FHWA-AZ-EIS-21-02-F

FINAL TIER 1 ENVIRONMENTAL IMPACT STATEMENT AND RECORD OF DECISION

SONORAN CORRIDOR STUDY
PIMA COUNTY, ARIZONA

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

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
ARIZONA DEPARTMENT OF TRANSPORTATION

With the following Cooperating Agencies

FEDERAL AVIATION ADMINISTRATION

US ARMY CORPS OF ENGINEERS

US BUREAU OF RECLAMATION

US ENVIRONMENTAL PROTECTION AGENCY

ARIZONA GAME AND FISH DEPARTMENT

THIS DOCUMENT INCLUDES:

- Sonoran Corridor Study Final Tier 1 Environmental Impact Statement (EIS)
- Sonoran Corridor Study Record of Decision (ROD)

DOCUMENTS ON PROJECT WEBSITE (azdot.gov/planning/transportation-studies/sonoran-corridortier-1-environmental-impact-statement/documents**)**

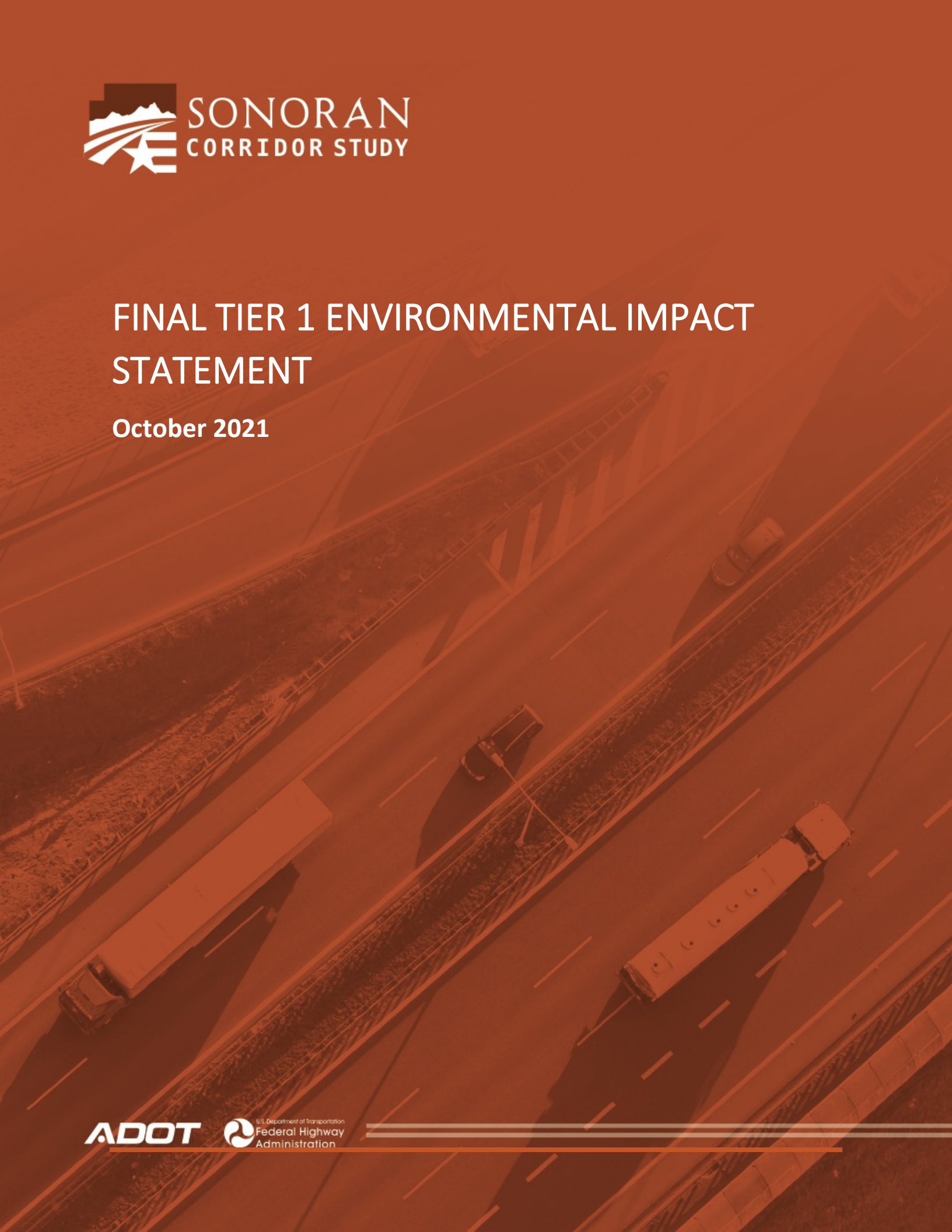
- Appendices:

  A. Sonoran Corridor Study Draft Tier 1 EIS, signed November 6, 2020
  B. Public Involvement Summary Report
  C. Section 106 Consultation and Programmatic Agreement
  D. Agency Notification and Comment Letters
  E. Formal Letter Responses to Agency Comments
  F. Agency and Public Comments and Responses
  G. Phased Implementation Plan

SONORAN CORRIDOR STUDY

FINAL TIER 1 ENVIRONMENTAL IMPACT STATEMENT

October 2021



ADOT

U.S. Department of Transportation
Federal Highway Administration

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SONORAN CORRIDOR STUDY
PIMA COUNTY, ARIZONA

FINAL TIER 1 ENVIRONMENTAL IMPACT STATEMENT

U.S. Department of Transportation
Federal Highway Administration

and

Arizona Department of Transportation

With the following Cooperating Agencies

Federal Aviation Administration
US Army Corps of Engineers
US Bureau of Reclamation
US Environmental Protection Agency
Arizona Game and Fish Department

John S. Halikowski, Director
Arizona Department of Transportation

October 26, 2021
Date of Approval

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

October 27, 2021
Date of Approval

ADOT

U.S. Department of Transportation
Federal Highway Administration

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Acronyms

Acronym/ Initialism	Expansion
ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AMSL	Above Mean Sea Level
AWSA	Arizona Water Settlement Act of 2004
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CAP	Central Arizona Project
CCA	Candidate Conservation Agreement
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMUP	Comprehensive Management and Use Plan
CO	carbon monoxide
CO_2	carbon dioxide
COE	United States Army Corps of Engineers
CSR	Corridor Selection Report
CWA	*Clean Water Act*
dB	decibel
dBA	A-weighted decibel
EIS	environmental impact statement
EO	Executive Order
EPA	*Environmental Protection Agency*
ESA	*Endangered Species Act*
FAHP	*Federal Aid Highway Program*
FAST	*Fixing America's Surface Transportation*
FAQ	Frequently Asked Questions
FEMA	Federal Emergency Management Administration

Acronym/ Initialism	Expansion
FHWA	Federal Highway Administration
I-10	Interstate 10
I-19	Interstate 19
IPaC	Information, Planning, and Consultation
kV	kilovolt
LEP	Limited English proficiency
LOS	level of service
LWCF	*Land and Water Conservation Fund Act of 1965*
MAP-21	*Moving Ahead for Progress in the 21st Century Act*
MBTA	*Migratory Bird Treaty Act*
NEPA	*National Environmental Policy Act of 1969*
NOA	Notice of Availability
NPS	National Park Service
OWJ	Officials with Jurisdiction
P.L.	Public Law
PAG	Pima Association of Governments
PPC	Pima pineapple cactus
RMAP	*Regional Mobility and Accessibility Plan*
ROD	Record of Decision
SAWRSA	Southern Arizona Water Rights Settlement Act of 1982
SDT	Sonoran Desert tortoise
SERI	Species of Economic and Recreational Importance
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office (or Officer)
study area	Sonoran Corridor Study Area
SXD	San Xavier District of the Tohono O'odham Nation
TEP	Tucson Electric Power
Title VI	*Title VI of the Civil Rights Act of 1964*
TON	Tohono O'odham Nation
TUS	Tucson International Airport

Acronym/ Initialism	Expansion
U.S.C.	United States Code
US	United States
USDOD	United States Department of Defense
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
V/C	volume-to-capacity ratio
VHT	vehicle hours traveled
VMT	vehicle miles traveled
WAPA	Western Area Power Administration

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FINAL TIER 1 ENVIRONMENTAL IMPACT STATEMENT

1 Introduction

The Federal Highway Administration (FHWA), in cooperation with the Arizona Department of Transportation (ADOT), initiated a Tier 1 Environmental Impact Statement (EIS) for the Sonoran Corridor, a proposed high-capacity, high-priority corridor that connects Interstate 19 (I-19) and Interstate 10 (I-10), south of the Tucson International Airport (TUS). The Draft Tier 1 EIS Notice of Availability (NOA) was published in the Federal Register on November 6, 2020, with the public review and comment period occurring between November 6, 2020 and January 8, 2021.

This Final EIS, in conjunction with the Draft EIS, contains a summary of all alternatives, information, and analyses submitted by State, Tribal, and local governments and other public commenters for consideration by the Lead and Cooperating Agencies as set forth in 40 CFR § 1502.17. The primary purpose of this Final EIS is to:

- reaffirm the Preferred Alternative that was presented in the Draft Tier 1 EIS; and
- respond to comments received during the public review and comment period.

The Sonoran Corridor Tier 1 EIS was developed pursuant to the transportation law entitled Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-141). In part, MAP-21 put forth measures to expedite the National Environmental Policy Act (NEPA) process where possible, including the issuance of a combined Final EIS/Record of Decision (ROD). The Fixing America's Surface Transportation (FAST) Act (P.L. 114-94) supersedes MAP-21 and further incorporates streamlining initiatives, including the use of errata and developing a combined Final EIS/ROD.

1.1 Use of Final EIS Errata Sheets

The Council on Environmental Quality (CEQ) regulations implementing NEPA allow the use of errata sheets attached to the Draft EIS in lieu of a traditional Final EIS (40 CFR § 1503.4(c)). Language in 49 U.S.C. § 304(a)(a) parallels CEQ regulations and addresses and filing of a Final EIS using errata sheets and defines when it is appropriate to use errata sheets. Furthermore, Section 1304 of the FAST Act, Efficient Environmental Reviews for Project Decision Making, sets forth the changes to Title 23 U.S.C. § 139. Subsection (j), Accelerated Decision Making; Improving Transparency in Environmental Reviews, amends 23 U.S.C. § 139 by adding subsection (n), Accelerated Decision Making in Environmental Reviews. 23 U.S.C. § 139(n)(1) provides for the preparation of a Final EIS by attaching errata sheets to the Draft EIS if certain conditions are met.

Content changes to the Draft Tier 1 EIS are shown in errata sheets that can be found in Section 5 of this Final Tier 1 EIS. In addition to using errata sheets, this Final Tier 1 EIS states and includes the following:

- Reaffirms the Preferred Alternative that was identified in the Draft Tier 1 EIS in Section 0

- Section 106 consultation summary, including an executed Tier 1 Section 106 Programmatic Agreement (PA)
- List of Tier 2 Environmental Commitments for the Preferred Alternative included in Section 6.
- Responses to comments received on the Draft Tier 1 EIS during the public comment and review period, and public and agency coordination activities that have taken place since the issuance of the Draft Tier 1 EIS are included in Section 4 of the Final Tier 1 EIS and Appendices D through F.

1.2 Location of the Draft Tier 1 EIS

The use of errata sheets in lieu of writing a traditional Final EIS is appropriate when comments received on a Draft EIS are minor and the responses to those comments are limited to factual corrections or explanations of why the comments do not warrant further response (40 CFR § 1503.4(c)). When applying provisions set forth in 23 U.S.C. 139(n)(1) and 49 U.S.C. 304 (a)(a), the errata sheets must be made available to the public to the same extent as the Draft EIS and continued availability of the Draft EIS should be ensured.

The Draft Tier 1 EIS is included as Appendix A to this Final Tier 1 EIS. The Draft Tier 1 EIS, along with this combined Final Tier 1 EIS/ROD document, is currently available to the public for download and/or printing on the project website (https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/documents) and currently at the following public location:

- Southcentral District Office - 1221 S. 2nd St. Tucson, AZ 85713; Please call to make an appointment - 520.388.4200
- Joel D. Valdez Main Library - 101 N. Stone Ave. Tucson, AZ 85701 520.594.5500
- Joyner-Green Valley Library - 601 N. La Canada Dr. Green Valley, AZ 85614 520.594.5295
- Town of Sahuarita Town Clerk's Office - 375 W. Sahuarita Center Way, Sahuarita, AZ 85629 520.822-8801

1.3 Combined Final Tier 1 EIS/ROD

Traditionally, and in accordance with CEQ regulations (40 C.F.R. § 1506.10(b)(2)), Final EIS and ROD documents are issued separately with a minimum 30-day period between the Final EIS and ROD. 49 U.S.C. § 304(a)(b) and 23 U.S.C § 139(n)(2) directs, to the maximum extent practicable, the U.S. Department of Transportation (USDOT) to expeditiously develop a single, combined Final EIS/ROD, unless certain conditions exist. So, in accordance with these combined Final EIS/ROD provisions and 23 CFR 771.124, FHWA has combined this Final Tier 1 EIS with the attached ROD. The decision to combine the two documents is based on the following:

- The Final Tier 1 EIS did not make substantial changes to the proposed action that were relevant to environmental or safety concerns; and
- There is no significant new circumstance or information relevant to environmental concerns and that bears on the proposed action or the impacts of the proposed action.

Applicable requirements for both the Final Tier 1 EIS and ROD that are set forth in 23 CFR § 771 have been met, and statutory criteria or practicability considerations listed in USDOT's *Guidance* on the *Use*

of *Combined* Final *Environmental Impact Statements/Record of Decisions* and *Errata Sheets* in *National Environmental Policy Act Reviews* that would preclude FHWA from issuing a combined Final EIS/ROD document for the Sonoran Corridor Tier 1 Study do not exist.

1.4 Section 106 Consultation

In concurrence with the Tier 1 EIS, FHWA and ADOT conducted consultation under Section 106 (54 USC § 306108) of the National Historic Preservation Act (NHPA) (54 USC § 300301, *et seq.*) with a total of 30 consulting parties that was made up of federal, state, tribal, and local entities. Section 4 of this Final Tier 1 EIS includes a complete list of the Section 106 consulting parties. The Advisory Council on Historic Preservation (ACHP), U.S. Forest Service-Coronado National Forest, Fort Sill Apache Tribe, San Carlos Apache Tribe, U.S. Fish and Wildlife Service, and the White Mountain Apache Tribe all declined further participation at various stages during the Section 106 consultation process.

In addition to the Section 106 consultation that was summarized in Section 3.6 of the Draft Tier 1 EIS, Section 106 consulting parties were notified of the Draft Tier 1 EIS being released for review and were provided information on both the public hearing and the virtual public engagement event in a November 2020 letter. A copy of the November 2020 letter can be found in Appendix C of this Final EIS.

