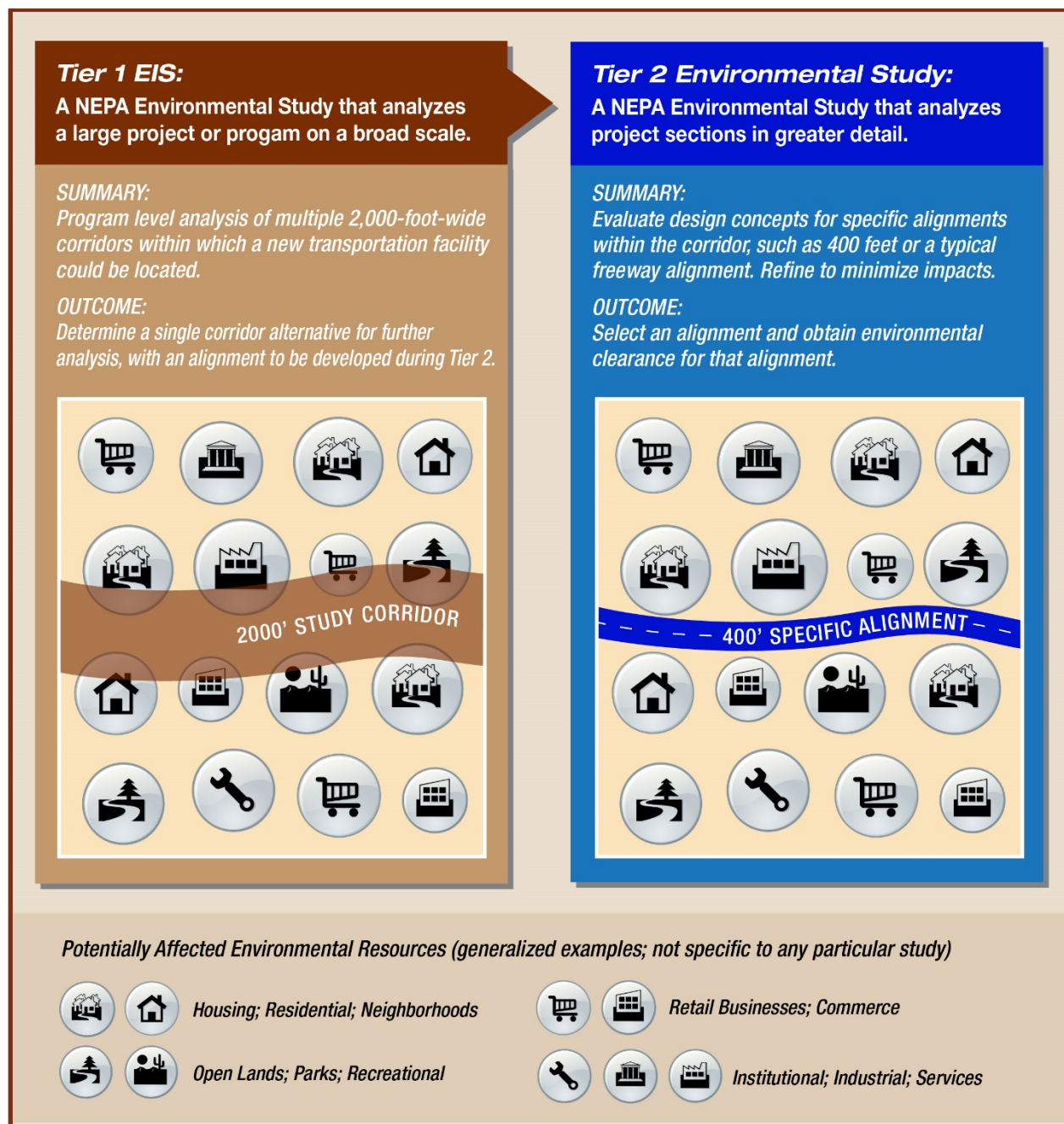
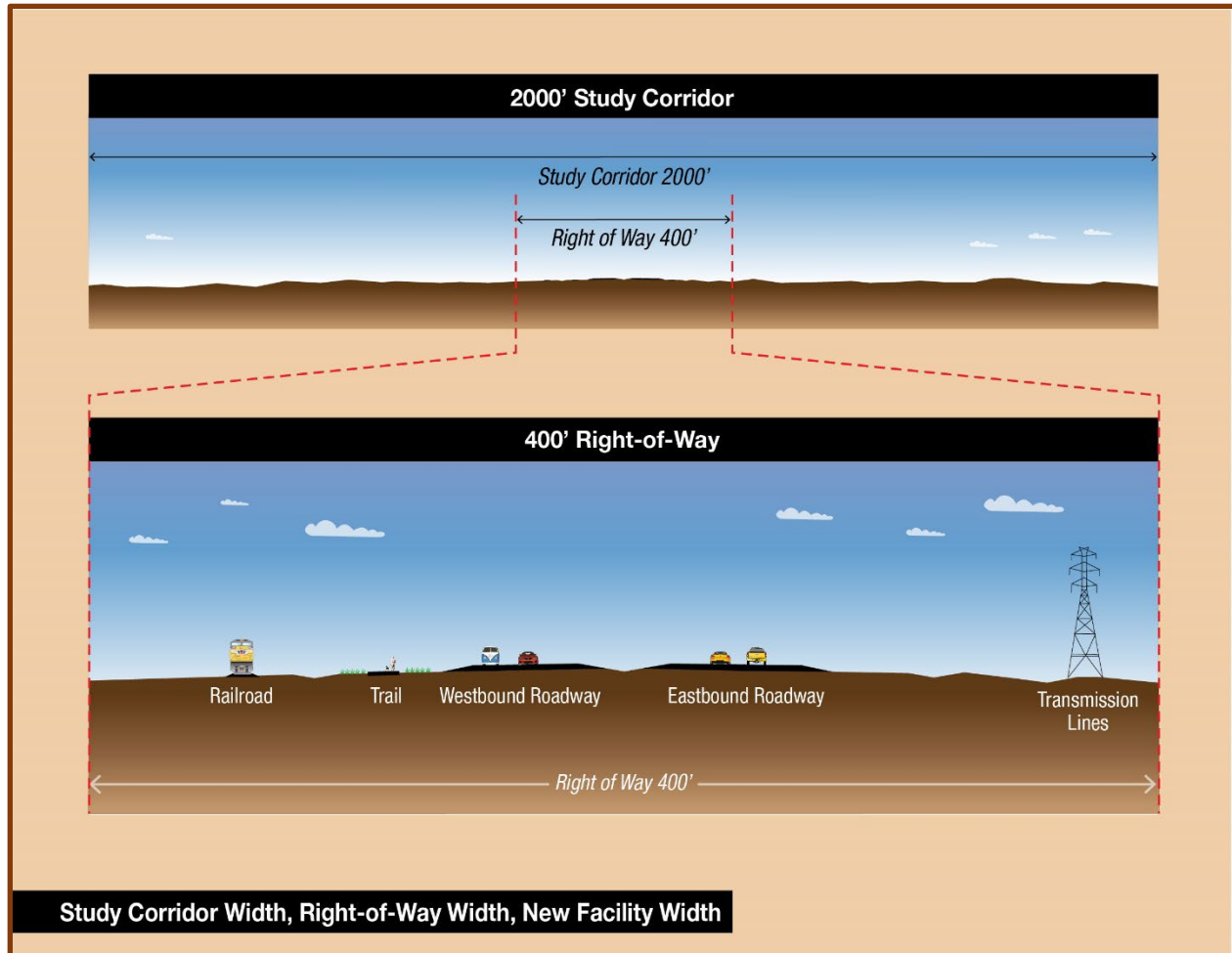


Figure ES-2. Cross-section of Corridor Width and Possible Future Right-of-Way Uses



ES.3 Study Area

The Sonoran Corridor Study Area (study area) is shown in Figure ES-3. It is located in the southern portion of the Tucson metropolitan area, the most intensively developed part of Pima County, Southern Arizona. I-19 defines the western edge of the study area, running north from the US-Mexico border and terminating near downtown Tucson at I-10. I-10 runs southeast from downtown Tucson at its junction with I-19 and forms the northeastern boundary of the study area. An east-west line at Duval Mine Road delineates the study area's southern boundary, while the eastern edge of the study area is represented by the segment of SR 83 between this east-west line and I-10.

Most of the land within this area remains unincorporated, while portions are incorporated into the City of Tucson and the Town of Sahuarita, and some is held in trust by the Bureau of Indian Affairs (BIA) for the Tohono O'odham Nation (TON)-San Xavier District (SXD) and various allottees. The land within this study area is largely undeveloped, with sizeable areas—both unincorporated and incorporated—held in trust by the Arizona State Land Department (ASLD) as shown in Figure ES-3.

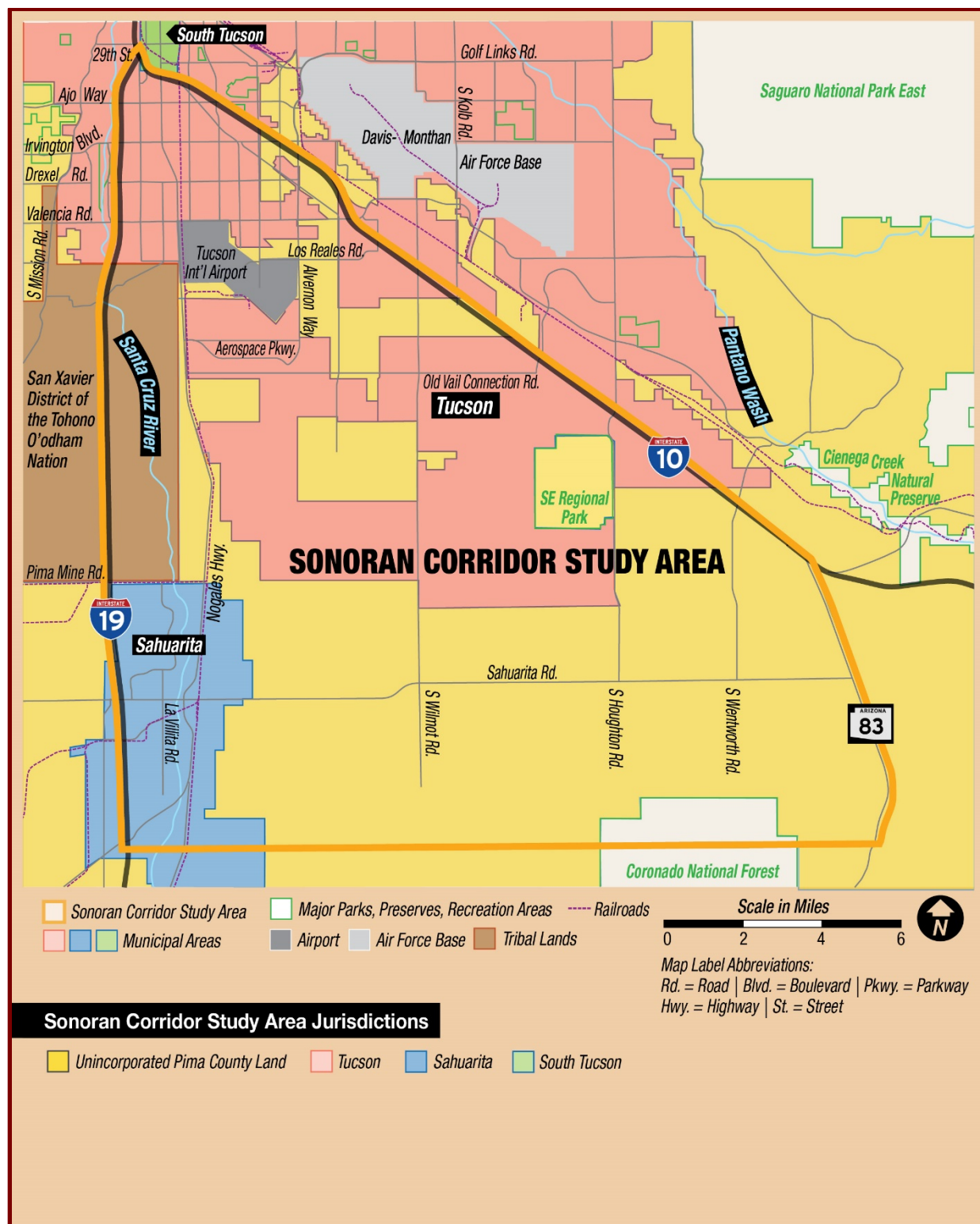
Land development in the study area varies, with intensive urban development present in the northern section, particularly north of TUS. Development decreases sharply south of the airport; much of this part of the study area is sparsely developed or not developed at all, with few improved roads. The Town of Sahuarita, located along I-19 in the southern half of the study area, is more densely developed.