In conclusion, the Section 106 consultation process included formal letters that shared project information, provided updates, sought collaboration, and distributed the Class I cultural resource inventory to consulting parties. Previous consultation described the undertaking, discussed corridor alternatives, identified consulting parties, and explained methodological processes. Additional consultation occurred during numerous tribal meetings, emails, and telephone calls among FHWA, ADOT, and Section 106 consulting parties.

1.4.1 Tier 1 Section 106 Programmatic Agreement

As stated in Section 3.6 of the Draft Tier 1 EIS, while the determination of effects on cultural resources was not made at the Tier 1 phase, the Class I Survey indicates the Sonoran Corridor has the potential to affect historic properties during the Tier 2 phase. Accordingly, a Tier 1 Section 106 PA was developed by FHWA and ADOT in consultation with Section 106 consulting parties in accordance with 36 CFR §§ 800.6 and 800.14(b). The Tier 1 Section 106 PA is a legal document that establishes agreed-upon measures to ensure continued compliance with Section 106 and resolving potential adverse effects to historic properties.

A Tier 1 Section 106 PA outline was distributed in March 2020, and the first draft of the Tier 1 Section 106 PA was distributed in July of the same year. Subsequent revisions were made to the Tier 1 Section 106 PA in response to comments received, and an amended draft of the Tier 1 Section 106 PA was distributed as part of the Draft Tier 1 EIS in November 2020. After release of the Draft Tier 1 EIS, another amended draft of Tier 1 Section 106 PA was sent to Section 106 consulting parties for review and comment on May 11, 2021. Comments on the Tier 1 Section 106 PA that were received during the Draft Tier 1 EIS review and comment period were included in the May 11, 2021 letter. All other Section 106

related comments received during the Draft Tier 1 EIS review and comment period are included in Appendix F of this Final Tier 1 EIS. The Final Tier 1 Section 106 PA was sent to Section 106 consulting parties for signature on July 16, 2021. Copies of the May 2021 and July 2021 letters can be found in Appendix C of this Final Tier 1 EIS.

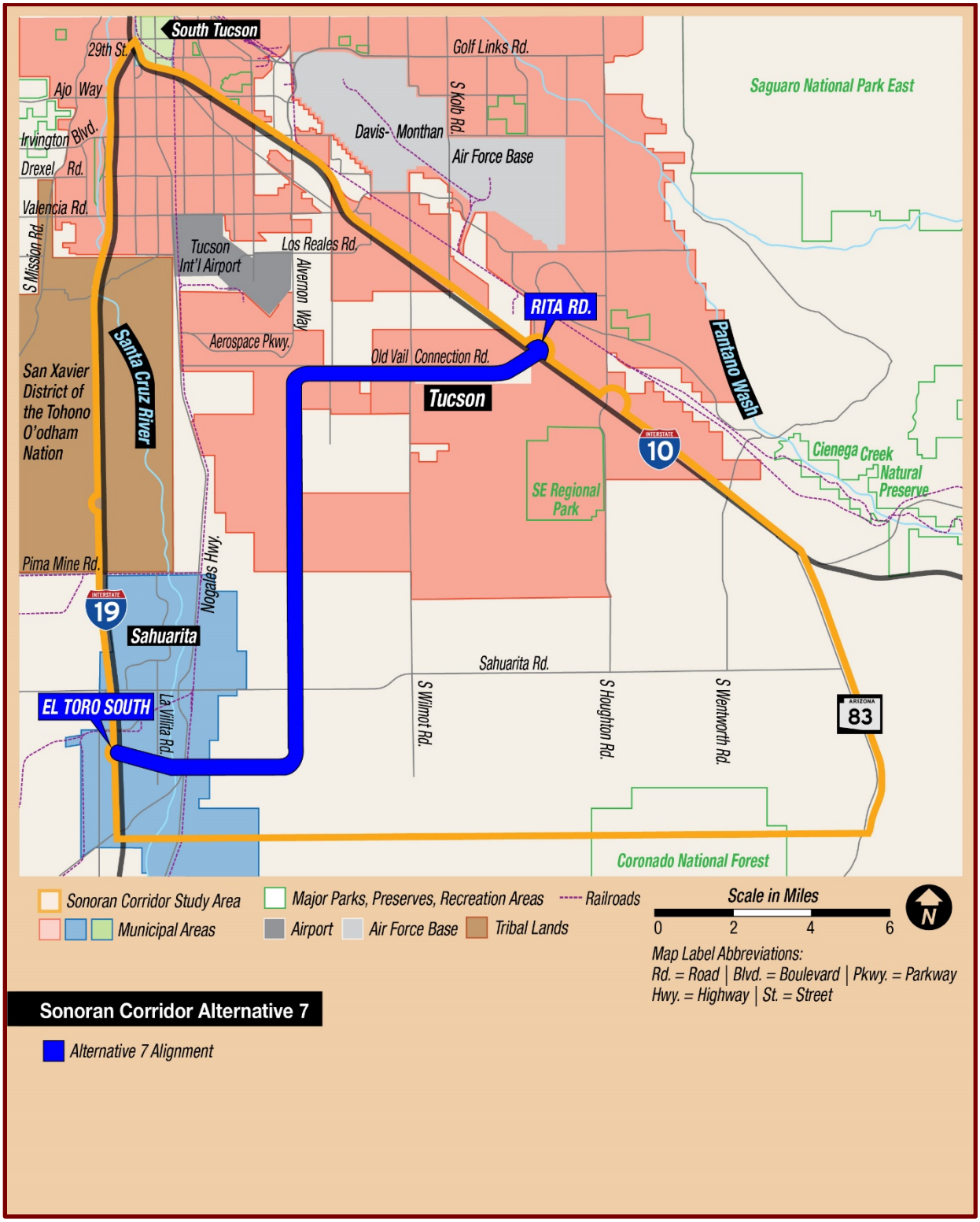
Lastly, the Tier 1 Section 106 PA was executed on August 24, 2021 and subsequently filed with ACHP on September 8, 2021. Section 106 consulting parties who have signed the Tier 1 Section 106 PA include the following: FHWA, SHPO, ADOT, Bureau of Indian Affairs, Federal Aviation Administration (Phoenix Airports District), Pima County, Pima County Regional Flood Control District, Town of Sahuarita, Tucson Airport Authority, and City of Tucson. All Section 106 consulting parties were provided a copy of the executed Tier 1 Section 106 PA in accordance with 36 CFR § 800.6(c)(9) on September 17, 2021. See Appendix C of this Final Tier 1 EIS for a copy of the executed Tier 1 Section 106 PA, September 2021 letter, and an ACHP acknowledgment letter dated Sept 9, 2021. The filing of the executed Tier 1 Section 106 PA with ACHP fulfills FHWA's Section 106 responsibilities pursuant to 36 CFR § 800.6(b)(iv) and concludes the Section 106 consultation process for the Sonoran Corridor Tier 1 EIS.

2 Preferred Alternative

This Final Tier 1 EIS reaffirms the Preferred Alternative that was presented in the Draft Tier 1 EIS. Corridor Alternative 7 is the Preferred Alternative, which is depicted in Figure FEIS-1. Corridor Alternative 7 begins in the west near I-19 and El Toro Road in the Town of Sahuarita. It travels north along the Alvernon Way alignment up to Old Vail Connection Road, and it then travels back east along the Old Vail Connection Road to I-10 where it connects at Rita Road.

While substantive comments received during the public review and comment period raised points of information, clarification, or correction, comments received during the public comment period did not result in a change from the selection of the Preferred Alternative. Differentiating impacts and benefits of the Preferred Alternative over the No-Build Alternative compared to other reasonable alternatives evaluated in the Draft Tier 1 EIS are described in Section 3. Ultimately, Table FEIS-1 includes a summary of transportation and environmental analysis results comparing the three Corridor alternatives to the No-Build Alternative, and Table FEIS-2 shows how the Preferred Alternative satisfies the identified Need and Purpose for the proposed Sonoran Corridor, compared to the No-Build Alternative and the other reasonable alternatives.

Figure FEIS-1. Preferred Alternative



3 Other Reasonable Alternatives Evaluated

As stated in Section 2.5 of the Draft Tier 1 EIS, the Reasonable Range of Alternatives consisted of three corridor alternatives (Corridor Alternatives 1, 7, and 8A). Those corridor alternatives represented the best set of options for further analysis since they spanned the most optimal geographical area for meeting the project's purpose and performance objectives, had amongst the lowest relative impacts, and provided comparable but distinct opportunities for further impact mitigation. Figure FEIS-2 depicts the Reasonable Range of Alternatives.

3.1.1 Corridor Alternative 1

Starting from the west at the SXD on I-19, Corridor Alternative 1 travels north along the Alvernon Way alignment up to Old Vail Connection Road, and it then travels back east along Old Vail Connection Road to I-10 where it connects at Rita Road. One distinct feature of Corridor Alternative 1 is that it crosses tribal allotted lands within the San Xavier District (SXD) of the Tohono O'odham (TON). The concept of Corridor Alternative 1 comes from a 2015 Pima County Sonoran Corridor study, and it was developed to minimize future impacts to sensitive cultural resources within SXD lands. It was the shortest of the corridor alternatives evaluated in the Draft Tier 1 EIS at 16.06 miles. As such, it was assumed that it offered the potential of reduced impacts and cost based solely on its length.

Throughout the Draft Tier 1 EIS process, ADOT and FHWA had been in frequent contact with SXD, TON, the Allottee Association, and the affected allottees who own property in the proposed Corridor Alternative 1. The project team undertook a survey of potentially affected allottees and invited them to various meetings to determine their willingness and interest in further studying a possible future Sonoran Corridor on their lands, following a process used by the Bureau of Indian Affairs (BIA) for right-of-way approvals for infrastructure projects on Tribal lands. As a result of that survey, there was a lack of support based on land ownership percentage of each affected parcel.

Lastly, Corridor Alternative 1 performed well regarding travel time reduction (15.9 minutes) but serves a smaller number of areas of growth in the study area and has a lower benefit to congestion reduction (5.4% reduced study area network volume-to-capacity [V/C] ratio) when compared to the Preferred Alternative. So, after considering this, along with the lack of support from affected tribal allottee owners, Corridor Alternative 1 was not preferred over Corridor Alternative 7.

3.1.2 Corridor Alternative 8A

Corridor Alternative 8A follows the same route as Corridor Alternative 7 from I-19 in Sahuarita, turning north along the Alvernon Way alignment before turning east and terminating at an interchange with I-10 at Houghton Road. Although, Corridor Alternatives 7 and 8A show a reduced V/C thus resulting in an improved 2045 Level of Service and provide a system linkage that substantially reduces travel times when compared to the No-Build Alternative, Corridor Alternative 8A is located a further distance from activity centers when compared to Corridor Alternative 7 which is evident based on an analysis that was completed. The total distance between the corridor alternatives and 27 identified activity centers within and near the study area was summed up as shown in Table FEIS-2. The sum of the distance to the

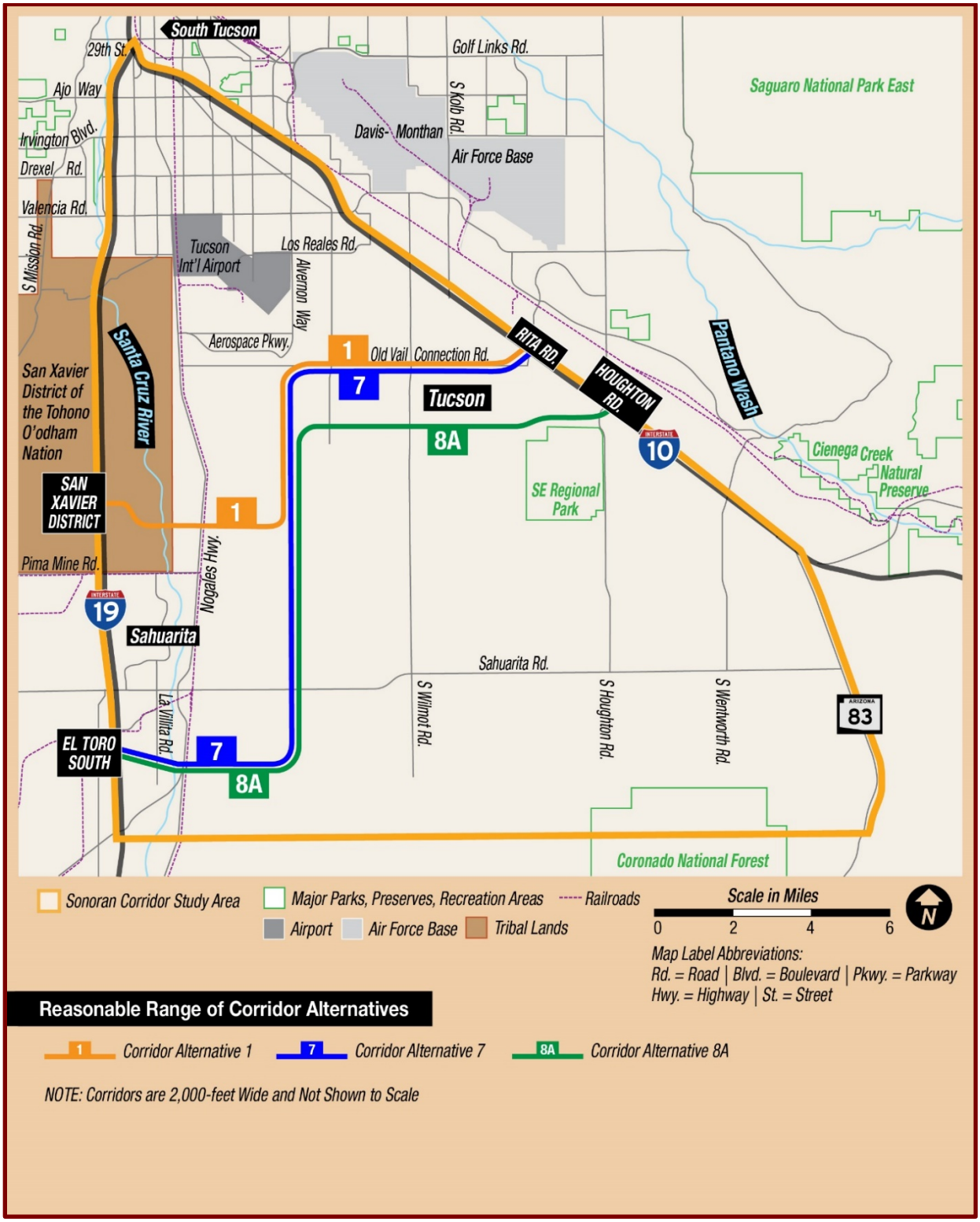
nearest point on the corridor alternative was considered to measure how effectively each corridor alternative serves various activity centers within and near the study area. Corridor Alternative 7 had a sum of 66.59 miles while Corridor Alternative 8A had a sum of 75.72 miles. In this case, the shorter distance indicates better service to activity centers.

In addition, twice as many respondents favored Corridor Alternative 7 over Corridor Alternative 8A, based on input received from the public and agencies during public review and comment period. Among the agencies and public whose comments indicated a specific preference, twice as many (10) indicated support for Corridor Alternative 7 over those favoring Corridor Alternative 8A (5). Also, as shown in Table FEIS-1, Corridor Alternatives 7 and 8A cumulatively result in similar environmental impacts but Corridor Alternative 8A has a higher number of residential units within the corridor area thus resulting in a potentially higher number of relocations and displacements when compared to Corridor Alternative 7. Lastly, Corridor Alternative 8A is the longest of the three corridor alternatives, so it is assumed that Corridor Alternative 8A could potentially result in a higher construction cost compared to Corridor Alternative 7. For these reasons, Corridor Alternative 8A was not preferred over Corridor Alternative 7.

3.1.3 No-Build Alternative

The No-Build Alternative includes existing and planned transit services; highway, bicycle, pedestrian, and transit facilities; and railroad improvements that are proposed to exist in 2040 and are included in the fiscally constrained Long Range Transportation Plan adopted by the Pima Association of Governments (PAG), known locally as the 2040 Regional Mobility and Accessibility Plan (RMAP). However, the No-Build Alternative excludes the Sonoran Corridor and with other transportation investment proposed in the Study Area limited does not meet the Need and Purpose for the proposed action. Therefore, it was not identified as the Preferred Alternative.

Figure FEIS-2. Reasonable Range of Alternatives Analyzed in the Draft Tier 1 EIS



3.2 Comparison of Transportation and Potential Environmental Consequences

This section discusses the potential transportation and environmental consequences of constructing and operating a highway facility within the Preferred Alternative, as compared to the No-Build Alternative.

Table FEIS-1. Effects and Benefits of Corridor Alternatives Compared to the No-Build Alternative, Highlighting the Preferred Alternative

RESOURCE TOPIC	CORRIDOR ALTERNATIVE 1	*PREFERRED CORRIDOR ALTERNATIVE 7*	CORRIDOR ALTERNATIVE 8A
System Linkages and Mobility Improvement 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
Access to High-Growth Areas and Activity Centers	Provides direct access to areas of greatest growth in the northerly portion near TUS and I-10	Provides direct access to areas of greatest growth in the northerly portion near TUS, I-10, and the Town of Sahuarita	Is farther from areas of greatest growth in the northerly portion near TUS and I-10, but serves Town of Sahuarita
Land Use and Jurisdiction	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 2,000-foot corridor	54 residential units were identified within the 2,000-foot corridor	Approximately 100 residential units were identified within the 2,000-foot 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 include 3 Superfund	42 total sites include 3 Superfund	11 total sites

RESOURCE TOPIC	CORRIDOR ALTERNATIVE 1	*PREFERRED CORRIDOR ALTERNATIVE 7*	CORRIDOR ALTERNATIVE 8A
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 detrimental habitat fragmentation and wildlife movement
Water Resources	72,185 linear feet of ephemeral washes; 53 acres potential wetlands Does not meet practicability considerations associated with Section 404(b)(1) of the CWA	211,811 linear feet of ephemeral washes; 9 acres potential wetlands Has an ability to meet all considerations associated with Section 404(b)(1) of the CWA	220,569 linear feet of 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 FEIS-1 are for a 2000-foot-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-foot 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.

3.3 How Alternatives Satisfy the Need and Purpose

Table FEIS-2. Need and Purpose Measures and How Each Corridor Alternative Performs

NEED AND PURPOSE	MEASURES	NO-BUILD ALTERNATIVE	CORRIDOR ALTERNATIVE 1	CORRIDOR ALTERNATIVE 7	CORRIDOR ALTERNATIVE 8A
Serve Population and Employment Growth					
Need: High-growth areas and existing activity centers need access to an improved transportation network. Purpose: Provide a high-priority, high-capacity transportation corridor to serve population/employment growth and existing and new employment centers.	• 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)	• Will not serve growth area and identified employment centers in the study area. • Will not improve access to activity centers	• 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 miles[1] - Improves access to activities in the northerly portions of study area	• 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 miles[1] – Improves access to activities in the northerly portions of study area and within Sahuarita	• Provides direct access to areas of greatest growth in the Town of Sahuarita. Will not directly serve employment centers at and near TUS and I-10. • 75.62 miles[1] - Improves access to activities in study area mainly within Sahuarita
Reduce Traffic Congestion					
Need: Improve forecast capacity shortages in the study area. Purpose: Improve 2045 LOS (V/C) to reduce congestion in study area by 2045.	• Changes to overall 2045 LOS (V/C) within study area	• Will not reduce congestion	• Reduces V/C by 5.4% compared to No Build	• Reduces V/C by 12.2% compared to No Build	• Reduces V/C by 13.8% compared to No Build
Improve System Linkages					
Need: Lack of system linkages south of TUS inhibits efficient regional interstate and international mobility in the study area 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	• Change in travel times in and near study area • Change in 2045 VMT and VHT compared to No-Build	• Will not reduce travel times or affect VMT/VHT	• Reduces travel time by 15.9 minutes compared to No Build • Increases VMT and reduces VHT in study area.	• Reduces travel time by 16.6 minutes compared to No Build • Increases VMT and reduces VHT	• Travel time 17.8 minutes shorter than No Build • Increases VMT and reduces VHT

[1] Shorter distance means better connection to centers

LOS = level of service; V/C = Volume to Capacity ratio; CSR = Corridor Selection Report; VMT = vehicle miles traveled; VHT = vehicle hours traveled; TUS = Tucson International Airport;

Population and Employment Growth

The Preferred Alternative would enhance access to the most existing and future activities in the areas where growth of population and employment forecasts are identified in the local jurisdictions' plans, compared to Corridor Alternative 1 and Corridor Alternative 8A. The many existing and future activity centers providing employment, shopping, institutional services, education, etc., within the study area would benefit most from the Preferred Alternative in organizing and streamlining transportation movements in the study area to serve the local and regional communities.

Congestion Reduction

The corridor alternatives all improve upon the congestion levels of the No-Build Alternative and improve the LOS for 2045 over that of the No-Build Alternative. The Preferred Alternative does so more effectively than Corridor Alternative 1 and just slightly less than Corridor Alternative 8A.

System Linkages

All corridor alternatives provide an additional system linkage south of TUS to the existing transportation system that reduces travel times substantially compared to the No-build Alternative. In addition, all corridor alternatives show a decrease in vehicle hours traveled (VHT) and an increased vehicle miles traveled (VMT). This shows that more miles are travelled in a day but in less time, thus resulting in more trips being made compared to the No Build Alternative. The reduction in travel times, coupled with a decrease in VHT and an increase in VMT, indicates that the addition of the Sonoran Corridor enhances international, interstate, and regional mobility.

4 Public Involvement Summary

4.1 Notice of Availability

A NOA for the Draft Tier 1 EIS was published on November 6, 2020 in the Federal Register (https://www.federalregister.gov/documents/2020/11/06/2020-24695/environmental-impact-statements-notice-of-availability). The NOA informed interested parties that the Draft Tier 1 EIS for the Sonoran Corridor Study was available for public review through January 8, 2021 and indicated where comments could be sent. In accordance with 23 USC 139(g)(2)(A), FHWA extended the public review period to a total of 63 days to account for federal holidays that occurred during the public review period. These federal holidays included Thanksgiving, Christmas, and New Year's Day. The public review period was intended to encourage participation from the public through their review and input on the findings presented in the Draft Tier 1 EIS. The Draft Tier 1 EIS provided information on the two public Involvement events, one public hearing and one virtual public engagement event, and invited comments through multiple means. Comments on the Draft Tier 1 EIS could have been provided via the following:

- 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

In accordance with 23 CFR 771.123(g), the Draft Tier 1 EIS was first made available to agencies and the public to view and download concurrent with publication of the NOA, at https://azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/documents, and in printed form for review only and at no charge, at the following locations:

- ADOT Southcentral District Office, 1221 S. Second Ave., Tucson, AZ 85713 between 8 a.m. and 5 p.m. weekdays by appointment.
- Sahuarita Town Hall, Clerk's Office, 375 W. Sahuarita Way, Sahuarita, AZ between 8 a.m. and 5 p.m. weekdays.
- Joyner-Green Valley Library, 601 N. La Canada Dr., Green Valley, AZ.
- Joel D. Valdez Main Library, 101 N. Stone Ave., Tucson AZ, 85701.

Hard copy versions of the Draft Tier 1 EIS were available for purchase and pick up at The UPS Store, 2004 E. Irvington Road, Tucson, AZ 85714, 520.889.0077.

A hard copy version also could have been ordered online at www.FedEx.com, with delivery at requestor's expense.

Notification by letter was also made to agencies and stakeholders soliciting comments. A notification letter was sent to all Section 106 consulting parties as well. A list of agencies and entities that received notification letters of the Draft Tier 1 EIS availability is provided below. In addition, a notification was also sent to all potentially affected tribal allottee owners. The notification can be found in Appendix D.

Cooperating Agencies

Federal Aviation Administration (FAA)

U.S. Army Corps of Engineers (Corps)

U.S. Bureau of Reclamation (Reclamation)

U.S. Environmental Protection Agency (EPA)

Arizona Game and Fish Department (AGFD)

Participating Agencies

Bureau of Indian Affairs (BIA)

Bureau of Land Management (BLM)

Federal Emergency Management Agency (FEMA)

Federal Railroad Administration (FRA)

National Park Service (NPS)

U.S. Air Force (USAF), Davis-Monthan Air Force Base

U.S. Customs and Border Protection (CBP)

U.S. Department of Agriculture (USDA)

U.S. Fish and Wildlife Service (USFWS)

U.S. Forest Service (USFS), Coronado National Forest

Western Area Power Administration (Western)

Arizona Air National Guard (AANG)

Arizona Corporation Commission (ACC)

Arizona Department of Corrections (ADOC)

Arizona Department of Environmental Quality (ADEQ)

Arizona Department of Public Safety (ADPS)

Arizona Department of Water Resources

Arizona State Land Department (ASLD)

Arizona State Historic Preservation Office (SHPO)

Arizona State Parks and Trails

Pima Association of Governments (PAG)

Tucson Airport Authority (TAA)

Pima County

Pima County Flood Control District
City of South Tucson
City of Tucson
Green Valley Council
Town of Sahuarita

Section 106 Consulting Parties

Arizona Board of Regents
Ak-Chin Indian Community
Arizona Department of Corrections
Arizona State Land Department
Arizona State Museum
Bureau of Indian Affairs
Bureau of Land Management
City of South Tucson
Federal Aviation Administration
Gila River Indian Community
Hopi Tribe
Mescalero Apache Tribe
National Park Service
Pascua Yaqui Tribe
Pima County
Pima County Flood Control District
Tohono O'odham Nation
Town of Sahuarita
State Historic Preservation Office
Salt River Pima-Maricopa Indian Community
Tucson Airport Authority
Tucson Electric Power
Tonto Apache Tribe
Trico Electric Cooperative
City of Tucson
Union Pacific Railroad
U.S. Army Corps of Engineers

Western Area Power Administration

Yavapai Apache Nation

4.2 December 2020 Public Hearing and Virtual Public Engagement

CEQ regulation (40 CFR § 1506.9) and FHWA regulation (23 CFR 771.111) defines public involvement requirements that must be upheld to satisfy the requirements of the NEPA process. In addition, FHWA regulation at 23 CFR 771.123(h) further defines public involvement requirements for a draft EIS that must be met by stating that the document must be made available to the public for a minimum of 15 days in advance of the public hearing that is to be held. The Draft Tier 1 EIS was made available to the public on November 6, 2020 and the project team held a public hearing and virtual public engagement on December 1, 2020 and December 3, 2020, respectively.

During the hearing, project materials were made available, including the Draft Tier 1 EIS with appendices, exhibits, and a project and Draft Tier 1 EIS overview video presentation. Upon arrival, attendees were given the opportunity to sign up to speak and provide verbal comments. All exhibits, sign-in forms, and speaker registration cards provided at the meeting can be found in Appendix B of this Final Tier 1 EIS.

During the virtual engagement, links were made available to project materials, including the Draft Tier 1 EIS with appendices, exhibits, and a project and Draft Tier 1 EIS overview video presentation. Those calling into the virtual engagement were given the opportunity to speak and have their comments included in the public record.

A total of 114 individuals attended at least one of the two public hearing/engagement events. Of these attendees, 11 speakers provided verbal comments. Transcript copies of both events are provided in Appendix F.

4.2.1 Limited English Proficiency (LEP) Communities

Analysis showed that the study area included a Spanish-speaking LEP population and, consistent with previous meetings, ADOT hosted a Spanish language hotline as part of the Draft Tier 1 EIS public comment period outreach efforts. Additionally, Spanish interpreters were available at the public hearing and virtual public engagement events. Finally, Spanish language materials were available to ensure equal opportunity and access for LEP populations. These materials included the following:

- Meeting Notifications
- Project Fact Sheet
- Public Comment Form
- Sign-In Sheet

4.3 Continuous Engagement

ADOT announced the availability of the Draft Tier 1 EIS and public hearing and virtual engagement through various media channels, including paid newspaper advertisements, emailed press releases, Gov Delivery alerts to over 15,000 subscribers, Facebook and Twitter posts, and the Nextdoor app for users

along I-19 and I-10. The full list of advertisements is provided in Appendix B. In addition to media placements, ADOT also sent the project updates electronically to members of the public who provided email addresses at previous public meetings. The digital project updates are available in Appendix B.

Throughout the 63-day comment review period, the project team received comments from 70 citizens, and 13 agencies and stakeholders. Comment letters on the Draft Tier 1 EIS received from agencies and stakeholders can be found in Appendix D of this FEIS/ROD. Responses to all agency comments are presented in Appendix E, and a summary of substantial agency comments is provided just below. Responses to all public comments are presented in Appendix F.

4.4 Substantive Agency Comments on the Draft Tier 1 EIS

Comments were received from various federal, state, regional, and local agencies. The following summarizes the most notable content of those comments or comment themes. The full table of all comments received from public agencies and the associated response from ADOT and FHWA is included in Appendix F of this Final EIS.

Substantive comments on the Draft Tier 1 EIS resulted in additions, deletions, or changes to the Draft Tier 1 EIS shown as errata in this Final Tier 1 EIS in Section 5. Following is a summary of these substantive comments:

Juan Bautista de Anza National Historic Trail -

The NPS noted specific potential impacts to the Juan Bautista de Anza National Historic Trail which the Sonoran Corridor would cross and how any such impacts should be mitigated as the project moves forward.

Water Resource Projects in the Study Area -

The BOR wanted to ensure recognition of various water and irrigation projects in the area and the potential effect of the Sonoran Corridor on BOR projects in the study area.

Preference for a Different Alternative Based on Potential Impact on Resources -

The AGFD was appreciative of the inclusion of their comments in the DEIS but indicated a continuing preference for Alternative 1 over Alternative 7 to minimize impacts on sensitive biological resources.