ES.4 Need for the Proposed Facility

Previous studies have identified key transportation needs and issues in the study area, which have been further defined through agency and Tribal coordination and public involvement during scoping. The needs that exist within the Sonoran Corridor study area are:

- Population and employment growth—the current transportation network that has limited ability to service new growth plans and existing activity centers.
- Congestion reduction— an increase in congestion and significant portions of the transportation network within the study area are expected to operate at an unacceptable level of service (LOS) by 2045.
- Insufficient system linkage— lack of a linkage connection between I-19 and I-10 south of TUS inhibits mobility that is associated with regional, interstate, and international travel.

Figure ES-3. Project Study Area



ES.5 Purpose of the Proposed Facility

Given the needs or problems that exist within the study area, the purpose of the Sonoran Corridor is to provide a high-capacity access-controlled transportation facility that will:

- Improve the transportation network to better service growth plans and existing activity centers
- Reduce 2045 congestion in the study area
- Provide a system linkage connection between I-19 and I-10 that will improve regional, interstate, and international mobility through the study area

ES.6 Corridor Alternatives Considered

FHWA and ADOT completed a 2019 Corridor Selection Report (CSR) for the Sonoran Corridor Study that documents the corridor alternatives development and screening process and summarizes the outcomes of the corridor identification and evaluation phase of the project. The CSR assesses a comprehensive set of corridor alternatives through an evaluation screening process that uses a combination of topographical, environmental, and engineering information, as well as public, tribal and agency input.

In addition to input from the public, stakeholder agencies, and technical tools, prior transportation studies and reports completed for the study area were considered in the development of corridor alternatives. These studies include the following:

- *2015 Pima County Sonoran Corridor Study*
- *Pima Association of Governments (PAG) Regionally Significant Corridors Study (2014)*
- *2045 Regional Mobility and Accessibility Plan (2016)*
- *Old Vail Connection Road Study (2011)*
- *Sahuarita East Conceptual Area Plan (SECAP)*
- *Sahuarita Farms Specific Plan (2015)*

ES.6.1 Corridor Alternatives Connection Points

The initial proposed connection points to I-19 and I-10 were identified where affected agencies, the public or the technical team believed they could contribute to the function of both the new corridor and the existing Interstates. The preliminary selection of connection points was based largely on the existence of local freeway interchanges on both freeways. In addition, three new locations were proposed.

Initially, seven locations were considered for the Sonoran Corridor's terminus on I-19, and five locations were considered along I-10 (Figure ES-4). The actual corridor alternatives were developed through a combination of agency, public, and Tribal input (some of the study area is in the SXD) and technical analysis using a computer-based modeling tool that laid out corridors based on existing topography, engineering requirements, and other physical features (e.g., drainage crossings) and limits (e.g., parks, residences) input into the model. The project team next developed a Comprehensive Set of over thirty corridor alternatives (Figure ES-5) that was reduced through a screening process to a more manageable twelve choices (Section 2.3.3 Refinement and Optimization Process).

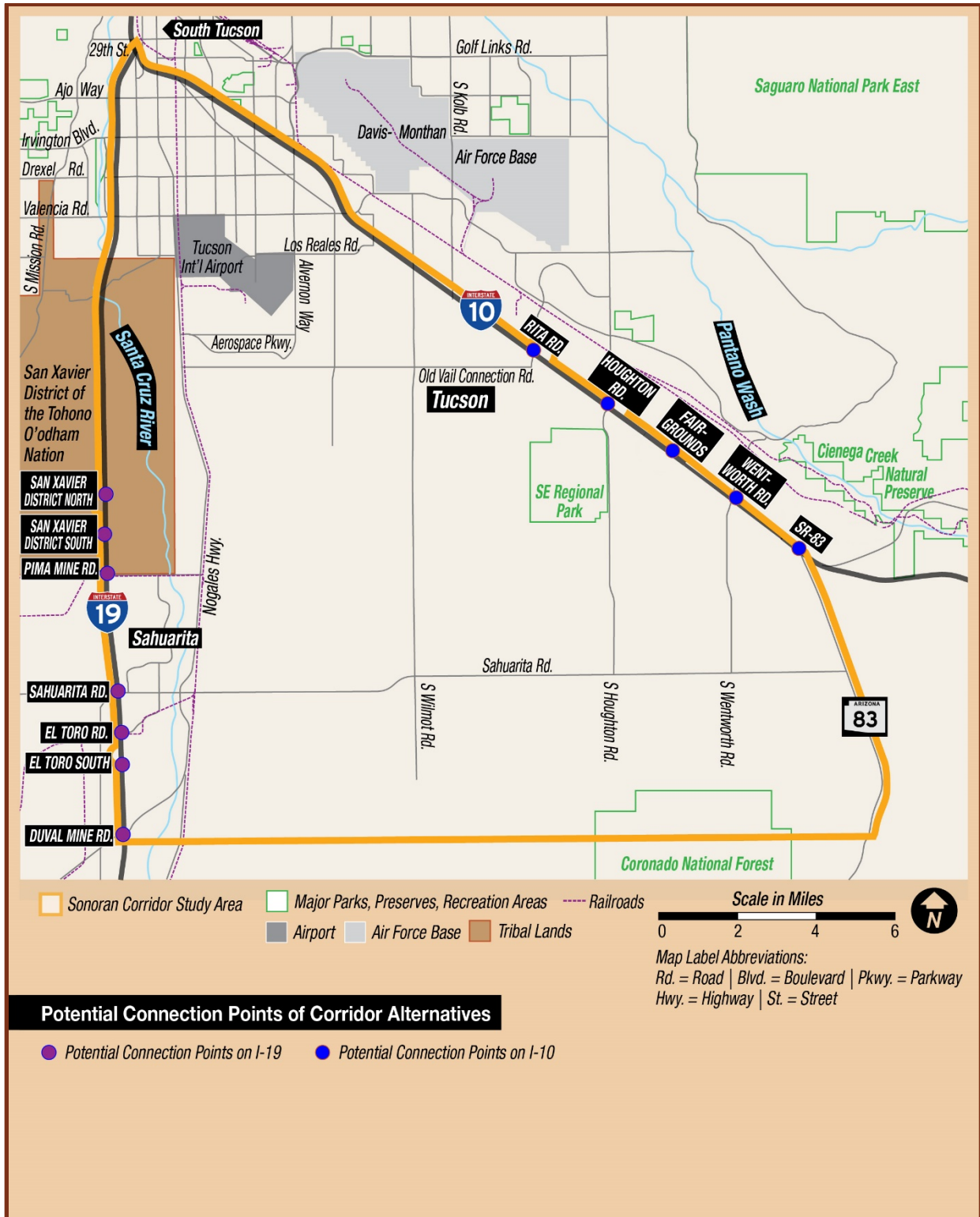
The fundamental considerations in screening the comprehensive set of alternatives consisted in identifying Interstate connection points that would:

- Minimize local mobility and community impacts caused by the placement of the corridor terminus at I-10 or I-19
- Adhere to ADOT interchange separation distance per Roadway Design Guidelines¹ (RDG)

The Refined Set of Corridor Alternatives was next optimized to align with and support existing and future roadways to ensure consistency with regional or local plans and to ensure any corridor proposed could serve as a primary roadway spine for a future transportation network in the study area. The Final Refined and Optimized Set of Corridor Alternatives is shown in Figure ES-6. These were finalized after receiving input from public agencies and the public on September 26, 2018.

¹ ADOT's RDG stipulate a 2-mile separation between a system interchange (freeway-to-freeway) and any adjacent service interchanges (freeway to local roadway network).

Figure ES-4. Corridor Connection Points



South Tucson

29th St.

Ajo Way

Irvington Blvd.

Drexel Rd.

Valencia Rd.

S Mission Rd.

Santa Cruz River

San Xavier District of the Tohono O'odham Nation

SAN XAVIER DISTRICT NORTH

SAN XAVIER DISTRICT SOUTH

PIMA MINE RD.

Sahuarita

Nogales Hwy.

SAHUARITA RD.

EL TORO RD.

EL TORO SOUTH

DUVAL MINE RD.

Tucson

Golf Links Rd.

S Kino Rd.

Davis-Monthan

Air Force Base

Los Reales Rd.

Avenon Way

Aerospace Pkwy.

Old Vail Connection Rd.

INTL RD.

HOUGHTON RD.

FAIR-GROUNDS

WENT-WORTH RD.

SR-83

Pantano Wash

Cienega Creek

Natural Preserve

Sahuarita Rd.

S Wilmot Rd.

S Houghton Rd.

S Wentworth Rd.