Potential Impacts to Specific Threatened or Endangered Species -

The USFWS mentioned the need to ensure preservation of sensitive and protected species in the study area such as the Pima pineapple cactus and the Tumamoc globeberry. Their preference for Alternative 1 recognized the shorter length of the alternative with the potential to affect the sensitive resources. They also commented about the tiered NEPA process using preliminary data to advance an alternative to the next phase of study.

Impacts to Other Biological Resources -

Pima County noted a variety of additional biological resources that should receive species-specific mitigation including the yellow-billed cuckoo, the Sonoran Desert tortoise, the mesquite mouse, and the Sinaloan narrow-mouthed toad.

Coordination with New Power Line Construction along a Portion of the Selected Corridor -

Tucson Electric Power, joined by the City of Tucson and the Tucson International Airport, provided detailed information about a new TEP/WAPA power corridor within the study area and along a portion of the Selected Alternative.

Request for Coordination with COE and ADEQ regarding former USDOD Practice and Testing Bombing Ranges in the Study Area -

ADEQ requested the document more fully disclose the existence of former bombing ranges within the Selected Alternative and the potential presence of unexploded ordnance associated with them.

4.5 Summary of Public Comment Topics

Public comments received on the Draft Tier 1 EIS generally addressed the following topics, among others:

Support for the Preferred Alternative, Another Corridor Alternative, or All Corridor Alternatives -

Some members of the public commented simply to voice their support of the Draft Tier 1 EIS findings and the identified Preferred Alternative. Others stated their preference for either Corridor Alternative 1 or 8A, and still others commented to advocate the construction of any of the three Corridor Alternatives analyzed in the Draft Tier 1 EIS.

Support for the No-Build alternative -

Several commenters supported the No-Build Alternative, voicing their general opposition to moving forward into Tier 2 with any of the Corridor Alternatives. Several had specific questions about the identified Need and Purpose for the Sonoran Corridor.

Concerns about Impacts Resulting from Construction of the Proposed Sonoran Corridor -

Some commenters had questions about the impacts of constructing a new highway to residential property, cultural resources, and wildlife (including wildlife crossings), and existing and planned trails that a Tier 1 analysis only addresses in general terms as a precise alignment is not identified within the 2,000-foot-wide corridor alternatives during Tier 1.

Concerns about Impacts Resulting from Operation of the Proposed Sonoran Corridor -

Some commenters had questions about the impacts of operating active traffic on a proposed new highway such as traffic noise, air quality, and light pollution

Questions about the Proposed Project's Configuration and Potential for Non-Vehicular Improvements -

Public comments included questions about the proposed Sonoran Corridor accommodating bicycle and pedestrian travel, location of traffic interchanges, and extending utilities into undeveloped areas.

5 Errata from Draft Tier 1 EIS

This section contains additions or changes to the text presented in the Draft Tier 1 EIS to revise, clarify, further discuss, or make corrections based on public and agency comments. This document should be used in conjunction with the Draft Tier 1 EIS (Appendix A), and the changes as stated below add to or supersede what was included in the published Draft Tier 1 EIS to form the Final Tier 1 EIS. Physical locations where the Draft Tier 1 EIS can be found were listed in Section 1.2 of this Final Tier 1 EIS.

Section numbers and headings, as well as page numbers of the original text in the Draft Tier 1 EIS, are provided to indicate where the changes were made. Deleted text is identified in strikethrough (~~strikethrough~~), and new or revised text appears in red. Where applicable, the entire paragraph/numbered section from the Draft Tier 1 EIS has been included to provide context for the changes.

- A global change applies to all text in the Draft Tier 1 EIS and is not presented in the errata: The use of "would" in reference to the Preferred Alternative, or future construction and operation of a Sonoran Corridor transportation facility, are changed to "will."
- No revisions, clarifications, or corrections were required for Chapter 1, Need and Purpose, or Chapter 4, Coordination and Outreach, of the Draft Tier 1 EIS, other than the global change noted above.

The Table FEIS-3. Errata to the Draft Tier 1 EIS, below, lists additions, deletions, and changes made to Chapters 2, 3, and 5 and the References of the Draft Tier 1 EIS, based on public and agency comments.

Table FEIS-3. Errata to the Draft Tier 1 EIS

Section	Page, Location	Errata	Explanation/Reason for Change
1.3.1	Page 1-7, 4th paragraph	In a 2016 Long-Range Transportation Plan ~~progress u~~Update (ADOT, 2016a), Arizona's economic outlook was forecast to outpace the nation in terms of jobs, population, and real income growth. Economic growth on this scale would result in impacts to the existing multimodal transportation system. In addition to highways, rail facilities and services exist within the study area and are part of the Arizona State Freight Plan (ADOT 2016). In addition, comments on the Tier 1 EIS for the ADOT Passenger Rail Corridor Study, Tucson to Phoenix advocated potential passenger rail access to TUS (ADOT, 2016b). These independent studies examined future needs regarding rail service within or near the study area and, as a result, the potential of a future rail connection is maintained as an option in the corridor cross-section.	Corrected document name.
2.7	Page 2-36, 2nd paragraph	Potential mitigation measures or next steps relate to the ability to assess the impact of a fully developed corridor alignment and refine it to more thoroughly understand the social, environmental, and economic effects on the region. For example, in analyzing the economic competitiveness of the proposed corridor alternatives, the underlying assumptions of the project structure and the forecast modeling for the No-Build Alternative and the corridor alternatives are limited to the data developed at a Tier 1 level of analysis. The traffic data provided by the current forecast modeling do not fully capture the effects of a phased construction schedule on user behavior. The incremental benefits of constructing the project in phases defined by Segments of Independent Utility (e.g., a connection between TUS and I-10, which performs effectively in this Draft Tier 1 EIS analysis) will provide a more realistic measure of the economic influence of the corridor on the region over time. By closely evaluating the changes in traffic conditions before and during a phased implementation plan, the baseline traffic conditions in the study area preceding completion of the project can be assessed with greater precision, rather than evaluate the change from the baseline year (2017) to the forecast year (2045). As the effect of the project improvements is considered to be significant for traffic on the highways and local arterial roads in the study area, the higher level of precision in the baseline conditions will improve capture of any net benefits from a new highway facility within one of the corridor alternatives over the No-Build Alternative during the phased construction and after the start of full operations. Appendix G of the Final Tier 1 EIS describes a high-level analysis of a Phased Implementation Plan for the Sonoran Corridor that can provide guidance for the more detailed work for a Tier 2 environmental analysis.	Updated to include location of Phased Implementation Plan
3.2.3.1	Page 3-12, 1st paragraph	Land Management and Special Designated Lands This section discusses major land management in the study area and special designated lands, such as wildernesses, national monuments, areas of critical environmental concern, designated roadless areas, and other deeded properties. Less than half the study area is private land, and differing land regulations apply to use of the other lands for transportation purposes. Some land managers, like ASLD, may see a new transportation corridor as a benefit and asset to their properties, providing access to developable, non-sensitive lands. Others, such as NPS, who developed the de Anza National Historic Trail Comprehensive Management and Use Plan (CMUP), may feel a high-capacity highway would have negative impacts, such as increased traffic, noise, pollution, or wildlife habitat fragmentation. These considerations will need to be balanced if the Sonoran Corridor moves into a Tier 2 analysis.	Updated to address comments from the National Park Service.
3.2.3.1	Page 3-12, 4th paragraph	The study area is nearly half State Trust Land and one-third private land. Smaller parcels of land are managed by BLM, US Forest Service, SXD, City of Tucson, and Pima County. No US Forest Service Coronado National Forest lands are within any of the corridor alternatives. NPS has jurisdiction over the proposed Juan Bautista de Anza National Historic Trail alignment within the study area.	Updated to address comments from the National Park Service.
3.2.4.1	Page 3-17, 2nd paragraph	Segment 2 is aligned in an east/west manner from its terminus with I-19 in the SXD to the Alvernon Way alignment. Approximately 2.5 miles and 577 acres of Segment 2 are located within the SXD. ~~This land is undeveloped and currently not planned beyond an irrigation support system for an extension of the San Xavier Cooperative Farms associated with the Bureau of Reclamation (BOR)'s assessment of Central Arizona Project (CAP) reliability alternatives.~~ This land is undeveloped but a portion of it has been identified in one of the alternatives presented in the Bureau of Reclamation's Appraisal Study for a San Xavier CAP Reliability project. The balance of Segment 2 is located within unincorporated Pima County and the City of Tucson. It is approximately 3 miles long and covers approximately 770 acres. Currently, this land is undeveloped or being utilized for resource extraction and mining. Future land use plans for Pima County designate this area as residential. The property located within the City of Tucson is designated as the Southlands, which is a long-range growth area for the city. The Southlands are predominantly formed by large tracts of undeveloped state land held in trust by ASLD. Prior to releasing these lands for sale, the state will initiate planning efforts that reflect the existing conditions relevant to the property. The Sonoran Corridor could be a factor in ASLD's future land planning and therefore would not likely impact subsequent land use plans.	Updated to address comments from the Bureau of Reclamation.
3.2.6	Page 3-21, last paragraph	Future Tier 2 studies would address specific effects to property, zoning regulations, neighborhoods, and community facilities. The approach to determining acquisitions, easements, and displacements, including ownership (public or private), would be determined as part of project-level Tier 2 environmental studies. These project-level studies also would address compliance with the URA and 23 CFR § 710.501, Early Acquisition. URA compliance ensures that property owners (residential and business) receive fair market value for their property and relocation benefits, and that displaced persons receive fair and equitable treatment and do not suffer disproportionate hardships because of programs designed for overall public benefit.	Revised per ADOT Environmental Planning to add the reference to the federal regulations that apply to acquisitions.
3.4	Page 3-37, Heading	3.4 Environmental Justice, Title VI, and Other Nondiscrimination ~~Statutes~~ Requirements	Revised per ADOT Civil Rights Office to align with topics covered.
3.4.4	Page 3-48, all but last paragraph	~~Title VI, LEP, and other nondiscrimination statutes~~ Census data ~~was~~ were reviewed to identify the presence of low income and minority populations, LEP persons, and the groups identified as secondary EJ indicators ~~Title VI, LEP, and other nondiscrimination statute populations~~ within the corridor alternatives and is presented in the following sections. The corridor alternatives were reviewed by segments and those segments were analyzed to the block group level. The results were based on the average of those block groups. LEP persons are present in all segments.	Revised per ADOT Civil Rights Office to clarify and correct references to specific affected populations and commitments for future phases of the project.

Section	Page, Location	Errata	Explanation/Reason for Change
		A variety of resources have been made available to allow collection of public comment throughout the environmental review process, as detailed in Section 4.2.2~~, and with Title VI, LEP, and other nondiscrimination protected populations (see Section 4.2.3)~~. To ensure access to meaningful participation opportunities for the public, including low income and minority populations and LEP persons, ~~compliance with Title VI, LEP, and other nondiscrimination statutes,~~ ADOT has developed a *Language Access Plan* (LAP) ~~as well as~~ and a *Public Involvement Plan* (PIP) ~~to outline ways to better engage those populations~~. Based on the results of the census data, and in accordance with the LAP and PIP, it was determined that Spanish language translation and interpretation services would be necessary throughout the public involvement process. ~~Several measures have been implemented by ADOT and FHWA to provide resources to Spanish language speakers, as outlined in Section 4.2.3. In addition to language services, Section 4.2.3 highlights other measures and techniques that were implemented to engage Title VI, LEP and other nondiscrimination statute populations throughout the public process.~~ ~~Environmental Justice~~ ~~Similar to Title VI, LEP, and other nondiscrimination statutes, each segment was analyzed for areas with high concentration of minority or low-income populations. The segments were analyzed to the block group level and their results based on the average of those block groups.~~	
3.4.5	Page 3-52, 2nd and 3rd paragraphs	The identification of disproportionately high and adverse effects on minority or low-income populations cannot be determined until a specific Tier 2 alignment is identified~~ if a corridor alternative is chosen~~. While a determination of disproportionately high and adverse effects on identified minority and low-income populations has~~ve~~ not been included in this Draft Tier 1 EIS, these populations were found to exist within all corridor alternatives. Community impact assessment evaluations will~~would~~ be necessary during the Tier 2 study when more project details become available. Community impact assessment evaluations help identify the effects of a transportation action on a specific community and its quality of life. They also inform the Environmental Justice Analysis process, which will be required in the Tier 2 project studies. Additionally, during Tier 2 project studies, input from ~~minority or low-income populations~~ potentially affected communities will ~~would~~ need to be considered ~~before making any future disproportionately high and~~ in identifying adverse effects or ~~determinations or identifying offsetting~~ benefits. Subsequent Tier 2 actions will ~~would~~ include a reevaluation of demographic data. As there are minority and low-income populations within the corridor alternatives, ~~if a corridor alternative is identified as the Preferred Alternative,~~ specific EJ outreach plans will ~~would~~ be developed and implemented for Tier 2 project studies.	Revised per ADOT Civil Rights Office to clarify and correct references to specific affected populations and commitments for future phases of the project.
3.6.1.5	Page 3-63, last paragraph	Other laws may apply depending on land status within each corridor. Laws such as the *American Indian Religious Freedom Act, Archaeological Resource Protection Act,* and *Native American Graves Protection and Repatriation Act* govern federal and Tribal lands, whereas land owned or controlled by the state of Arizona are subject to applicable state laws. Pima County Board of Supervisors Policy C.3.17 provides additional protections for cultural resources owned by the county. Additional local policies, ordinances, and resolutions may apply to Tier 2 projects, which should be considered during future stages of analysis. Table 3-19 summarizes the applicable laws, regulations, and executive orders that pertain to the treatment of cultural resources.	Updated to include local policies per comment from Pima County
3.6.1.5	Table 3-19, appended row to end of table	**REGULATION** / **SUMMARY** Pima County Board of Supervisors Policy on Protection of Cultural Resources (Policy No. C.3.17) / Provides additional protections for cultural resources owned by Pima County and establishes an administrative procedure to ensure Pima County considers the effects of its projects on cultural resources and pursues opportunities to avoid or minimize adverse effects to such resources.	Added policy to table per comment from Pima County
3.6.2	Page 3-66, first paragraph	The analysis considers three categories of cultural resources: (1) archaeological sites and historic structures; (2) historic buildings, trails, and landscapes; and (3) TCPs. Archaeological sites ~~are defined as~~include places, features, and associated artifacts representing past human activity that date to the prehistoric, ~~protohistoric,~~ or historic periods. Archaeological sites would also include such locales dating to the protohistoric period; however, no such sites are known to exist within the Tier 1 corridors. ~~In Arizona~~For purposes of this analysis, historic structures such as roads, utilities, and canals are documented as a type of archaeological site, regardless of whether or not they have been designated with a site number by the Arizona State Museum. ~~Accordingly, historic structures are treated as such for the purposes of this analysis.~~ This section presents a summary of the steps followed in the Section 106 process and an outline of the methods of collection used for each data class.	Revised paragraph per comments from Pima County
3.6.2.1	Page 3-66, 5th paragraph	For this Tier 1 analysis, the three 2,000-foot-wide ~~Build~~ Corridor Alternatives ~~were considered to be~~together constitute the preliminary APE. This approach provided a basis for generally characterizing and comparing the potential likelihood of impacts on cultural resources. Specific footprints for new highways would not be identified until subsequent Tier 2 projects are planned and designed if a corridor alternative is selected. It is during this time the Tier 1 APE would be redefined, and APEs for direct and indirect effects would be defined. ~~a~~A determination of effect would be made in conjunction with NEPA studies for each Tier 2 project.	Revised paragraph per comments from Pima County
3.6.2.3	Page 3-67, 4th paragraph	While the determination of effects on cultural resources historic properties is not being made at this time, the Class I Survey indicates the Sonoran Corridor has the potential to affect cultural resources historic properties during the Tier 2 phase. Accordingly, a Section 106 PA is being developed by FHWA and ADOT in coordination with Consulting Parties. The Section 106 PA is a legal document that establishes agreed-upon measures to ensure continued compliance with Section 106 and resolving adverse effects to ~~cultural resources~~ historic properties. A draft document of the Section 106 PA is being circulated as part of the Draft Tier 1 EIS for review and comment, and will be executed at the	Revised per ADOT Historic Preservation Team. The Programmatic Agreement (PA) applies specifically to historic properties as legally defined in 36 CFR 800.16(l), and corrected typo (missing word).

<table>
<tr><th>Section</th><th>Page, Location</th><th>Errata</th><th>Explanation/Reason for Change</th></tr>
<tr><td></td><td></td><td>end of this Tier 1 process. Execution of the Section 106 PA demonstrates the commitment to and continued compliance with the Section 106 process, which is necessary prior to the issuance of a ROD. See Appendix E for the Draft PA.</td><td></td></tr>
<tr><td>3.6.2.6</td><td>Page 3-69, 2nd paragraph</td><td>The meetings were mainly informative, but no TCPs were identified within the corridor alternatives under consideration. Meeting participants advised that many TON members had expressed concern about impacts to archaeological sites. Alternative 1 was developed in early coordination with the TON THPO in an effort to minimize impacts to archaeological sites within SXD lands. As previously discussed, FHWA and ADOT are developing a Section 106 PA that includes measures for resolving adverse effects to ~~cultural resources~~ historic properties. The TON THPO, as well as other tribes, has been invited to participate in the Section 106 PA. No major unresolved concerns remained regarding the current study; however, dialogue with Tribes is ongoing and meaningful consultation must continue.</td><td>Revised per ADOT Historic Preservation Team. The Programmatic Agreement (PA) applies specifically to historic properties as legally defined in 36 CFR 800.16(l).</td></tr>
<tr><td>3.6.3.1</td><td>Page 3-70, Table 3-22 and paragraph following</td><td>Table 3-22. Estimated Total Archaeological Resources per Corridor Alternative
<table>
<tr><th>CORRIDOR ALTERNATIVE/ SEGMENT</th><th>ACREAGE</th><th>PERCENT SURVEYED</th><th>ARCHAEOLOGICAL SITES[1]</th><th>~~AVERAGE RESOURCE DENSITY PER ACRE[2]~~</th><th>ESTIMATED TOTAL RESOURCES[32]</th><th>TOTAL ACREAGE OF KNOWN ARCHAEOLOGICAL SITES</th></tr>
<tr><td colspan="7">Corridor Alternative 1</td></tr>
<tr><td>Segment 2</td><td>1,261</td><td>67</td><td>16</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 3</td><td>638</td><td>72</td><td>8</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 5</td><td>2,018</td><td>45</td><td>15</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>3,917</td><td>58</td><td>39</td><td>~~0.009~~</td><td>52-63</td><td>95.83</td></tr>
<tr><td colspan="7">Corridor Alternative 7</td></tr>
<tr><td>Segment 1</td><td>2,560</td><td>12</td><td>10</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 3</td><td>638</td><td>72</td><td>8</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 5</td><td>2,018</td><td>45</td><td>15</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>5,216</td><td>32</td><td>33</td><td>~~0.006~~</td><td>58–83</td><td>34.39</td></tr>
<tr><td colspan="7">Corridor Alternative 8A</td></tr>
<tr><td>Segment 1</td><td>2,560</td><td>12</td><td>10</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 3</td><td>638</td><td>72</td><td>8</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Segment 4</td><td>2,090</td><td>49</td><td>21</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>5,288</td><td>32</td><td>37</td><td>~~0.007~~</td><td>62-78</td><td>70.53</td></tr>
</table>
Source: Langan et al., 2020
[1] Includes all sites identified through data collection regardless of National Register eligibility status.
[2] ~~Average number of known sites per acre based on previous survey data~~
[3] Derived from the density of archaeological sites within and near the study corridor found in AZSITE and ARO records

As shown in Table 3 22, the number of known sites in each segment is relatively low overall~~, and density varies considerably between segments~~. The low number of resources is most likely due to the small percentage of each corridor alternative's area covered by previous surveys. Site density can vary depending on the terrain—sites being less common on steep slopes, for example. Terrain within the study corridor is fairly uniform, however, with elevations varying between 3,000 feet and 3,110 feet above mean sea level (AMSL).</td><td>Deleted Resource Density column and corresponding text per ADOT Historic Preservation Team, as this information is not directly correlated with other data in the table and could be misinterpreted.</td></tr>
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<table>
<tr><th>Section</th><th>Page, Location</th><th>Errata</th><th>Explanation/Reason for Change</th></tr>
<tr><td>3.6.4.1</td><td>Page 3-79, last paragraph</td><td>Corridor Alternative 8A is identical to Corridor Alternative 7 for most of its length; Corridor Alternative 8A is different only in that it incorporates Segment 4 rather than Segment 5. This combination of segments makes it the longest corridor alternative. Corridor Alternative 8A is also estimated to include a similar total number of known cultural resources (62–78), which suggests that implementing this corridor alternative would pose similar potential impact to cultural resources as Corridor Alternative 7. The alternative crosses the Santa Cruz River Floodplain in Segment 1, an area that could contain buried portions of large prehistoric habitation or agricultural sites; however, no such sites are known to exist within this corridor alternative at this time. The corridor alternative encompasses at least 21 sites that have been recommended or determined eligible for inclusion on the National Register. It is therefore assessed as having a moderate potential to impact cultural resources. Table 3 26 shows the possible impacts created by each corridor alternative on archaeological and historic ~~sites~~ structures.</td><td>Corrected typo per ADOT Historic Preservation Team.</td></tr>
<tr><td>3.7.8</td><td>Page 3-96, all but first and last paragraphs</td><td>With the exception of de minimis impact findings, a feasible and prudent alternative that avoids resources protected under Section 4(f) would be selected. The identification and implementation of measures to minimize ~~harm at each~~ impacts to any Section 4(f) resource need to be conducted in consultation with the ~~owners of the resources~~ Officials With Jurisdiction (OWJ), to ensure that measures to minimize harm do not adversely affect the values of the resources. Examples of potential measures to minimize harm could include the following:
Design construction modifications to avoid encroaching on or bisecting a Section 4(f) resource
Provide an alignment within the 2,000-foot-wide study corridor that avoids the protected property
Provide crossings for trails either under or over the freeway
Shift the 2,000-foot-wide study corridor away from the protected property to accommodate the project without using land from the protected property
Use context-sensitive design in future stages of project development
Incorporate natural design features, such as earthen berms and tree plantings
Allocate replacement of parkland or open space
Modify construction methods to minimize impacts
Develop other measures in consultation with SHPOs, tribes, other consulting parties, and the public
Coordinate with National Park Service and Pima County for any work associated with the Juan Bautista de Anza National Historic Trail</td><td>Updated to address comments from National Park Service and specify consultation with OWJ over the Juan Bautista de Anza National Historic Trail</td></tr>
<tr><td>3.11.3</td><td>Page 3-126, Table 3-34, Hazardous Materials Regulations</td><td><table><tr><th>REGULATION</th><th>DESCRIPTION</th></tr><tr><td>Formerly Used Defense Sites, 10 U.S.C. § 2701 Defense Environmental Restoration Program</td><td>The Department of Defense used land to train and test soldiers and weapons to ensure the nation’s military readiness. The Department of Defense (DoD), through the Corps, is responsible for environmental restoration (cleanup) of properties that were formerly owned by, leased to, or otherwise possessed by the United States (US) and under the jurisdiction of the Secretary of Defense prior to October 1986. Environmental cleanup of formerly used defense sites is conducted under CERCLA. The Tier 2 study for the Sonoran Corridor must coordinate with the Corps early and prior to any field activity regarding clearing of any unexploded ordnance or remaining hazardous materials that could affect safety in the selected corridor.</td></tr></table></td><td>Updated to address communication from Arizona Department of Environmental Quality regarding former DoD training/test sites.</td></tr>
<tr><td>3.11.4</td><td>Page 3-130, 1st paragraph and additional figure following</td><td>In general, the majority of sites and findings were located along Segment 5, and to a lesser extent Segment 4. Most of the findings were for low-priority sites listed as other, followed by hazardous materials/waste sites and then AST/UST/LUST sites. Three sites under the Comprehensive Environmental Response, Compensation, and Liability Act program for Superfund/WQARF website were also identified. These sites were located in areas with a longer development history in the southern outskirts of the Tucson Metropolitan Area, which may increase the possibility of releases of hazardous materials/waste having affected surface/subsurface soil and groundwater. Within Segment 1 there is one site that warrants additional discussion. The former Sahuarita Air Force Range (SAFR) Formerly Used Defense Site is comprised of approximately 27,000 acres east of Sahuarita, Arizona (Figure 3-32a). This site is made up of ranges that were used by the Army Air Corps at Davis-Monthan Field from 1943 to 1958 for bombing and gunnery training. It has been determined that high explosives, practice</td><td>Updated in response to communication from Arizona Department of Environmental Quality regarding former DoD training/test sites; also added Figure 3-32a.</td></tr>
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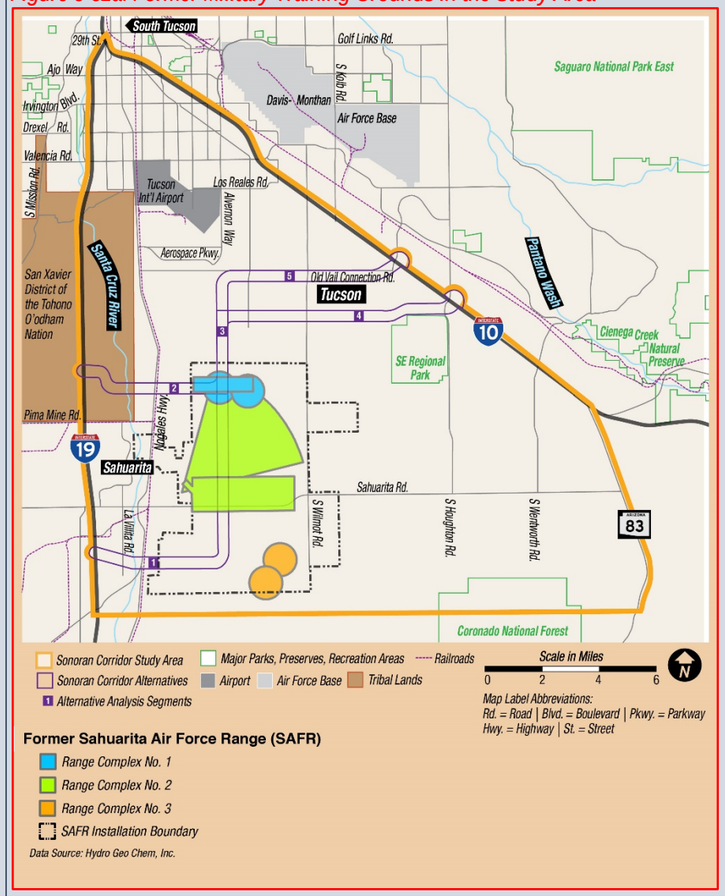
		munitions, and small arms ammunitions were used during Department of Defense use of the site from 1942 through 1978. Munitions debris found at the site has included practice bombs, projectiles, cartridges, links and other munitions debris. The Army Corps of Engineers is currently conducting a Remedial Investigation and Feasibility Study at this project area. *Figure 3-32a. Former Military Training Grounds in the Study Area* 	
3.11.5.2	Page 3-131	Corridor Alternative 7 contains the largest number of regulated findings (42) (refer to Table 3-36) including 9 hazardous materials/waste sites, 4 AST/UST/LUST sites, and 3 Superfund/WQARF sites. In Segment 1, 1 hazardous materials/waste site was identified, with three findings associated with the SAFR former air-to-land bombing range. This site was depicted to be near the eastern limits of the 2,000-footwide corridor and may pose a moderate risk associated with undocumented unexploded ordinance. The remaining findings were located in Segment 5 and are described above in the description for Corridor Alternative 1. No other hazardous materials concerns were observed in Segment 1 during the limited reconnaissance.	Clarification added
3.13.1	Pages 3-140 and 3-141, Table 3-37, Tribal Regulations	REGULATION | DESCRIPTION Tribal	Updated to remove pending status of tribal response