Coronado National Forest

Legend:

- Sonoran Corridor Study Area
- Major Parks, Preserves, Recreation Areas
- Railroads
- Airport
- Air Force Base
- Tribal Lands

Scale in Miles

0 2 4 6

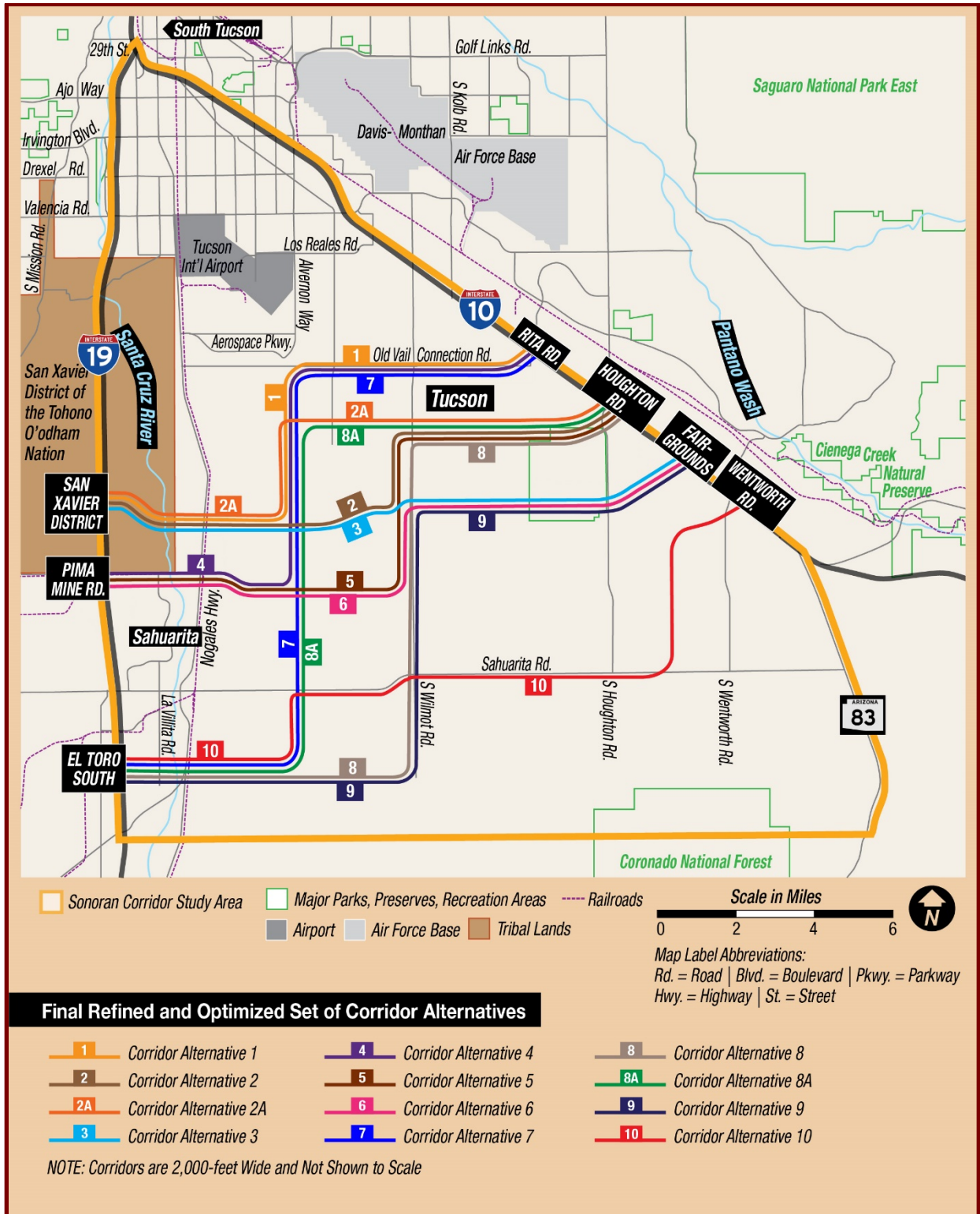
Map Label Abbreviations:

Rd. = Road | Blvd. = Boulevard | Pkwy. = Parkway
Hwy. = Highway | St. = Street

Comprehensive Set of Corridors

Corridors for Analysis (2,000-foot Corridor Width Not Shown to Scale)

Figure ES-6. Final Refined and Optimized Set of Corridor Alternatives



ES.6.2 Corridors Eliminated from Further Consideration

Table ES-1 lists each of the corridor alternatives that were eliminated from further consideration and the rationale behind their elimination. Each corridor alternative is identified by its corridor alternative number and its connection points at I-19 and I-10.

Table ES-1. Corridor Alternatives Eliminated from Further Consideration

CORRIDOR ALTERNATIVE NUMBER AND TERMINI	REASON FOR ELIMINATION
2—SXD to Houghton Road (Wilmot option)	This corridor alternative does not effectively meet the Need and Purpose. North-south alignment along Wilmot Road is farther from major activity centers and has higher potential for adverse impacts to natural habitat compared to alignment along Alvernon Way.
2A—SXD to Houghton Road (Alvernon option)	This corridor alternative was eliminated because it does not effectively meet the Need and Purpose. Less service to growth plans and existing activity centers and greater potential for impact to natural habitat and residential development compared to corridor alternatives considered for further consideration.
3—SXD to Fairgrounds	This corridor does not effectively meet the Need and Purpose of the study. Fails to serve growth plans and existing activity centers, while presenting high potential for adverse impacts to natural habitat than those corridor alternatives considered for further consideration
4—Pima Mine Road to Rita Road	This alternative is duplicative of recommended Alternative 7 and has the potential to result in more severe impacts Potential for more residential displacements and local access issues in comparison with corridor alternatives considered for further consideration.
5—Pima Mine Road to Houghton Road	This alternative is duplicative of recommended Alternative 8A with the potential for more residential displacements and local access issues in comparison Alternative 8A and with corridor alternatives considered for further consideration.
6—Pima Mine Road to Fairgrounds	This alternative does not effectively meet the Need and Purpose. Fails to serve growth plans and existing activity centers while presenting a potential for more residential displacements and local access issues in comparison with corridor alternatives considered for further consideration.
8—El Toro South to Houghton Road (Wilmot option)	This corridor is duplicative of the recommended Alternative 8A and the north-south alignment along Wilmot Road has higher potential for adverse impacts to natural habitat and residential development compared to alignment along Alvernon Way.
9—El Toro South to Fairgrounds	This alternative does not meet the Need and Purpose. It provides less service to growth plans and existing activity centers in comparison with corridor alternatives considered for further consideration.
10—El Toro South to Wentworth Road	This alternative does not meet the Need and Purpose. It fails to serve growth plans and existing activity centers and greater potential for adverse impacts in comparison with corridor alternatives considered for further consideration.

SXD = San Xavier District of the Tohono O'odham Nation

ES.6.3 Reasonable Range of Corridor Alternatives Evaluated in the Tier 1 EIS

This Draft Tier 1 EIS evaluates a reasonable range of corridor alternatives that includes three corridor alternatives and a no build alternative. The three corridor alternatives represent end-to-end corridors from I-19 to I-10 and were the best performing corridor alternatives identified during the study. They are shown together in Figure ES-7 and individually in Figures ES-8, ES-9 and ES-10.

Corridor Alternative 1: SXD to Rita Road (Figure ES-8)—This corridor alternative is recommended to be studied further because it effectively meets the Need and Purpose. Starting from the west at the SXD on I-19, it connects the major employment centers near TUS with I-10 at Rita Road where several other major employment centers are located. The original concept for Corridor Alternative 1 came from a *2015 Pima County Sonoran Corridor Study* and was refined after early coordination with the TON Tribal Historic Preservation Officer (THPO) in efforts to minimize impacts to cultural resources on SXD lands.

It is closest to many activity centers within or adjacent to the study area and is relatively short compared to the other alternatives, which reduces travel distance and time in the movement of goods between Southern Arizona and points east. More broadly, this alternative improves the LOS for all vehicles on existing roadways in the study area. Corridor Alternative 1 also provides more direct access to TUS and is anticipated to have fewer environmental impacts than many of the corridor alternatives that were eliminated from further study. A consideration with this corridor alternative is its location within the SXD, where many sensitive cultural resource locations will need to be evaluated for preservation, potentially limiting options for the corridor in this Draft Tier 1 EIS, and location of a specific alignment in Tier 2 studies, if selected.

Corridor Alternative 7: El Toro South to Rita Road (Figure ES-9)—This corridor alternative is recommended for further study because it effectively meets the Need and Purpose. It has similarities to Alternative 1 except it begins in the west further south at I-19 in Sahuarita, near El Toro Road. It also travels north along the Alvernon Way alignment and follows Old Vail Connection Road to I-10 where it connects at Rita Road. It improves service to primary growth areas and TUS and strengthens system linkages within the study area. These enhancements are evident in the higher travel forecast numbers and improved LOS on existing study area roadways. This includes truck traffic, which would benefit from a shorter east-west connection between I-19 and I-10 that reduces travel time and cost. In addition to being close to many activity centers in or adjacent to the study area, like Alternative 1, it serves the growing Town of Sahuarita by providing access to future planned areas and attempts to avoid major environmentally sensitive resources. The interchange at Rita Road requires that local access be preserved, but the existing local access needs are to the north and east of I-10. No significant obstacles are present to prevent building a modified system interchange to the southwest of I-10 to accommodate freeway-to-freeway travel while retaining access to the local area. Also, El Toro South was identified as a favorable interchange location because it has the potential to address the Town of Sahuarita's desire for a corridor connection within the town limits.

Figure ES-7. Reasonable Range of Corridor Alternatives

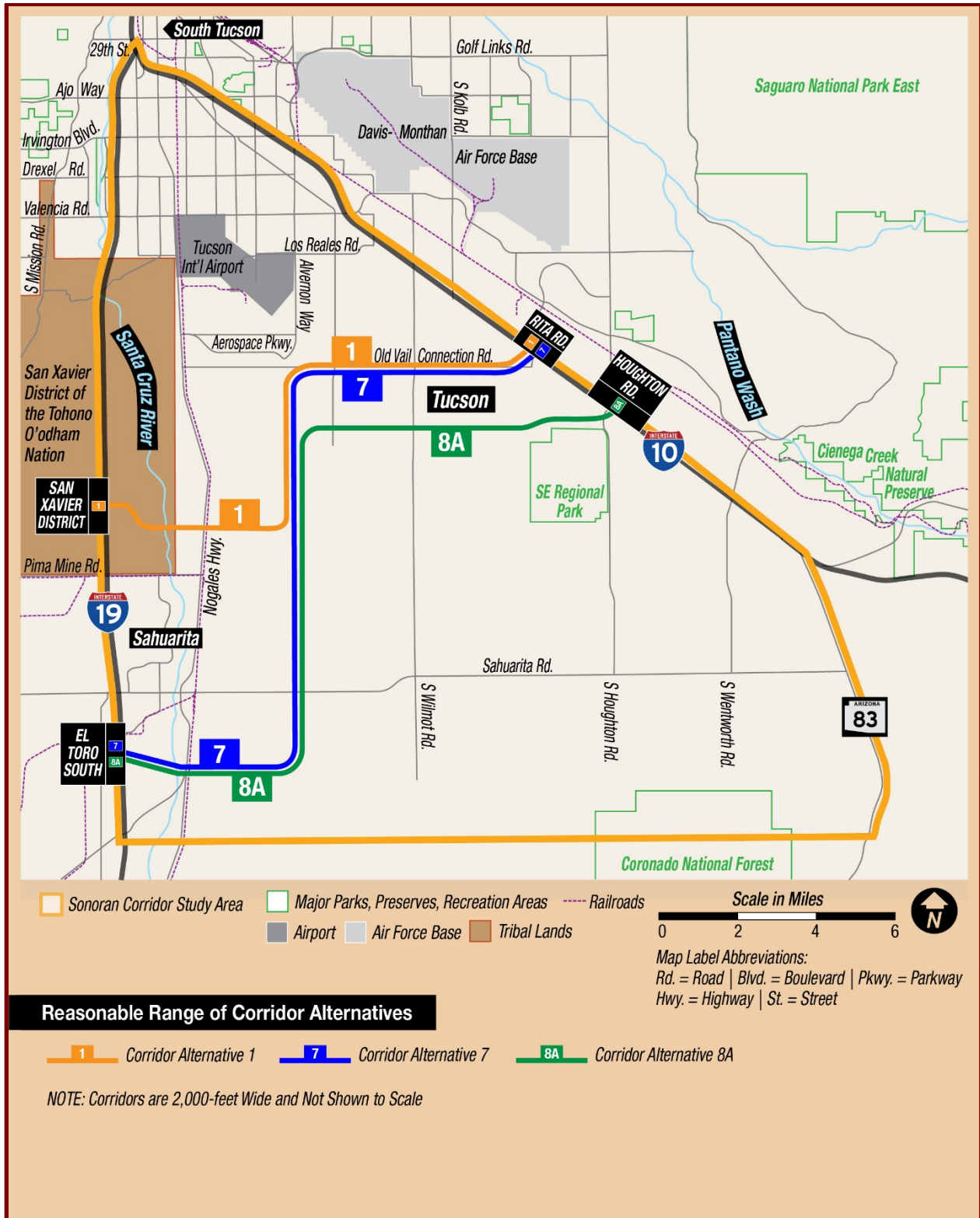


Figure ES-8. Corridor Alternative 1

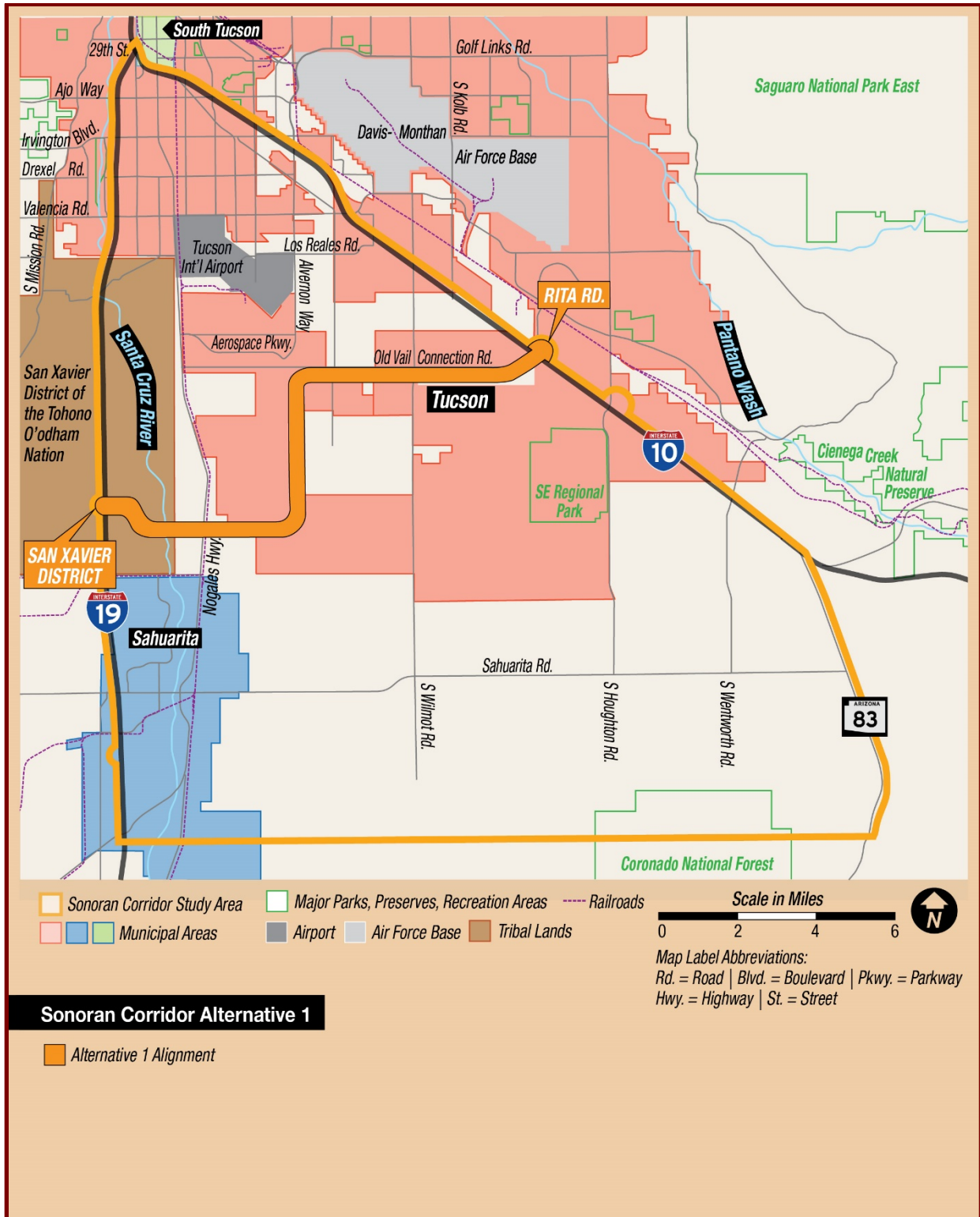
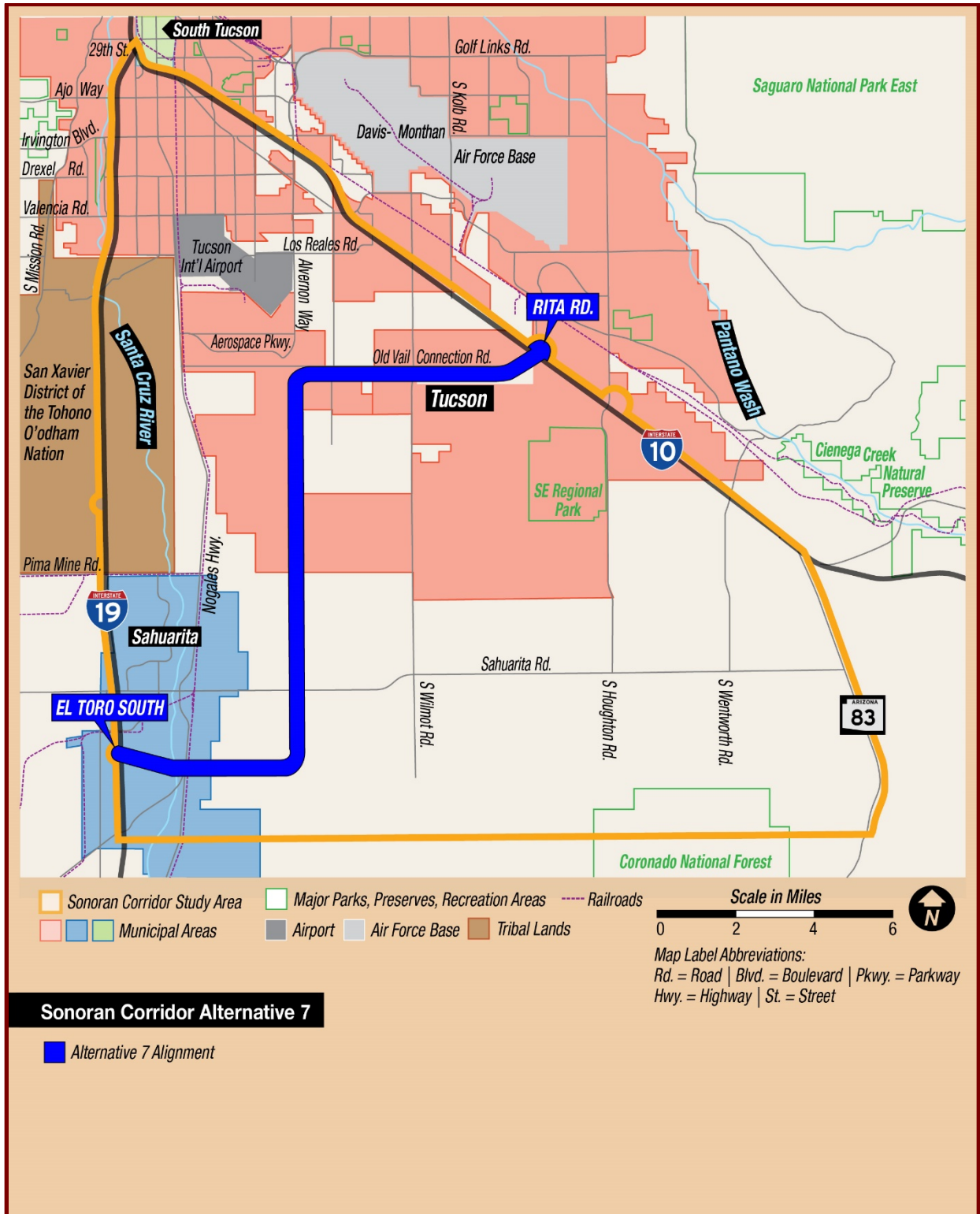