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<tr><th>Section</th><th>Page, Location</th><th>Errata</th><th>Explanation/Reason for Change</th></tr>
<tr><td></td><td></td><td><table><tr><td>Tohono O'odham Nation San Xavier District</td><td>The TON does not have laws or regulations designating special status species or protecting specific biological resources; however, the TON was contacted to determine any biological concerns for Corridor Alternative 1 located on the SXD~~; a response has yet to be received at time of printing~~.</td></tr></table></td><td></td></tr>
<tr><td>3.13.1.3</td><td>Page 3-148, 2nd paragraph</td><td>Species of Economic and Recreational Importance
Some of the more common species associated with the biotic communities within the study area also are AGFD Species of Economic and Recreational Importance (SERI) in the state. The Arizona State Wildlife Action Plan—2012–2022 (AGFD, 2012a) describes five factors that are important in modeling areas for conservation potential. One of the factors is the economic importance of the landscape, which is represented by SERI. This category represents the economic and recreational importance of 13 of Arizona's huntable species. The distribution of these species influences important aspects of wildlife-related recreation and the distribution of consumer spending across the state. Together, the economic and recreational importance of game species to hunters, the community, and AGFD provide a realistic view of the importance of game habitat for conservation. The Arizona State Wildlife Action Plan provides a description of the model and its various elements (AGFD, 2012a). AGFD and the Theodore Roosevelt Conservation Partnership conducted a survey of randomly selected Arizona hunters/anglers asking them to identify the areas of Arizona they most value for hunting and fishing. A map depicting the results of the survey (AGFD, 2016a) suggests that a moderate to low number of participants found portions of the study area to be of value to them for mule deer (*Odocoileus hemionus*), javelina (~~*Pecari*~~ *Tayassu tajacu*), quail species (*Callipepla* spp.), and dove species (*Zenaida* spp.).</td><td>Updated to address comment U.S. Fish and Wildlife Service correcting species name</td></tr>
<tr><td>3.13.1.4</td><td>Page 3-149, 3rd paragraph</td><td>The construction of a new highway within Corridor Alternative 1 would likely not have a significant impact on SERI species since only a moderate to low number of hunters select areas within the study area as high value habitat. In addition, the construction of a new highway within Corridor Alternative 1 may provide new access to public lands in vicinity of the corridor alternative for hunters and anglers to utilize. However, some game species are subject to habitat fragmentation, increased roadkill, and other impacts to wildlife movement as discussed in Section 3.13.4 - Wildlife Connectivity, and Corridor Alternative 1 could have the least effect to wildlife connectivity among the corridor alternatives.</td><td>Updated to address comments from U.S. Fish and Wildlife Service recognizing the possible effect of the project on wildlife habitat and movement.</td></tr>
<tr><td>3.13.1.4</td><td>Page 3-150, 1st paragraph</td><td>As discussed in Corridor Alternative 1, the habitat within the study area is of value to a moderate to low number of hunters. Therefore, the construction of a new highway would likely not have a significant impact on SERI species. In addition, the construction of a new highway within Corridor Alternative 7 may provide new access to public lands in vicinity of the corridor alternative for hunters and anglers to utilize. However, some game species are subject to habitat fragmentation, increased roadkill, and other impacts to wildlife movement as discussed in Section 3.13.4 - Wildlife Connectivity. Corridor Alternative 7 would likely affect wildlife connectivity more than Corridor Alternative 1, but less than Corridor Alternative 8A.</td><td>Updated to address comments from U.S. Fish and Wildlife Service recognizing the possible effect of the project on wildlife habitat and movement.</td></tr>
<tr><td>3.13.1.4</td><td>Page 3-150, 6th paragraph</td><td>As discussed in Corridor Alternative 1, the habitat within the study area is of value to a moderate to low number of hunters. Therefore, the construction of a new highway would likely not have a significant impact on SERI species. In addition, the construction of a new highway within Corridor Alternative 8A may provide new access to public lands in vicinity of the corridor alternative for hunters and anglers to utilize. However, some game species are subject to habitat fragmentation, increased roadkill, and other impacts to wildlife movement as discussed in Section 3.13.4 - Wildlife Connectivity, and Corridor Alternative 8A would likely have the most detrimental effect on wildlife movement through the study area.</td><td>Updated to address comments from U.S. Fish and Wildlife Service recognizing the possible effect of the project on wildlife habitat and movement.</td></tr>
<tr><td>3.13.2.2</td><td>Page 3-154, 3rd paragraph</td><td>To obtain a list of federally listed species and critical habitats within the study area, a USFWS Information for Planning and Consultation (IPaC) query was completed. Habitat requirements for each identified species were gathered from a variety sources, such as the USFWS Arizona Ecological Services Office online document library, AGFD Heritage Data Management System species abstracts, and other available literature. All species are briefly analyzed in Table 3-41 to determine their potential occurrence within the study area. Only one species identified by the IPaC query, Pima pineapple cactus (PPC), has a high potential for occurrence within the study area based on its known range and occurrences and habitat present in the study area. Three additional species not identified by the IPaC query are also included in Table 3-41, the jaguar, ocelot, and Sonoran Desert tortoise (SDT). The jaguar and ocelot are federally listed and unlikely to occupy the study area permanently but may travel through it. The SDT is ~~not federally listed but was formerly~~ a candidate for listing and ~~still~~ receives protection through a Candidate Conservation Agreement (CCA) that includes ADOT as a signatory agency.</td><td>Updated to address multiple comments from U.S. Fish and Wildlife Service regarding SDT listing status.</td></tr>
<tr><td>3.13.2.3</td><td>Pages 3-155 and 3-156, Table 3-41, ESA-Protected Bird Species and Habitat</td><td><table><tr><th>COMMON NAME</th><th>SCIENTIFIC NAME</th><th>STATUS[1]</th><th>HABITAT REQUIREMENTS</th><th>POTENTIAL TO OCCUR</th></tr><tr><td colspan="5">Mammals</td></tr><tr><td>Jaguar</td><td>Panthera Onca</td><td>E, DCH</td><td>Based on limited records, Arizona jaguars appear to be associated with Madrean evergreen woodland and semidesert grassland biotic communities, usually in intermediately rugged to extremely rugged terrain with low human disturbance, within 6.2 miles of water. Elevation: all Arizona records are between 3,400 and 9,000 feet above mean sea level (amsl) (AGFD 2004b; Culver 2016; USFWS 2018a, 2014a).</td><td>The study area is generally flat and lacking rugged terrain. Known recent occurrences within Arizona have been primarily in the Sky Islands of southern Arizona. However, jaguars historically occurred well north of the study area and the study area could be used as a movement corridor.</td></tr><tr><td colspan="5">Birds</td></tr></table></td><td>Corrected reference to AGFD jaguar report</td></tr>
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		Yellow-billed cuckoo	*Coccyzus americanus*	T, PCH	Highly variable. Occurs in riparian woodlands, mesquite woodlands, or Madrean evergreen woodlands in perennial, intermittent, or ephemeral drainages, from dense contiguous patches of trees on wide floodplains to narrow stringers and small groves of scattered trees in more xeroriparian habitats. Canopy closure varies between and often within drainages. Elevation: sea level to 7,000 feet amsl (AGFD 2011; Halterman et al. 2015).	~~Ephemeral drainages are present throughout the study area, but overall the habitat is open and lacking contiguous patches, stringer, and small groves of dense trees.~~ Nesting in the study area is unlikely, though some of the xeroriparian habitat along drainages in the study area may provide resting and foraging habitat during migration.	Updated to address comments from U.S. Fish and Wildlife Service regarding potential yellow-billed cuckoo habitat.
3.13.2.3	Page 3-158 (all)	It is likely that PPCs are present within all three corridor alternatives though surveys would be required to confirm their presence and determine the exact numbers. The August 2018 PPC Recovery Plan and 5-Year Review Summary state that USFWS is aware of roughly 8,000 individuals and 377,873 acres of habitat. This number of known individuals is based on surveys and Arizona Natural Heritage Program database records. Neither of these documents provide a range-wide population estimate that accounts for un-surveyed suitable habitat, presumably because PPC density is highly variable over seemingly suitable habitat. However, Appendix 1 of the 2018 Recovery Plan identifies 71 separate surveys conducted since 1985 that detected a total of 6,131 individuals over 105,786 acres surveyed, although it is acknowledged there may be minor overlap of individuals across surveys. Calculating PPC density for each survey, then averaging those densities yields an average density of 0.65 PPC per acre. Other available density estimates include: A. The 1993 Federal Register listing document citing minimum density estimates by Mills (1991) based on surveys near the Sierrita Mountain that range from 0.05 to 0.22 PPC per acre (USFWS 1993) B. Baker (2003) and McDonald (2005) range-wide density estimates of approximately 0.40 PPC per acre C. Flesch (2019) used a distance sampling method over 12 occupied locations throughout the PPC's range to develop an estimate of 0.59 PPC per acre ~~Although PPC density varies greatly across seemingly suitable habitat, the 2018 PPC Recovery Plan provides survey data for PPC in southern Arizona where 6,131 individual plants were located over 105,786 acres surveyed (USFWS, 2018b) for a rough density estimate of approximately 0.058 per acre.~~ Although PPC density is highly variable over seemingly suitable habitat, the density estimates above appear to be the best available information to arrive at an overall range-wide population estimate. Using this density range of 0.05 to 0.65 PPC per acre over the August 2018 Recovery Plan estimate of 377,873 acres of potential habitat yields a range-wide population of between 18,894 and 245,617 PPC. *Jaguar and Ocelot* A habitat model for jaguar developed by the Wildlife Conservation Society for the USFWS and Jaguar Recovery Team predicts suitable habitat to the north and south of the study area but does not show suitable habitat within the study area (Stoner 2015). However, from 1996 through July 2017, five, possibly six, individual jaguars have been documented in southern Arizona and jaguars historically occurred well north of the study area (USFWS 2018a), thus the study area could be used as a movement corridor. Little is known about ocelot habitat use in Arizona and there is no ocelot habitat model currently available, though they appear to have a wider range of habitat use. Like the jaguar, suitable ocelot habitat and occurrence records occur north and south of the study area, thus the study area could be used by ocelots as a movement corridor. For both the jaguar and ocelot, all three corridor alternatives provide similar habitat in that regard. *Yellow-billed Cuckoo* The AGFD On-Line Environmental Review Tool did not identify any known occurrences of yellow-billed cuckoos within 3 miles of the corridor alternatives. Nesting in the study area is unlikely, though some of the xeroriparian habitat along drainages in the study area may provide resting and foraging habitat during migration. The "Riparian" vegetation type shown on Figure 3-35 and in Table 3-39 represents xeroriparian corridors in the study area that could serve as potential cuckoo migration habitat. From Table 3-39, Corridor Alternative 7 contains the most amount of xeroriparian habitat at 217.6 acres, followed by Corridor Alternative 8A with 201.0 acres, and Corridor Alternative 1 with 166.8 acres. *Sonoran Desert Tortoise* The SDT ~~was previously~~ is a candidate for listing under the federal ESA~~, but on October 6, 2015, USFWS determined that listing this species was not warranted at the time, due in part to the~~ and is subject to a CCA (USFWS, 2015a) developed in cooperation with AGFD, USFWS, ADOT, and 13 other federal agencies. Although candidate species ~~it currently does~~ do not receive protection under the federal ESA, the tortoise is included in this T&E Species analysis because it is known to occur within the study area, and ADOT is a signatory agency of the tortoise CCA. Suitable SDT habitat may be present throughout the corridor alternatives, specifically along incised washes that provide sheltering habitat within shrubland or grassland land cover. However, within the corridor alternatives, SDT would likely only occur at very low densities due to the lack of rocky slopes. A review of the SDT Potential Habitat spatial modeling created by BLM, USFWS, USGS, and AGFD (USFWS 2015c) revealed that patches of high- and low-value potential habitat for SDT may be present throughout each corridor alternative (Figure 3-36). The data represented in this spatial modeling is designed to provide a landscape-scale depiction of the relationship between several different spatial data layers that are relevant to SDT habitat. No attempt is made to define or describe actual, on-the-ground SDT habitat through this modeling. Therefore, the quality of the habitat within the corridor alternatives may be greater than or less than what is reported in the spatial modeling. However, based on the SDT potential habitat modeling, Corridor Alternative 1 contains the largest amount of potential SDT habitat,		Updated to address comments from U.S. Fish and Wildlife Service regarding potential PPC, yellow-billed cuckoo, and SDT habitat.

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		with 85.0 acres of high-value habitat and 16.7 acres of low-value habitat for a total of 101.7 acres (Table 3-43). Corridor Alternative 8A contains the least amount with 20.9 acres of high value habitat and 53.0 acres of low value habitat for a total of 73.9 acres. It should be noted that some of this acreage overlaps between corridor alternatives, e.g., Corridor Alternatives 7 and 8A include some of the same habitat areas because a portion of their alignment is identical. Further habitat evaluation conducted during the Tier 2 analysis would further identify suitable habitat present at a smaller scale.	
3.13.2.4	Page 3-162 (all) and Page 3-163, 1st paragraph	**Section 3.13.2.4 Environmental Consequences** This section includes an analysis and comparison of the impacts due to the corridor alternatives and the No-Build Alternative. Overall, construction of a freeway within one of the corridor alternatives may affect T&E species. Such construction could result in the loss of some PPC suitable habitat, and any PPC located within the freeway footprint could likely be adversely affected. However, ~~this would be determined~~ adverse impact determinations will be made during the Tier 2 analysis through the preparation of a Biological Assessment and ESA Section 7 consultation with USFWS. It is also important to note that Tier 2 studies will evaluate 400-foot-wide alignment alternatives within the 2,000-foot-wide selected corridor alternative. The 400-foot-wide alignment alternatives are 20 percent of the acreage of the 2,000-foot-wide corridor alternatives. In addition, ground disturbance may not be required over the entire 400-foot-wide footprint. Thorough field surveys will be conducted during Tier 2 to collect data on the number of PPCs and distribution within the Tier 2 freeway construction footprint. All the corridor alternatives would impact some potential migration habitat for the yellow-billed cuckoo. All of the corridor alternatives would also result in habitat fragmentation and could potentially create a movement barrier for SDT, jaguar, and ocelot. All ~~of the~~ corridor alternatives would also result in the removal of some SDT habitat and potentially function as a barrier to SDT movement. Furthermore, SDT could be injured or killed if present during construction, as well as by wildlife-vehicle collisions during normal operation of a new transportation facility. A more detailed analysis to determine the nature and extent of potential impacts would be conducted during the Tier 2 analysis. None of the corridor alternatives are located within the boundaries of proposed or designated critical habitat. Therefore, the construction of a new freeway within any of the corridor alternatives would have no effect to proposed or designated critical habitat. **Corridor Alternative 1** Approximately 3,279.7 acres of potentially suitable PPC habitat is present within Corridor Alternative 1 and PPC are present. During Tier 2 analysis, surveys would be conducted to verify suitable habitat and determine the number of PPC individuals that would be affected. A 400-foot-wide alignment footprint within Corridor Alternative 1 would impact approximately 655.9 acres of potential suitable PPC habitat, which is 0.17 percent of the total estimated range-wide potential habitat of 377,783 acres from the 2018 PPC Recovery Plan. Corridor Alternative 1 contains the least yellow-billed cuckoo migration habitat at 166.8 acres. For jaguar, ocelot, and SDT, Table 2-3 indicates Corridor Alternative 1 is 16.06 miles long, and according to Table 3-38 its overall footprint is approximately 3,845.0 acres, making it the shortest corridor alternative with the smallest footprint. This alternative could also result in the least amount of overall habitat fragmentation south of the junction of I-10 and I-19 among the corridor alternatives. Corridor Alternative 1 also contains the largest amount of high-value potential habitat for SDT, with 85.0 acres. **Corridor Alternative 7** Approximately 4,255.9 acres of potentially suitable PPC habitat is present within Corridor Alternative 7, and PPC are present. During Tier 2 analysis, surveys would be conducted to verify suitable habitat and determine the number of PPC individuals that would be affected. A 400-foot-wide alignment footprint within Corridor Alternative 7 would impact approximately 851.2 acres of potential suitable PPC habitat, which is 0.23 percent of the total estimated range-wide potential habitat of 377,783 acres from the 2018 PPC Recovery Plan. Corridor Alternative 7 contains the most yellow-billed cuckoo migration habitat at 2,017.6 acres. For jaguar, ocelot, and SDT, Table 2-3 indicates Corridor Alternative 7 is 20.47 miles long, and according to Table 3-38 its overall footprint is approximately 5,154.88 acres, placing its length and acreage between that of the other two corridor alternatives. However, this alternative could result in the most overall habitat fragmentation south of the junction of I-10 and I-19. The amount of potential SDT habitat in Corridor Alternative 7 is also between that of the other two alternatives. **Corridor Alternative 8A** Approximately 4,518.9 acres of potentially suitable PPC habitat is present within Corridor Alternative 8A, and PPC are present. During Tier 2 analysis, surveys would be conducted to verify suitable habitat and determine the number of PPC individuals that would be affected. A 400-foot-wide alignment footprint within Corridor Alternative 7 would impact approximately 903.8 acres of potential suitable PPC habitat, which is 0.24 percent of the total estimated range-wide potential habitat of 377,783 acres from the 2018 PPC Recovery Plan. Corridor Alternative 8A contains 201.0 acres of yellow-billed cuckoo migration habitat, which is less than Corridor Alternative 7 but more than Corridor Alternative 1. For jaguar, ocelot, and SDT, Table 2-3 indicates Corridor Alternative 8A is 21.04 miles long, and according to Table 3-38 its overall footprint is approximately 5,285.77 acres, making it the corridor alternative with the largest footprint. However, overall habitat fragmentation south of the junction of I-10 and I-19 for this alternative could be between the other two corridor alternatives. Corridor Alternative 8A also contains the least amount of SDT potential habitat at 73.9 acres.	Updated to address comments from U.S. Fish and Wildlife Service regarding Tier 2 PPC surveys and potential habitat for PPC and potential migration habitat for yellow-billed cuckoo.
3.13.2.5	Page 3-163, 6th paragraph	• ADOT will conduct PPC surveys ~~prior to~~ during the Tier 2 process ~~to inform design, minimize the construction footprint through quality PPC habitat, and implement long-term control of noxious weeds~~ to collect data on the number of PPCs and distribution within the construction footprint. This information will be used to identify the appropriate mitigation strategy to offset PPC losses that may result from construction of the Sonoran Corridor. Specific strategies may include things such as relocating PPCs, minimizing the construction footprint, and implementing a long-term control of noxious weeds. An evaluation of habitat and more detailed evaluation of impacts for all listed species would occur during Tier 2.	Updated to address comments from U.S. Fish and Wildlife Service regarding Tier 2 PPC surveys and mitigation