Figure ES-9. Corridor Alternative 7



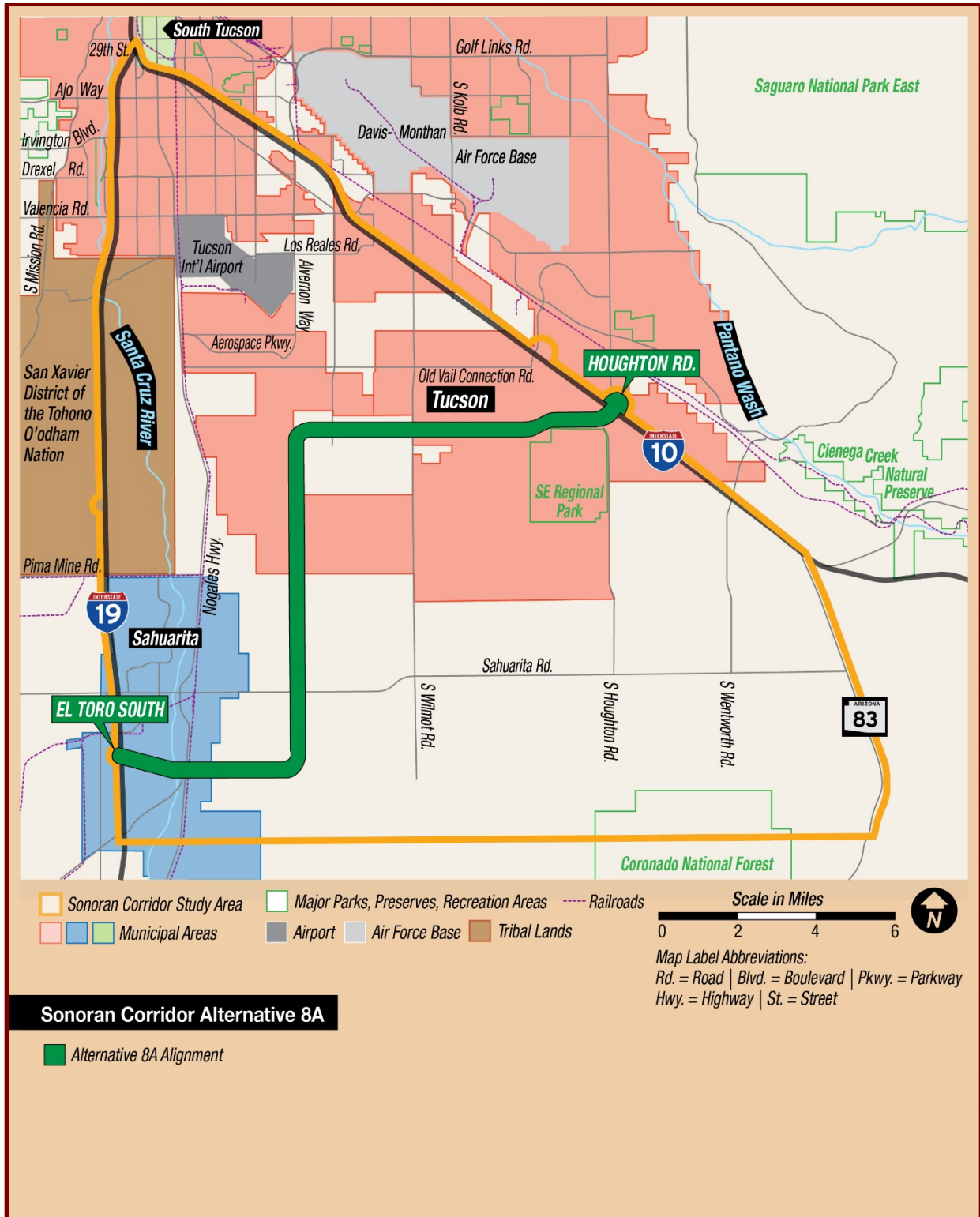
Corridor Alternative 8A: El Toro South to Houghton Road (Alvernon Way option) (Figure ES-10)—This is a modified version of Alternative 8 that resulted from discussions with members of the public at the September 26, 2018, public meeting to improve the performance of Alternative 8. The alternative is discussed in the CSR and the Public Meeting summary². The difference is the north-south segment that follows a route along the Alvernon Way alignment. Although there is currently no paved roadway for much of the Alvernon Way segment, which requires some greenfield development, this corridor avoids some of the environmental challenges of the Wilmot Road corridor with regard to drainage courses. The connection to I-10 at Houghton Road moves the corridor away from some of the key activities located further north on Old Vail Connection Road but provides an alternative to the Rita Road location of the other two alternatives. This corridor alternative is recommended for further evaluation because it effectively meets the Need and Purpose, improving access to and servicing TUS and other major activities located in the northerly reaches of the study area and offering an efficient east-west alternative to commercial traffic that also helps to reduce LOS on existing study area roadways. Like Corridor Alternative 7, it also maintains the benefits of service to the Town of Sahuarita and future growth areas. The corridor alternative is the longest of the three and requires considerations for the design of the I-10 system interchange at Houghton Road but, as noted, can be resolved with modifications to the existing roadway network.

The three Reasonable Range of Corridor Alternatives have several common features.

- Each corridor alternative is a 2,000-foot-wide corridor within which a future alignment would be located. Future Tier 2 studies would, barring new information to suggest otherwise, place the specific alignment of the Sonoran Corridor within the 2,000-foot-wide corridor. A future Sonoran Corridor is expected to be approximately 400 feet wide. The level of analysis for the Draft Tier 1 EIS is qualitative and programmatic, reflecting the broad definition of the corridor, while the future Tier 2 environmental review would consider specific alignments based on preliminary engineering design for more detailed review (Figure ES-1).
- Specific service interchange locations are not identified in this Draft Tier 1 EIS. However, the travel forecasting undertaken for the study includes interchange assumptions based on the current regional transportation plan network that would warrant connections to a new high-capacity transportation facility. Potential interchange locations at major roadways (e.g., Sahuarita Road, Houghton Road, Wilmot Road, Nogales Highway) were considered in the analysis of indirect and cumulative impacts.
- Any corridor alternative that is selected as a result of this study will be implemented in phases, as discussed further in Chapter 5, Preferred Alternative.

² CSR can be found at <https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/documents> and Public Meeting details at <https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/public>.

Figure ES-10. Corridor Alternative 8A



ES.6.4 No-Build Alternative

In addition, the Draft Tier 1 EIS considers the No-Build Alternative to assess performance of the transportation system and potential effects of not building the Sonoran Corridor.

The definition of a No-Build Alternative that reflects the transportation network and growth in the absence of the Sonoran Corridor was also considered in the analysis conducted. For purposes of the Draft Tier 1 EIS, the 2045 Regional Mobility and Accessibility Plan (RMAP) multimodal roadway network that was adopted in 2016 by PAG will serve as the No-Build Alternative and was used as the base case against which corridor influences were measured.

There are few major improvements identified for a study area of this size as shown in Figure ES-11. The major changes are improvements to I-10 East between I-19 and Kolb Road and I-19 between I-10 and San Xavier Road. One significant new roadway that is reflected in the plan is the link between Aerospace

Parkway and I-10 along Old Vail Connection Road, which has the potential to be part of a future Sonoran Corridor. Other important improvements in the study area include widening of Wilmot Road, Houghton Road, and Sahuarita Road. There are few other existing roadways planned for widening or extension to enhance the limited network in the study area.

Figure ES-11. No-Build Alternative



ES.7 Summary of Key Environmental Factors

Each alternative includes sensitive resource areas that were considered. Chapter 3, Affected Environment and Environmental Consequences, of this Draft Tier 1 EIS analyzes the following topic areas:

- Land Use and Jurisdiction
- Socioeconomic Conditions, Displacements/Relocations
- Environmental Justice and Title VI
- Economic Resources
- Section 4(f) and Section 6(f) considerations
- Air Quality
- Noise and Vibration
- Hazardous Materials
- Geology, Soils, and Prime Farmlands
- Biological Resources
- Water Resources
- Visual and Aesthetic Scenic Resources
- Cultural Resources
- Construction-Related Impacts
- Unavoidable Adverse Impacts
- Indirect and Cumulative Effects

Since this is a Tier 1 EIS, the analysis primarily relies on existing data and considers a 2,000-foot-wide corridor within which an alignment may be located. Although an approximate 400-ft wide specific alignment has not been determined, the analysis identifies the resources that are present; characterizes the potential for impacts on these resources; broadly assesses the potential to avoid, minimize, or mitigate impacts; and may identify programmatic-level mitigation strategies. The Draft Tier 1 EIS also identifies additional detailed analysis that would be needed during the Tier 2 environmental review process in a later project phase.

Chapter 3 (Existing Conditions and Potential Environmental Consequences) provides a high-level summary of the key environmental considerations of the three corridor alternatives and the No-Build Alternative. Location-specific considerations are highlighted where opportunities exist to avoid, minimize, or mitigate potential adverse impacts. These location-specific considerations contributed to the identification of the Preferred Alternative.

ES.8 Agency, Tribal, and Public Coordination and Outreach

Interagency coordination and public involvement are fundamental components of the NEPA process. ADOT and FHWA have undertaken continuous outreach efforts throughout the scoping process, alternatives development, and preparation of this Draft Tier 1 EIS document.

A Notice of Intent (NOI) to prepare a Tier 1 EIS for the Sonoran Corridor was published in the Federal Register on May 12, 2017. General information regarding the proposed action was shared, along with notification of related meetings and input opportunities. As part of the NOI, FHWA and ADOT invited all interested individuals, organizations, public agencies, and Native American Tribes to comment on the scope of the Tier 1 EIS. The formal scoping period spanned 52 days from publication of the NOI through July 15, 2017. The Agency and Public Scoping Summary³ documents the following activities that took place and the feedback received during this period.

ES.8.1 Agency Coordination Opportunities

Throughout the development of materials to support the decision-making process under NEPA, FHWA and ADOT requested, documented, and incorporated input from agencies. Coordination with agencies occurred regularly throughout the study and at key milestones. (A complete list of Cooperating and Participating Agencies is shown in Chapter 4 – Coordination.) Major outreach opportunities are further described below.

- **Pre-scoping Activities**—FHWA and ADOT offered pre-scoping opportunities to elicit information, issues, and concerns and discuss the Tier 1 EIS process with the agencies and other key stakeholders in advance of the formal scoping for the environmental review process. Eight pre-scoping meetings were held with federal, state, regional, county, local, and Tribal governments, as well as other stakeholders. Other stakeholders included the University of Arizona Technology Park, the ASARCO Mission Mine, and the Southern Arizona Leadership Council. All agencies and stakeholders were encouraged to participate in the study and submit formal written comments during the subsequent official scoping period. They were informed that information and input shared during pre-scoping meetings or other prior studies did not replace the official scoping period comments submitted by their agencies.
- **Coordination Meetings with Cooperating and Participating Agencies**—Cooperating agencies met in a monthly conference call beginning June 2017 to discuss study status and obtain input and guidance on issues within each agency's purview. Meetings were conducted with participating agencies, both individually and in group meetings and sometimes jointly with cooperating agencies, in advance of major study milestones. As needed or requested, meetings with individual agencies or the TON-SXD were held throughout the study process in response to study issues.

³ <https://azdot.gov/sites/default/files/2019/08/sonoran-corridor-scoping-summary.pdf>

- **Project Team Meetings**—Key study staff met with the project management team monthly to keep it apprised of study status and outstanding issues. This team included FHWA, ADOT, and the study consultant team and provided collaborative guidance and direction on key decision points throughout the planning process.
- **Input at Key Milestones**—Public and agency scoping meetings were held on June 7, 2017, in Tucson and June 8, 2017, in Sahuarita. Public information meetings were held on September 26, 2018, and March 7, 2019, in Tucson. Both scoping meetings and public information meetings were held in locations within or adjacent to the study area and provided the opportunity for attendees to review and comment on key documents prior to finalization.

ES.8.2 Public Outreach

The public outreach component of the study is designed to engage, inform, and receive input from the public for consideration during the environmental review process. The public is defined as those communities, elected representatives, interested stakeholders, businesses, individuals, and civic organizations with an interest in, and who might be affected by, the Sonoran Corridor. ADOT encourages robust public involvement that includes diverse groups of people whose voices and viewpoints provide valuable insight during the decision-making process.