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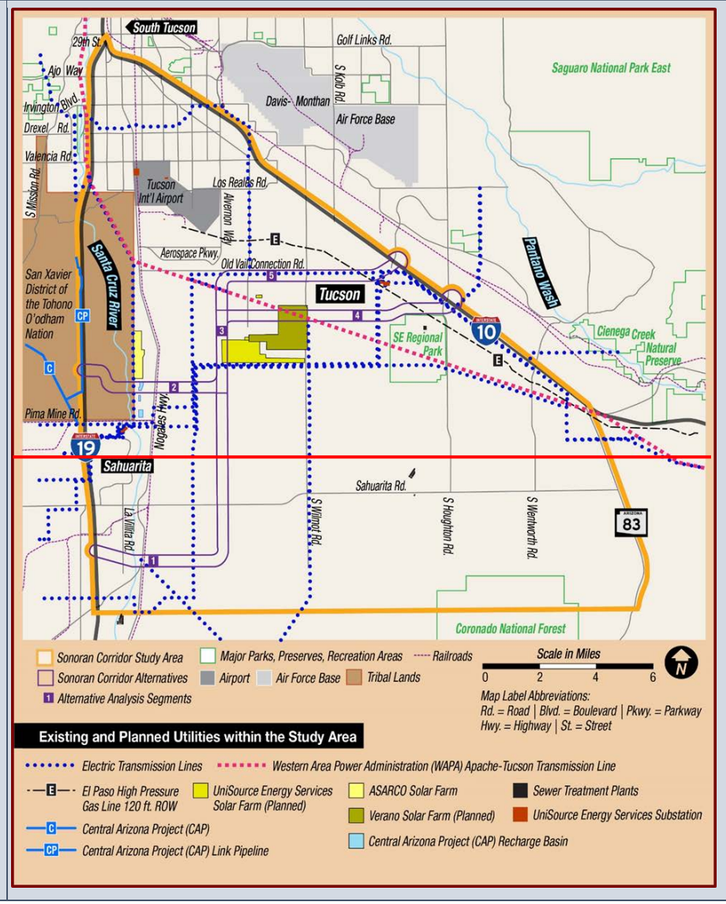
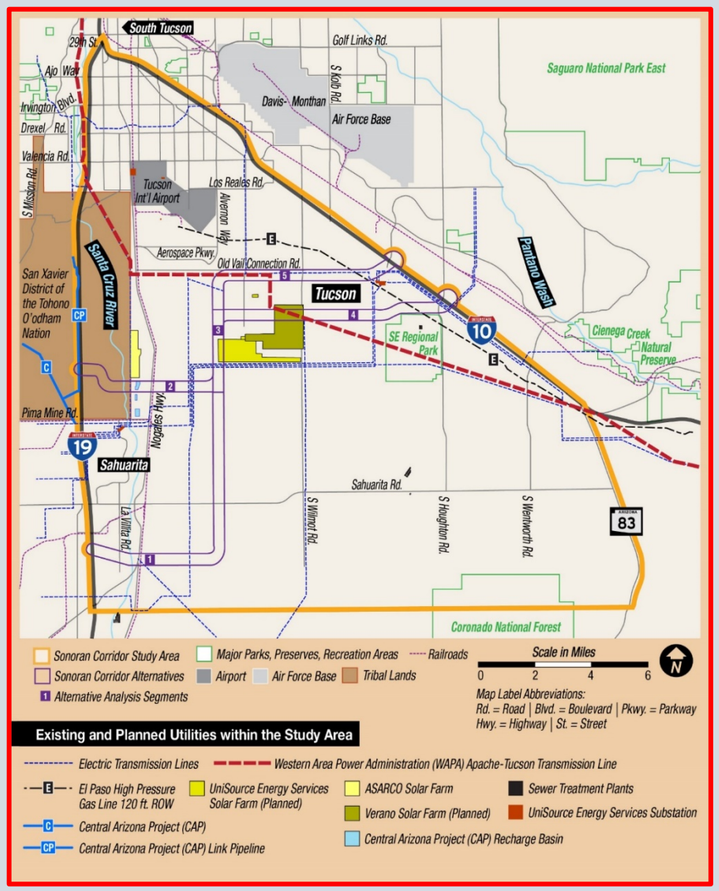
3.13.3.4	Page 3-172, 2nd paragraph	*Birds* Take of bald or golden eagles is not anticipated for this corridor alternative due to lack of suitable nesting habitat. However, xeroriparian habitat provides richer nesting opportunities for other bird species~~, including special status species~~ such as the yellow warbler, Lucy's warbler, brown-crested flycatcher, ~~and~~ Arizona Bell's vireo, and raptors such as red-tailed hawks and great horned owls. Therefore, these habitat types may contain higher concentrations of nesting birds than the surrounding upland habitat. Corridor Alternative 1 contains 166.8 acres of xeroriparian habitat, which is less acreage than either Corridor Alternative 7 or Corridor Alternative 8A (Table 3-39). The alignment of the proposed highway within Corridor Alternative 1 has not been determined, but construction of a new highway within this corridor alternative would likely affect some nesting special status bird species. Mitigation would be required prior to and throughout the construction of a new highway in order to avoid effects to nesting special status bird species.	Updated to address comments from U.S. Fish and Wildlife Service regarding species nesting in xeroriparian habitat.
3.13.4.3	Page 3-179, 1st paragraph	Movement area R3 is located along the Santa Cruz River, providing connectivity between habitat blocks to the north and south of the study area. Segments 1 and 2 both cross movement area R3. Wildlife identified as using this movement area include bats, migratory and riparian birds, bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), raccoon (*Procyon lotor*), and deer (*Odocoileus* spp.). The R22 Lee Moore Wash Flow Corridors movement area incorporates the xeroriparian washes that are tributaries to the Santa Cruz River throughout the corridor alternatives. This movement area aids in east-west wildlife movement and connects a habitat block in the Santa Rita Mountains to the south of the study area to the Santa Cruz River corridor. No species were identified as specifically utilizing the R22 movement area; however, it is likely used by species such as coyote (*Canis latrans*), javelina (*Tayassu tajacu*), and mule deer (*Odocoileus hemionus*). Current threats and potential barriers to wildlife movements through the R3 and R22 riparian movement areas include agriculture, exotic species, low- and high-density residential development, energy development, powerlines, and paved roads. Refer to Table 3-46 for the total and percentage of movement areas present by corridor alternative.	Updated to address comments from U.S. Fish and Wildlife Service regarding species utilizing the R22 movement area
3.13.4.5	Page 3-181, 3rd paragraph	• ADOT would coordinate with AGFD, BLM, Pima County, and other stakeholders to determine wildlife connectivity data needs and study design ~~at that time~~ during the Tier 2 process. ADOT would then fund and facilitate implementation of identified studies during the Tier 2 phase if warranted. ADOT and the stakeholders would identify the crossing structures, design features, and supporting mitigation or conservation necessary to facilitate movement of wildlife through the roadway barrier	Updated to specify timeframe.
3.14.1.1	Page 3-183, 4th paragraph	Section 404 of the CWA regulates the discharge of earthen fill, concrete, and other construction materials into Waters, and authorizes the Corps to issue permits regulating the discharge of dredge or fill material into Waters. The geographic limits of Waters are defined through a preliminary or approved jurisdictional determination (JD) accepted by Corps. A preliminary JD is non-binding and advisory in nature, but presumes all the waters under consideration are jurisdictional. An approved JD is a final legal determination that there are, or that there are not Waters ~~, wetlands or streams~~ under federal jurisdiction (See, 33 U.S.C. 331.2).	Updated to specify Waters under federal jurisdiction.
3.14.2.1	Page 3-197, 2nd paragraph	Unique and Impaired Waters The Arizona List of Unique Waters [Arizona Administrative Code R18-11-112(E)] and the Arizona 2006/2008 Section 303(d) and 2016 lists of Impaired and Not Attaining Waters were reviewed to determine whether any unique or impaired waters are present. There are no unique waters, EPA Section 303(d) non-attaining impaired waters, or EPA Section 303(d) impaired waters occur in or within 1 mile of the study area. Therefore, impacts to these resources were not evaluated as part of this Draft Tier 1 EIS. The most current ADEQ impaired/outstanding/ not-attaining AZ waters list will be reviewed at the time of the Tier 2 analysis.	Updated to specify review of most current ADEQ information during Tier 2.
3.13.4.3	Page 3-179, 1st paragraph	Movement area R3 is located along the Santa Cruz River, providing connectivity between habitat blocks to the north and south of the study area. Segments 1 and 2 both cross movement area R3. Wildlife identified as using this movement area include bats, migratory and riparian birds, bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), raccoon (*Procyon lotor*), and deer (*Odocoileus* spp.). The R22 Lee Moore Wash Flow Corridors movement area incorporates the xeroriparian washes that are tributaries to the Santa Cruz River throughout the corridor alternatives. This movement area aids in east-west wildlife movement and connects a habitat block in the Santa Rita Mountains to the south of the study area to the Santa Cruz River corridor. No species were identified as specifically utilizing the R22 movement area; however, it is likely used by species such as coyote (*Canis latrans*), javelina (*Tayassu tajacu*), and mule deer (*Odocoileus hemionus*). Current threats and potential barriers to wildlife movements through the R3 and R22 riparian movement areas include agriculture, exotic species, low- and high-density residential development, energy development, powerlines, and paved roads. Refer to Table 3-46 for the total and percentage of movement areas present by corridor alternative.	Updated to address comments regarding species likely using the R22 movement area.
3.13.4.5	Page 3-181, 2nd paragraph and bullet following	This Tier 1 analysis provides an overview of potential impacts from a new transportation facility within the corridor alternatives. Specific alignments, design characteristics, and construction methods have yet to be determined. Therefore, specific methods to avoid, minimize, or mitigate project-related impacts cannot be developed at this stage of study. However, general mitigation strategies that will be further refined during the Tier 2 process are outlined below. • ADOT would coordinate with AGFD, BLM, Pima County, and other stakeholders to determine wildlife connectivity data needs and study design ~~at that time~~ during the Tier 2 process. ADOT would then fund and facilitate implementation of identified studies during the Tier 2 phase if warranted. ADOT and the stakeholders would identify the crossing structures, design features, and supporting mitigation or conservation necessary to facilitate movement of wildlife through the roadway barrier.	Updated to specify the timeframe.
3.14.2.3	Page 3-200, 2nd paragraph	There are 58 groundwater wells within the corridor alternatives according to ADWR records (Figure 3-41). SXD well data was not publicly available and is not shown in Table 3-52 nor on Figure 3-41. ~~which show g~~Groundwater levels at the wells rang~~e~~ing from about 79 feet to 355 feet below ground surface ~~(Figure 3-41)~~. Groundwater depth can affect transportation construction, especially in the case of shallow groundwater. However, groundwater throughout the corridor alternatives is relatively deep (> 79 feet), which has a less tangible effect on design and construction. Wells are owned by private, municipal, utility, and corporate entities and are used for irrigation, livestock watering, private and public water supplies, groundwater	Updated to address comments from Bureau of Reclamation to explain absence of SXD well data on Table 3-52 and Figure 3-41.