ES.8.3 Tribal Outreach

ADOT and FHWA are committed to maintaining government-to-government relations with Native American Tribes for projects in which Tribes may have an interest. In May 2017, numerous Native American Tribes were invited to be a Participating Agency on this study, and Tribal coordination continues to be an integral part of this study. The TON, particularly the SXD, had an interest in this study. A formal Tribal resolution from the TON Tribal Government for the study was submitted to the project team and is part of project record. Both the TON Tribal Government and the SXD were invited to attend agency and stakeholder meetings throughout the process (2017 Scoping and 2018 agency and public information meetings as described above). Also, the project team held a series of smaller meetings with SXD to focus on issues related to the community's needs and interests regarding the Sonoran Corridor. Input received during these meetings has led to new data sources, helped refine corridor alternatives that minimized effects on natural and cultural resources and afforded allottees a voice in the development of the alternatives. The meetings also helped to achieve consensus on the direction of the study. Typically, information is exchanged in person at the meetings.

Tribal coordination meetings with the SXD generally include elected officials and staff members from transportation, community development, planning and zoning, agriculture and natural resources, and economic development. In addition, where appropriate there has been emphasis on consulting with land allotment property owners regarding potential effects on their lands.

In addition to the above outreach, the westernmost segment of Corridor Alternative 1 crosses allotted lands of the SXD. To address this segment, ADOT and FHWA have been in ongoing and frequent contact with SXD, TON, the Allottee Association, and potentially affected Tribal allottees who own property in the proposed Corridor Alternative 1. In addition to the frequent communication, the project team sent out questionnaire surveys and invited potentially affected Tribal allottees to several meetings that were held at the SXD Offices to determine their willingness and interest in further consideration of a future transportation corridor on their lands. The result of this outreach with potentially affected Tribal allottees was considered in the final decision of a Preferred Alternative (See Appendix H).

ES.8.4 Key Outreach and Coordination Milestones

Agency, Tribal, and public comment opportunities have continued throughout the NEPA process, since the publication of the NOI in May 2017. Two sets of agency and public information meetings have occurred at key milestone periods prior to development of the Draft Tier 1 EIS, including scoping (June 7–8, 2017) and information meetings related to the analysis of alternatives to carry forward into the Draft Tier 1 EIS (September 26, 2018, and March 7, 2019). Each outreach effort is further described in Table ES-2 and the following paragraphs.

Table ES-2. Agency and Outreach Coordination Points

COORDINATION POINT	ORIGINATING AGENCY	RECEIVING AGENCY	TASK	TIMEFRAME
Pre-Scoping Meetings	FHWA with ADOT	Agencies and Key Stakeholders	FHWA and ADOT hold pre-scoping meetings to elicit information, issues, and concerns prior to formal scoping and meetings.	Mar/Apr 2017
Notice of Intent (NOI) to Prepare a Tier 1 EIS	FHWA	Federal Register	FHWA develops and publishes NOI in Federal Register.	May 2017
Invitation of Cooperating and Participating Agencies	FHWA	Cooperating and Participating Agencies	FHWA invites agencies; agencies accept or decline in writing within 45 days.	May 2017
Scoping Meetings	FHWA with ADOT	Cooperating and Participating Agencies and Public	FHWA and ADOT hold Scoping meetings to hear comments on need and purpose; range of alternatives; potential impacts; and evaluation methods.	Jun 2017
Follow-up of Outstanding Invitations for Cooperating and Participating Agencies	FHWA with ADOT	Cooperating and Participating Agencies	FHWA and ADOT follow up with agency invitees who did not accept or decline invitations to ensure participation status.	Jul/Aug 2017
Scoping Summary Report	FHWA with ADOT	Cooperating and Participating Agencies	FHWA and ADOT prepare Scoping Summary Report and circulate report to Cooperating/Participating Agencies.	Oct 2017
Need and Purpose	FHWA with ADOT	Cooperating and Participating Agencies	FHWA and ADOT prepare Need and Purpose; obtain input from Cooperating and Participating Agencies.	Dec 2017

Table ES-2. Agency and Outreach Coordination Points (continued)

COORDINATION POINT	ORIGINATING AGENCY	RECEIVING AGENCY	TASK	TIMEFRAME
Corridor Selection Methodology Report (CSR)	ADOT with FHWA	Cooperating and Participating Agencies	FHWA and ADOT hold key milestone meeting with agencies to seek feedback on Corridor Selection methodology, process, comprehensive set, and initial screening of alternatives prior to public information meetings.	Mar 2018
Public Information Meetings on Comprehensive Set of Corridors and initial screening	FHWA with ADOT	Public	FHWA and ADOT hold public information meetings to obtain input on CSR universe and initial screening of alternatives (fatal flaw review).	Sep 2018
Tier 1 EIS Annotated Outline and Methodology	FHWA with ADOT	Cooperating Agencies	FHWA and ADOT share environmental checklist and methodologies to be used in Tier 1 EIS analysis of alternatives with Cooperating Agencies.	Oct 2019
Key Milestone Meeting on Reasonable Range of Alternatives	FHWA with ADOT	Cooperating and Participating Agencies	FHWA and ADOT hold key milestone meeting with agencies to seek feedback on the CSR reasonable range of alternatives.	Oct 2018
Public Information Meetings on Reasonable Range of Alternatives	FHWA with ADOT	Public	FHWA/ADOT hold public information meeting to obtain input on reasonable range of alternatives and input to Tier 1 EIS.	Mar 2019
Draft Tier 1 EIS	FHWA with ADOT	Cooperating Agencies	FHWA and ADOT develop Draft Tier 1 EIS document; Cooperating Agencies review Administrative Draft.	Jul 2020

ES.8.5 Scoping

Scoping is an initial step in the environmental review process under NEPA. The Council on Environmental Quality's NEPA Regulations (40 CFR 1501.7) state that the Federal Lead Agency should engage in scoping to provide an early and open process to determine the scope, or range, of issues to be addressed and identify the significant issues related to a proposed action.

Scoping serves the following purposes at the beginning of the environmental review process:

- Informs the agencies, public, and Tribal communities about the study process and intent.
- Connects previous planning decisions with current study development.
- Seeks early input from agencies, public, and Tribal communities on:
 - Need and Purpose
 - alternatives to be studied
 - impacts to be evaluated
 - evaluation criteria and methodology to be used

- Looks for opportunities to streamline the study process and collaborate with partners.
- Establishes a decision-making framework, including agency participation and responsibilities.

The scoping period for the Sonoran Corridor Tier 1 EIS was held for a period of 52 days from May 12 to July 15, 2017. Notifications of the study, open house dates, and comment opportunities were advertised via the NOI, ADOT press releases, a newsletter emailed to ADOT's expansive mailing list, and newspaper advertisements in five study area publications.

ES.8.5.1 Agency Scoping

An agency scoping meeting was held in Tucson at the PAG offices on June 7, 2017. Forty representatives from 12 agencies attended the meeting in person or by telephone. Participants asked questions and provided insights about their concerns and the conduct of the study. Comments received and documented during the agency scoping meeting are summarized below.

- Make rail freight infrastructure part of the project.
- Focus study on movement of commerce.
- Consider a route that will provide access to TUS from the south.
- Reduce travel times by getting regional motorists to I-19 faster.
- Consider a route that connects to I-19 at El Toro Road.
- Consider a route that connects I-19 near Pima Mine Road.
- Since area south of I-10 is a major growth corridor, consider commuter needs for workers in Vail and Tucson.
- Be mindful of TON processes and work with leadership and allottees as well as BIA.
- Consider effects of a new highway on air quality in the area.
- Avoid impacts to existing electrical transmission lines.
- Plan for how a new highway would interact with SR 210 (Barraza-Aviation Parkway).
- Keep routes that would potentially accommodate trucks carrying hazardous materials away from existing schools and population centers.
- Mitigate potential negative effects on habitat and wildlife corridors.

The agency scoping meeting materials, sign-in sheets, and specific agency comments are provided in the Agency and Public Scoping Summary. This report was posted for public information in December 2017 at <https://www.azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/public-meetings>.

ES.8.5.2 Public Scoping

Two public scoping meetings were held in the study area. ADOT issued news releases, advertised in study area newspapers, posted announcement of the meetings on the Sonoran Corridor website, and sent email blasts to stakeholders. The same presentation and materials were presented at each meeting.

- Wednesday, June 7, 2017, from 5:30 to 7 p.m. at the Radisson Hotel Airport, 4550 S. Palo Verde Road, Tucson
- Thursday, June 8, 2017, from 5:30 to 7 p.m. at the Santa Cruz Valley United Methodist Church, 71 E. Sahuarita Road, Sahuarita

A preliminary study area had been identified and was presented at the public meetings. Meeting attendees were provided a presentation on the anticipated study process and the opportunity to interact directly with ADOT, FHWA, and members of the project team to ask questions and discuss concerns. Large maps of the study area were made available for review, and written comments that referred to specific locations were encouraged, as these would be included in the official record of the scoping period. All public meeting materials were available online, and comments could be submitted online or by email, letter, or voicemail. All comments received are documented in their original form in the Agency and Public Scoping Summary⁴ which also includes copies of meeting materials and detailed information on notifications of the scoping period.

The public submitted 92 comments and questions by comment form, email, Social Pinpoint online forum comment, and phone calls during the scoping period of May 12 through July 15, 2017.

The comment form asked participants to rank in order of importance a series of topics associated with the study, the results of which were responded to and, as appropriate, the project adjusted to reflect necessary changes or emphases. A summary of participants' ratings of the relative importance of factors provided the following aggregate rankings from both public scoping meetings and other forms for public comment, with the ranking of 1 being most important:

1. Traffic congestion and delays
2. Sharing highways with commercial truck traffic
3. Lack of connectivity
4. Impact on neighborhoods, residences and diverse communities
5. Air quality
6. Visuals and aesthetics
7. Alternative forms of transportation (rail, bicycle routes, etc.)
8. Geology, soils and farmland
9. Preserving existing land use
10. Protection of cultural sites

⁴ <https://azdot.gov/sites/default/files/2019/08/sonoran-corridor-scoping-summary.pdf>

ES.8.6 Cooperating and Participating Agencies

FHWA and ADOT requested federal, state, and local agencies as well as Tribal governments to participate in the environmental review process by inviting them to be a Cooperating Agency or a Participating Agency under the NEPA guidelines. Cooperating Agencies are defined in Title 40 CFR 1508.5 and 23 CFR 771.111(d), as federal agencies with jurisdiction by law or special expertise with respect to any environmental impact involved in the study. Other agencies or Tribal governments of similar qualifications also may qualify, if FHWA concurs. The following five⁵ agencies opted to be engaged as Cooperating Agencies:

- Federal Aviation Administration (FAA)
- Bureau of Reclamation (BOR)
- Environmental Protection Agency (EPA)
- US Army Corps of Engineers (USACE)
- Arizona Department of Game and Fish (AGFD)

The Cooperating Agencies have met regularly (generally, monthly) since 2017. FHWA and ADOT provided updates and discussion on the study process and project issues. Cooperating Agencies also have reviewed and commented on the Draft Tier 1 EIS and other supporting documentation related to the Sonoran Corridor at these meetings.

Thirty-six agencies were invited to be a Participating Agency, and ultimately 35 opted to participate or were assigned participating status. Participating Agencies, as defined in the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*, can be federal, state, regional, county, or local agencies as well as Tribal governments that may have an interest in the Sonoran Corridor. Chapter 4, Coordination and Outreach, includes a list of Participating Agencies. Throughout the study process, meetings were conducted with Participating Agencies at project milestones and as needed or requested with individual agencies. Individual meetings were conducted with individual agencies or Tribes as requested or in response to project issues.

ES.8.7 Continuing Coordination and Outreach

The issuance of the Draft Tier 1 EIS by FHWA initiates a 45-day public review and comment period. Within this period, FHWA and ADOT will conduct public hearings to solicit comments on the Draft Tier 1 EIS. All comments received will be reviewed, documented, and responded to as part of the preparation of the Final Tier 1 EIS/ROD.

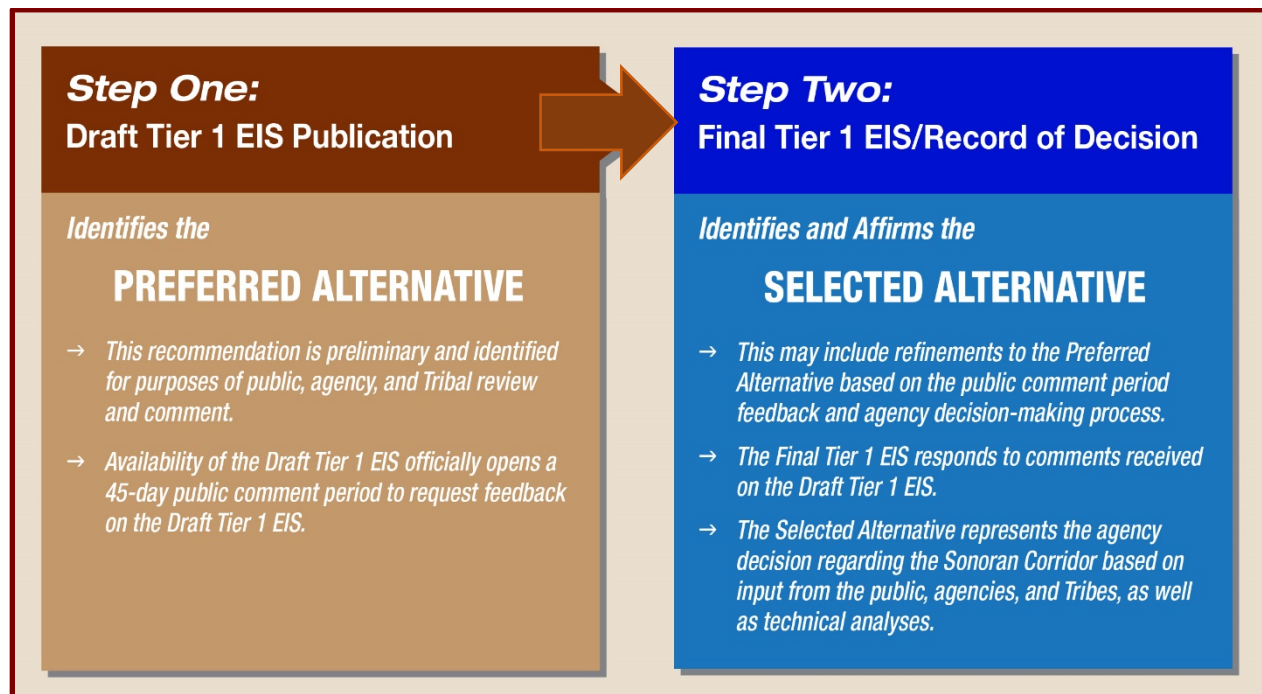
⁵ The Tohono O’odham Nation, (TON) and the Bureau of Indian Affairs (BIA), currently Participating Agencies, have been invited to become Cooperating Agencies for the completion of the Draft Tier 1 EIS. The TON did not respond to the invitation. The BIA wished to remain a Participating agency.

FHWA and ADOT evaluated three corridor alternatives and a No-build Alternative to determine a Preferred Alternative for the Sonoran Corridor study by considering the following:

- How effectively does each alternative meet the Sonoran Corridor Need and Purpose?
- What are the differentiating and substantive impacts?
- Can the impacts be avoided, minimized, or mitigated?

The Preferred Alternative represents the preliminary findings of FHWA and ADOT based on the Draft Tier 1 EIS environmental impact analyses, agency and Tribal coordination, and public involvement to date. As illustrated on Figure ES-12 the preferred alternative is presented for public review and comment as part of the Draft Tier 1 EIS (Step One in Figure ES-12). The subsequent Final Tier 1 EIS/ROD will consider input received and could affirm or modify the study alternatives, including the preferred alternative, in identifying a selected alternative for the Sonoran Corridor study (Step Two in Figure ES-12).

Figure ES-12. Tier 1 EIS Decision Steps



ES.9 How Effectively Does Each Alternative Meet the Need and Purpose?

The project team evaluated the proposed corridor alternatives for the Sonoran Corridor study according to how they would meet the Sonoran Corridor Need and Purpose, using metrics developed for this analysis. The results of this analysis are summarized in Table ES-3 and the paragraphs below. Further detail is contained in Chapter 2, Alternatives Considered, and Chapter 5, Preferred Alternative.

ES.9.1 Population and Employment Growth

The study area population is forecast to grow by over 500 percent by 2045, and employment is projected to increase as much as 146 percent. Based on transportation plans and proposed development already approved in the study area, the existing roadway network is unable to effectively provide access to existing and future activity centers.

The three corridor alternatives will improve the existing transportation network within the study area by linking growth areas and activity centers to local, regional and international markets, and support access to jobs and the residential development that would occur to house the resulting additional population. Under the No-Build Alternative, the existing transportation network in study area will remain limited and not have the ability to meet future demand.

ES.9.2 Congestion Reduction

All three corridor alternatives when compared to the No-Build Alternative reduce congestion and improved the LOS that is predicted for 2045. Corridor alternatives would help divert traffic from existing roadways. This traffic diversion would help reduce congestion and the reliability of existing roadways. Whereas the No-Build Alternative would not appreciably expand capacity or service to meet projected demand.

ES.9.3 System Linkages Associated with Regional, Interstate and International Mobility

A key purpose of the Sonoran is to provide a system linkage that will help improve regional, interstate, and international mobility and offer an efficient movement of goods and people. The three corridor alternatives would create a high-capacity, access controlled transportation facility between existing freight corridors that will help improve passenger and commercial truck travel times substantially between 8 and 16 minutes when compared to the No-Build Alternative by avoiding the need to travel near downtown Tucson or use local roads for north to east and west to south trips for travel from Mexico to points east of Tucson. Under the No-Build Alternative, there would be no continuous high-capacity transportation connection between I-19 and I-10 other than the downtown Tucson interchange of the two existing Interstate freeways. Travel forecasting for 2045 conditions suggests that Corridor Alternative 1 would attract the highest increase in automobile vehicle miles traveled and Corridor Alternative 7, the highest truck (trade-related) vehicle miles traveled over the No-Build Alternative.

Table ES-3. Measures in Meeting the Sonoran Corridor Need and Purpose

NEED AND PURPOSE	METRICS	NO-BUILD ALTERNATIVE	CORRIDOR ALTERNATIVE 1	CORRIDOR ALTERNATIVE 7	CORRIDOR ALTERNATIVE 8A
Serve Population and Employment Growth					
<p>Need: High-growth areas and existing activity centers need access to an improved transportation network.</p> <p>Purpose: Provide a high-priority, high-capacity transportation corridor to serve population/employment growth and existing and new employment centers.</p>	<ul style="list-style-type: none"> Provides access to planned growth areas, and serves identified employment centers in the study area Total distance to 27 identified activity centers linked in and near the study area from (CSR) 	<ul style="list-style-type: none"> Does not serve growth area and identified employment centers in the study area. Does not improve access to activity centers 	<ul style="list-style-type: none"> Provides direct access to the areas of greatest growth and the northerly portion of the study area. Directly serves employment at or near the TUS area and I-10 76.75 miles⁶ - Improves access to activities in the northerly portions of study area 	<ul style="list-style-type: none"> Provides direct access to greatest growth in the northerly portion of the study area and Sahuarita. Directly serves employment centers at or near TUS and I-10 66.59 miles⁶ - Improves access to activities in the northerly portions of study area and within Sahuarita 	<ul style="list-style-type: none"> Provides direct access to areas of greatest growth in the Town of Sahuarita. Does not directly serve employment centers at and near TUS and I-10. 75.62 miles⁶ - Improves access to activities in study area mainly within Sahuarita
Reduce Traffic Congestion					
<p>Need: Improve forecast capacity shortages in the study area.</p> <p>Purpose: Improve 2045 LOS (V/C) to reduce congestion in study area by 2045.</p>	<ul style="list-style-type: none"> Changes to overall 2045 LOS (V/C) within study area 	<ul style="list-style-type: none"> Does not reduce congestion 	<ul style="list-style-type: none"> Reduces V/C by 5.4% compared to No Build 	<ul style="list-style-type: none"> Reduces V/C by 12.2% compared to No Build 	<ul style="list-style-type: none"> Reduces V/C by 13.8% compared to No Build
Improve System Linkages					
<p>Need: Lack of system linkages south of TUS inhibits efficient regional interstate and international mobility in the study area</p> <p>Purpose: A high-priority, high-capacity transportation corridor linking I-19 and I-10 south of TUS to improve regional, interstate, and international travel mobility</p>	<ul style="list-style-type: none"> Change in travel times in and near study area Change in 2045 VMT and VHT compared to No-Build 	<ul style="list-style-type: none"> Does not reduce travel times or affect VMT/VHT 	<ul style="list-style-type: none"> Reduces travel time by 15.9 min compared to No Build Increases VMT and reduces VHT in study area. 	<ul style="list-style-type: none"> Reduces travel time by 16.6 min compared to No Build Increases VMT and reduces VHT 	<ul style="list-style-type: none"> Travel time 17.8 min shorter than No Build Increases VMT and reduces VHT

LOS = level of service; VMT = vehicle miles traveled; VHT = vehicle hours traveled; TUS = Tucson International Airport

⁶ Shorter distance means better connection to centers

ES.10 Differentiating and Mitigating Potential Environmental Impacts

During the alternatives development and screening process, the corridor alternatives were identified with the intent of avoiding major environmental impacts, including environmental justice populations and archaeological, historic, and natural/wildlife areas. This Draft Tier 1 EIS includes a detailed qualitative analysis of the beneficial and adverse effects of the Sonoran Corridor on a wide variety of environmental resources. Table ES-4 provides a high-level summary of the key differentiating effects and substantive differences in impacts of each corridor alternative. These factors contributed to the identification of the Preferred Alternative by identifying opportunities to avoid, minimize, or mitigate potential adverse impacts. In addition to minimizing impacts to national monuments, national parks, wilderness areas, and Tribal lands, this Tier 1 EIS includes possible mitigation strategies for consideration in further defining the Selected Alternative in a Tier 2 study, such as:

- Avoiding or minimizing impacts to wildlife linkage areas
- Providing wildlife crossings and fencing to minimize wildlife migration effects
- Minimizing construction footprint through endangered species habitat
- Minimizing construction footprint on the Santa Cruz River
- Avoiding or minimizing impacts to parks, recreation areas, wildlife refuges, and historic resources (Section 4(f) resources)
- Minimizing fugitive light impacts on dark skies
- Providing landscape design to minimize visual impacts
- Maintaining local connectivity across the Sonoran Corridor to minimize community disruption
- Avoiding or mitigating disproportionately high and adverse effects on minority and/or low-income populations
- Understanding the potential for indirect and cumulative land use effects from the Sonoran Corridor, ADOT would be an active partner in a broader effort with PAG, local jurisdictions, resource agencies, private stakeholders, and the general public to cooperatively plan development in the study area. The effort would coordinate wildlife connectivity, local land use planning, and context-sensitive design for the Sonoran Corridor.

Table ES-4. Comparison of Alternatives and Project Effects¹ within the 2000-foot Corridor

RESOURCE TOPIC	CORRIDOR ALTERNATIVE 1	CORRIDOR ALTERNATIVE 7	CORRIDOR ALTERNATIVE 8A
Travel Time compared to No-Build Alternative	15.9 minutes shorter	16.6 minutes shorter	17.8 minutes shorter
V/C compared to No-Build	5.4% reduction	12.2% reduction	13.8% reduction
System Linkages	Provides direct access to activities near TUS and I-10	Provides direct access to most activities near TUS, I-10 and the Town of Sahuarita	Is farther from activities near TUS and I-10, but serves Town of Sahuarita
Land Use	912 acres non-residential 2,365 acres residential	2,770 acres non-residential 2,384 acres residential	2,553 acres non-residential 2,733 acres residential
Socioeconomic Conditions	5 residences were identified within the corridor	54 residential units were identified within the corridor.	Approximately 100 residential units identified in the corridor
Environmental Justice and Title VI	65.32% minority 12.60% low income	54.03% minority 17.72% low income	42.59% minority 10.24% low income
Economic Resources (Total output by REMI ² model)	\$1,849 million	\$2,725 million	\$3,041 million
Section 4(f) Resources	The Juan Bautista de Anza National Historical Trail crosses all corridor alternatives		
Section 6(f) Resources	No 6(f) properties present at this time		
Air Quality	42% travel time decrease; least potential to result in localized violations of CO	43% travel time decrease	46% travel time decrease has greatest improvement in AQ; greatest potential for violations of CO due to corridor length
Noise and Vibration	Predicted noise levels 57-64 dBA	Predicted noise levels 57-78 dBA; two residential areas impacted	Predicted noise levels 57-78 dBA; three residential areas impacted
Hazardous Materials	40 total sites including 3 Superfund	42 total sites including 3 Superfund	11 total sites
Geology, Soils, and Farmland	No impacts to farmland	232 acres of active farmland	232 acres of active farmland
Biological Resources	167 acres riparian area; 85 acres high-value Sonoran Desert tortoise habitat; least effect to wildlife movement corridors	218 acres riparian area; 50 acres Sonoran Desert tortoise habitat	201 acres riparian area; 21 acres Sonoran Desert tortoise habitat. Most potential habitat fragmentation and wildlife movement impact
Water Resources	72,185' ephemeral washes; 53 acres potential wetlands Does not meet practicability considerations associated with Section 404(b)(1) of the CWA	211,811' ephemeral washes; 9 acres potential wetlands Has an ability to meet all considerations associated with Section 404(b)(1) of the CWA	220,569' ephemeral washes; No potential wetlands Has an ability to meet all considerations associated with Section 404(b)(1) of the CWA
Water Quality	22 wells; 146 acres FEMA floodplain	41 wells; 241 acres FEMA floodplain	43 wells; 241 acres FEMA floodplain
Cultural Resources	37 known cultural sites	28 known cultural sites	30 known cultural sites

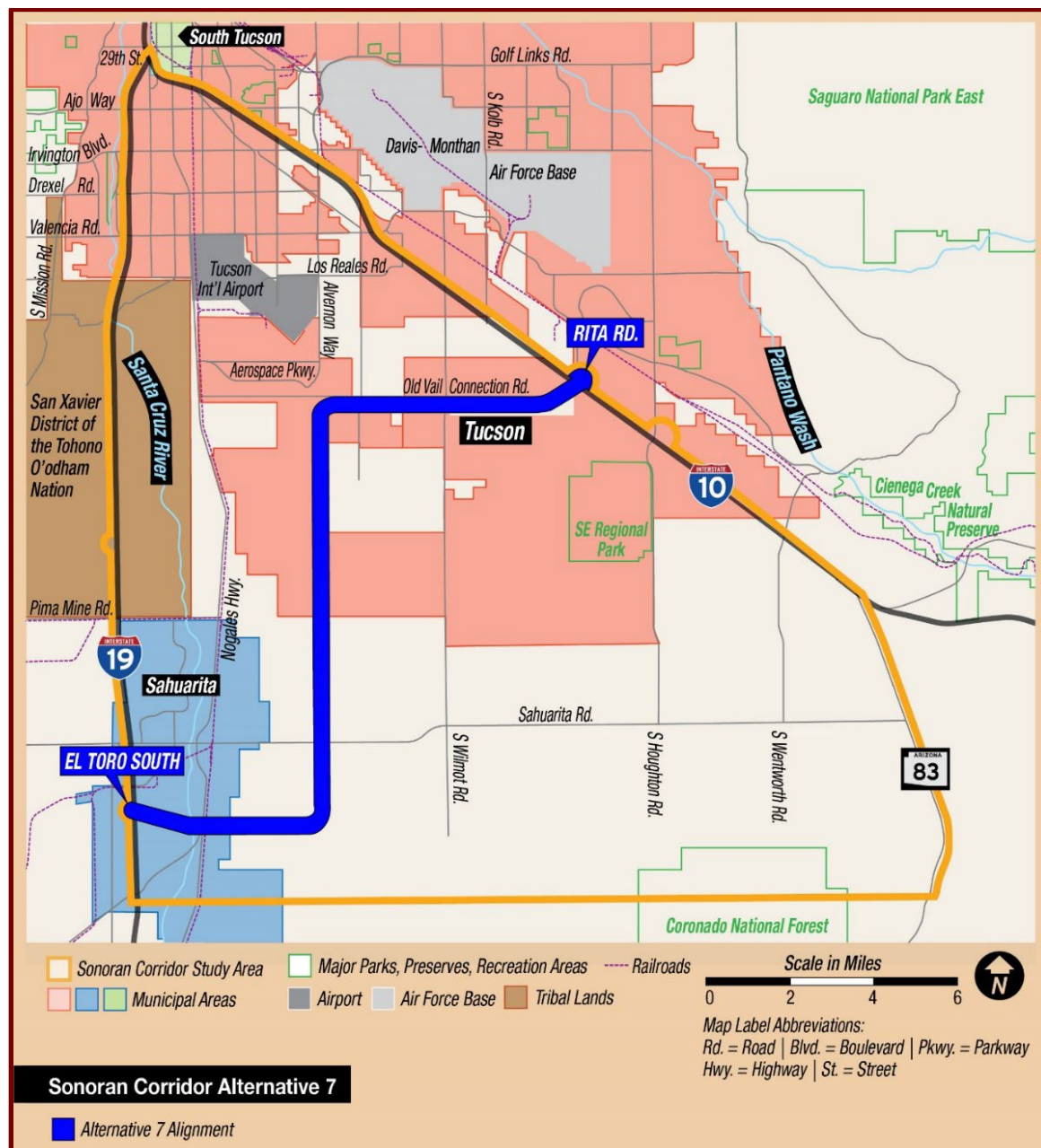
¹ Note: all figures in Table ES-4 are for a 2000'-wide corridor and are used as a basis of comparison in this Tier 1 EIS. The effects shown in the table will be refined during Tier 2 studies within a more constrained approximately 400' right-of-way alignment and will likely be less.

² Regional Economic Models, Inc. (REMI) is an econometric input-output model used to forecast the effect of a change (i.e., Sonoran Corridor) on the regional economy of Pima County.

ES.11 Preferred Alternative Identified

FHWA and ADOT identified Corridor Alternative 7 (Figure ES-13) as the Preferred Alternative that best meets the Sonoran Corridor Need and Purpose. Alternative 7 is the most effective at balancing the congestion reduction, accessibility and growth questions of the need and purpose with the environmental impacts of building a transportation corridor in the study area. A comprehensive analysis of the differentiating effects and substantive impacts is included in Chapter 5, Preferred Alternative.

Figure ES-13. Preferred Alternative



ES.12 Next Steps

This Draft Tier 1 EIS is being issued to solicit input from agencies, tribes, and the public on the environmental resource analysis, the potential Tier 2 strategies to avoid, minimize, and/or mitigate anticipated environmental impacts of the study alternatives, as well as the identification of the Preferred Alternative, if a Preferred Alternative is chosen.. Comments received on this Draft Tier 1 EIS during the public review period will be considered in determining a Selected Alternative, and then a combined Final Tier 1 EIS/ROD document will be prepared.

All responses to comments will be documented in the Final Tier 1 EIS/ROD. After considering all the comments received, FHWA and ADOT will identify a Selected Alternative in the Final Tier 1 EIS/ROD that may affirm or modify the Preferred Alternative or select a different alternative. The Final Tier 1 EIS/ROD will present a Selected Alternative, describe the basis for the decision, and provide strategies to avoid and minimize environmental impacts if a corridor alternative is chosen. Because this is a Tier 1 NEPA document, mitigation strategies discussed in the Final Tier 1 EIS/ ROD represent recommended actions that must be considered, refined and, as appropriate, implemented in Tier 2 projects within the Sonoran Corridor once a specific alignment is defined.

If a Corridor Alternative is the Selected Alternative, it would be further evaluated and refined in future Tier 2 studies. A recommended preliminary phased implementation plan will also be included in the Final Tier 1 EIS/ROD. During Tier 2 studies, it is anticipated that phased near-term projects or segments would be detailed as independent projects based on the phased implementation plan. Tier 2 NEPA documents would include site-specific, quantitative analysis of effects and provide avoidance, minimization, and mitigation measures tailored for each project.

The specific NEPA Class of Action analysis for a logical Tier 2 segment would be defined based on the nature of the project and as determined by ADOT. Continuing coordination with the Tribes, public, and agencies would occur prior to and during Tier 2 project-level analysis. Future Tier 2 environmental review, consultation, and other actions required by applicable Federal environmental laws for this project would be carried out by ADOT pursuant to either the 326 MOU or 327 MOU.

If the No-Build Alternative is selected, no project would occur.

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