Section	Page, Location	Errata	Explanation/Reason for Change
		monitoring, and geotechnical information. A total of 28 wells are located within Corridor Segment 1, which is almost 3 times the number of wells in any other segment. Thus, corridor alternatives that include Corridor Segment 1 (i.e., Corridor Alternative 7 and Corridor Alternative 8A) had the highest number of wells each falling within their boundaries. Table 3-52 shows the total and percentage of wells present by corridor alternative and a summary of groundwater depth by alternative. Wells are often considered a threat to groundwater quality as they provide a more direct pathway for runoff to infiltrate groundwater. All wells affected by construction of a future highway would be properly abandoned in accordance with ADWR standards prior to construction activities; therefore, there would be no potential for discharges to the sole source aquifer with any of the corridor alternatives.	
3.16.1.1	Page 3-214, 1st set of bullets under "Electric Power"	• Tucson Electric Power (TEP) is building a new 138-kilovolt (kV) substation, transmission lines and a switchyard near Swan Road and Old Vail Connection Road to support its largest local community-scale solar array and battery storage system • TEP is also upgrading an existing 115-kilovolt (kV) Western Area Power Administration (WAPA) line with a double-circuit 230 kV transmission line between Vail and Marana that runs through the Sonoran Corridor project area. When complete, TEP will own and operate one 230 kV circuit and WAPA will own and operate the other.	Updated to address comments from Tucson Electric Power clarifying location and purpose of planned new infrastructure. (Subsequent 4 bullets remain.)
3.16.1.3	Page 3-214, 3rd set of bullets under "Irrigation and Well Facilities"	• Bureau of Reclamation (BOR): ~~Central Arizona Project (CAP) Link pipeline adjacent to I-19; Water delivery and distribution system and irrigation system with associated flood protection features for the SXD provided under the Southern Arizona Water Rights Settlement Act (SAWRSA) of 1982, as amended and restated in Public Law 108-451, the Arizona Water Settlement Act (AWSA) of 2004. There are also several wells located on the SXD within the Study Area that could be impacted by the project depending on the alternative selected. Future BOR projects associated with the SAWRSA and AWSA would need to be considered in Tier 2 if the Selected Alternative is Alternative 1.~~ A water delivery and distribution system, referred to as the Central Arizona Project (CAP) Link Pipeline, along with an irrigation system for the San Xavier District Cooperative Farm, which begins at the terminus of the CAP Link Pipeline. These facilities were constructed for the San Xavier District in accordance with Public Law 97-293, the Southern Arizona Water Rights Settlement Act (SAWRSA) of 1982, as amended and restated in Public Law 108-451, the Arizona Water Settlement Act (AWSA) of 2004. Future Reclamation projects (see Table 3-58) would need to be considered in Tier 2 if the Selected Alternative is Corridor Alternative 1. • San Xavier District – Several Groundwater Wells • Central Arizona Water Conservation District – recharge basins between I-19 and Nogales Highway • City of Tucson – recharge basins between I-19 and Nogales Highway • Private Irrigation – wells and irrigation infrastructure (see section 3.14.2)	Updated to address comments from Bureau of Reclamation clarifying jurisdiction over irrigation and well facilities

Section	Page, Location	Errata	Explanation/Reason for Change
3.16.1.3	3-215, Figure 3-44. Existing and Planned Utilities within the Study Area	 	Updated map to address comments from Tucson Electric Power describing planned relocation of Western Area Power Administration (WAPA) Apache-Tucson transmission line

<table>
<tr><th>Section</th><th>Page, Location</th><th>Errata</th><th>Explanation/Reason for Change</th></tr>
<tr><td>5.2</td><td>Page 5-8 Table 5-3. Potential Mitigation Strategies:
Section 4(f) Resources and
Cultural Resources</td><td>
<table>
<tr><th>RESOURCE AREA</th><th>IMPACT IDENTIFICATION</th><th>POTENTIAL TIER 2 MITIGATION STRATEGIES</th></tr>
<tr><td>Section 4(f) Resources</td><td>Preferred alternative tries to avoid Section 4(f) properties where they were identified. An inventory of known Section 4(f) resources is listed in Tables 3-19 and 3-20. Corridors have been shifted to avoid Anamax Park and the County Fairgrounds recreational features.</td><td>As set forth in 23 CFR 774.7(e)(1), ADOT will complete Final Section 4(f) Evaluations during future Tier 2 studies, coordinating with OWJ including the National Park Service, Pima County, and other local entities. At that time, ADOT will focus on making final determinations of use, assessing avoidance and least harm as warranted, and identifying specific measures to minimize harm. Potential measures to minimize harm could include the following:
• Design construction modifications to avoid encroaching on or bisecting a Section 4(f) resource.
• Provide an alignment within the 2,000-foot-wide study corridor that avoids the protected property.
• Provide crossings for trails either under or over the freeway.
• Shift the 2,000-foot-wide study corridor away from the protected property to accommodate the project without using land from the protected property.
• Use context-sensitive design in future stages of project development.
• Incorporate natural design features, such as earthen berms and tree plantings.
• Allocate replacement of parkland or open space.
• Modify construction methods to minimize impacts.
• Develop other measures in consultation with SHPOs, tribes, other consulting parties, and the public.
• Coordinate with National Park Service and Pima County for any work associated with the Juan Bautista de Anza National Historic Trail.
The results of the detailed Tier 2 cultural resources studies and surveys would be assessed to determine if any additional Section 4(f) properties are present.</td></tr>
<tr><td>Cultural Resources</td><td>The stipulations of the current draft PA (see Appendix E) address specific requirements for further studies of cultural resources, which would occur during Tier 2. FHWA is continuing to work with the Section 106 consulting parties and would execute the PA prior to issuing a ROD for the Tier 1 EIS process.</td><td>FHWA has executed a Programmatic Agreement (PA) pursuant to Section 106 of NHPA to stipulate procedures for assessing effects of Tier 2 projects on properties listed in or eligible for the NRHP. The PA stipulates procedures for developing and implementing measures to avoid or minimize adverse effects or mitigate any unavoidable adverse effects as each Tier 2 project is planned. Tribal and cultural sensitivity training will also be part of the Tier 2 commitment.</td></tr>
</table>
</td><td>Revised to provide specific measures to minimize harm to Section 4(f) resources to ensure effective compliance with 4(f) requirements once further analysis is completed.

Updated to incorporate comment received from the Pascua Yaqui Tribe during Section 106 consultation to include cultural sensitivity training in future phases of the project.</td></tr>
<tr><td>Refer-ences</td><td>Pages R-3 through R-6</td><td>
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ADOT. (2016a). Long-Range Transportation Plan Update. Phoenix: Arizona Department of Transportation.
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Alternatives Considered References (Section 2.1.1)
Farmers Investment Company (FICO). 2015. Sahuarita Farms Specific Plan. Sahuarita: FICO
Pima Association of Governments (PAG). 2014. Regionally Significant Corridors Study. Tucson: PAG
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Pima County. 2015. Sonoran Corridor Study. Tucson: Pima County
Pima County Department of Transportation (PCDOT). 2011. Old Vail Connection Road Study. Tucson: Kimley-Horn
Town of Sahuarita. 2015. Sahuarita East Conceptual Area Plan. Tucson: The Planning Center
Air Quality References (Section 3.9.1)
~~United States~~ Environmental Protection Agency (~~US~~EPA). 2018. Air Pollutant Emissions Trends Data. Internet Website: https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data. Accessed July 16, 2019.
~~United States~~ Environmental Protection Agency (~~US~~EPA). 2017a. Reviewing National Ambient Air Quality Standards (NAAQS): Scientific and Technical Information. Internet Website: https://www.epa.gov/naaqs. Accessed July 16, 2019.
</td><td>Providing missing references, adding references cited in agency comments, and rectifying references that were incorrect or incomplete in the Draft Tier 1 EIS.</td></tr>
</table>

Section	Page, Location	Errata	Explanation/Reason for Change
		~~United States~~ Environmental Protection Agency (~~US~~EPA). 2017b. Mobile Source Pollution and Related Health Effects. Internet Website: https://www.epa.gov/mobile-source-pollution). Accessed July 20, 2019. ~~United States~~ Environmental Protection Agency (~~US~~EPA). 2017c. Integrated Risk Information System. Internet Website: https://www.epa.gov/iris. Accessed July 20, 2019. ~~United States~~ Environmental Protection Agency (~~US~~EPA). 2011. National Ambient Air Toxics Assessment. Internet Website: https://www.epa.gov/national-air-toxics-assessment/2011-nata-assessment-results. Accessed July 20, 2019. ~~United States~~ Environmental Protection Agency (~~US~~EPA). 2007. Control of Hazardous Air Pollutants from Mobile Sources; Final Rule. EPA-HQ-OAR-2005-0036, Washington, D.C. *Biological Resources References (Section 3.13)* Arizona Game and Fish Department (AGFD). 2019. Western narrow-mouthed toad (*Gastrophryne olivacea*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6 pp. Arizona Game and Fish Department (AGFD). 2018. Wildlife and Habitat Resources within the I-11 Study Area. Unpublished report prepared by the AGFD Habitat, Evaluation, and Lands Branch, Phoenix, Arizona. Arizona Game and Fish Department (AGFD). 2016a. Digital map, Arizona's Most-valued Hunting and Fishing Locations v1.0. Internet website: www.azgfd.com/recreation/valuemapping. Arizona Game and Fish Department (AGFD). 2016b. Sonoyta Mud Turtle (*Kinosternon sonoriense longifemorale*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 13 pp. Arizona Game and Fish Department (AGFD). 2015. Sonoran Desert tortoise (*Gopherus morafkai*). 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Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 4 pp. Arizona Game and Fish Department (AGFD). 2004b. Jaguar (*Panthera onca*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 7 pp. Arizona Game and Fish Department (AGFD). 2004c. Tumamoc Globeberry (*Tumamoca mcdouglasii*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6 pp. Arizona Game and Fish Department (AGFD). 2002. Golden Eagle (*Aquila chrysaetos*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. Arizona Game and Fish Department (AGFD). 2001. Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*). 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		City of Tucson. n.d. Draft City of Tucson Habitat Conservation Plan. Prepared by Ms. Leslie Liberti, Environmental Planning Manager, City Manager's Office, City of Tucson, 100 N. Stone Ave., Suite 200 Tucson, Arizona 85701; and Mr. Michael W. Wyneken, AICP, Principal Planner, Department of Urban Planning & Design, City of Tucson MacArthur Building, 345 East Toole Avenue P.O. Box 27210 Tucson, Arizona 85726. Culver, Melanie, 2016, Jaguar surveying and monitoring in the United States (ver. 1.1, November 2016): U.S. Geological Survey Open-File Report 2016–1095. Emmons, I., and E. Nowak. 2016. Northern Mexican gartersnake (*Thamnophis eques megalops*) habitat use and ecology: monitoring surveys and radiotelemetry in the Verde Valley, Arizona. Final Report to Arizona Game and Fish Department Heritage Fund IIAPM Program, Grant # I12028. Colorado Plateau Research Station, Northern Arizona University, Flagstaff, Arizona. Flesch, A.D., et al. 2019. Application of distance sampling for assessing abundance and habitat relationships of a rare Sonoran Desert cactus. Plant Ecology 220:1029-1042. Halterman, M., M.J. Johnson, J.A. Holmes and S.A. Laymon. 2015. A Natural History Summary and Survey Protocol for the Western Distinct Population Section of the Yellow-billed Cuckoo. U.S. Fish and Wildlife Service, Colorado Plateau Research Station, Northern Arizona University, Flagstaff, Arizona McDonald C.J. 2005. Conservation of the rare Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*): Recruitment after fires and pollination in the Altar Valley of southern Arizona. Master's Thesis. University of Arizona, Arizona. Pima County. 2016. Multi-species Conservation Plan for Pima County, Arizona: Final. Submitted to the Arizona Ecological Services office of the U.S. Fish and Wildlife Service, Tucson, Arizona. USFWS. 2018a. Jaguar Recovery Plan (*Panthera onca*). U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico. USFWS. 2018b. Recovery Plan for *Coryphantha scheeri* var. *robustispina* (Pima pineapple cactus). U.S. Fish and Wildlife Service, Southwest Region, Tucson, AZ. USFWS. 2018c. Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*). 5-year Review. August 3, 2018. USFWS. 2017. Species Status Assessment Report for the Sonoyta Mud Turtle: Version 2.0. Albuquerque, New Mexico. USFWS. 2015c. Species Status Assessment for the Sonoran Desert Tortoise. Version 1.0, September 2015. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, NM. USFWS. 2012. General Species Information for the Ocelot (Leopardus pardalis). Arizona Ecological Services Field Office. USFWS. 1993. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Plant Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*); Final Rule Federal Register 58(183):49875-49880. ***Water Resources References (Section 3.14.3.1)*** Federal Emergency Management Agency (FEMA). 2015. National Flood Hazard Layer (NFHL). EMA, Washington, D.C. Internet website: https://catalog.data.gov/dataset/national-flood-hazard-layer-nfhl#sec-dates U.S. Department of Transportation. 1979. Floodplain Management and Protection; Order DOT 5650.2. Washington, DC April 23, 1979. Internet website: https://www.fhwa.dot.gov/engineering/hydraulics/policymemo/order56502.pdf ***Energy References (Section 3.17.3)*** Environmental Protection Agency (EPA). 2018. Air Pollutant Emissions Trends Data. 2018 Internet Website: https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data Oak Ridge National Laboratory. 2012. Transportation Energy Data Book: Edition 31. Center for Transportation Analysis, Energy and Transportation Science Division. Oak Ridge, TN. July 2012. Internet Website: https://info.ornl.gov/sites/publications/files/Pub37730.pdf	

6 Tier 2 Environmental Commitments

In conclusion, potential impacts of the Preferred Alternative were identified in the Draft Tier 1 EIS, and commitments to conduct in-depth analyses and consider actions designed to avoid, minimize, or mitigate unavoidable environmental impacts of the Preferred Alternative in a future Tier 2 NEPA analysis have been made. This process considered public, agency and Tribal comments in both identifying effects and proposing pertinent mitigation measures.

While the list is not exhaustive, Table FEIS-4 lists environmental commitments for impacts likely to result from construction and operation of the Sonoran Corridor should the project be advanced to a Tier 2 analysis. The final determination of the appropriate mitigation measures will be made during Tier 2 projects when impacts are better defined, and the appropriate public and resource agencies have been consulted. Environmental commitments that may be incorporated during Tier 2 as specified in paragraphs (b) and (d) of 23 CFR 771.109 are described and summarized in Table FEIS-4.

Table FEIS-4. Tier 2 Environmental Commitments

RESOURCE AREA	TIER 2 ENVIRONMENTAL COMMITMENTS
Transportation	Tier 2 studies will address more specific considerations, such as continued coordination with local and county transportation agencies and development of a traffic management plan and its effects.
Land Use	Tier 2 studies will address more specific mitigation considerations, such as the acquisition of properties and conversion of land to transportation uses.
Socioeconomic Conditions, Displacements/ Relocations	During Tier 2 analyses, impacts will be avoided or mitigated through the design of the alignment minimize disruption to community features or resources; planning and locating new facilities outside of the selected alignment; building structures such as pedestrian overpasses to maintain any existing neighborhood connections; or modifying existing facilities to maintain access and function. If during the Tier 2 analysis it is found that displacements are unavoidable, all displacements would occur in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. During Tier 2, ADOT will coordinate with the National Park Service and other Owners with Jurisdiction, including local entities, to identify mitigation that will minimize impacts to the Juan Bautista De Anza National Historic Trail, as appropriate.
Environmental Justice and Title VI	Tier 2 studies will address more specific mitigation considerations, such as placing the alignment to avoid and minimize impacts to communities, consideration of features such as pedestrian overpasses to maintain neighborhood connections, and continued characterization of community demographics in order to more comprehensively identify environmental justice populations. Also, specific community impact assessments needed to identify disproportionately high and adverse effects on a particular EJ community and identify benefits that will offset those adverse effects will be conducted during Tier 2. Tier 2 studies will use early and continuous public outreach, with interpretation services and translated materials, to engage potentially impacted communities. The public engagement process will collect information to assist in identifying impacts and mitigation options, as well as maintaining open communication about the project throughout the construction phases.
Economic Resources	Tier 2 studies will address more specific impacts and mitigation considerations, including use of an updated travel demand model with current population and employment projections, addressing the spacing and number of interchanges, and a more detailed analysis of the impacts to businesses, including loss or improvement of access.
Section 4(f) Resources	As set forth in 23 CFR 774.7(e)(2) and (3), ADOT will complete Final Section 4(f) Evaluations during future Tier 2 studies, coordinating with the OWJ over the Section 4(f) resource. At that time, ADOT would focus on making final determinations of use, assessing avoidance and least harm as warranted, and identifying specific measures to minimize harm. Potential measures to minimize harm could include the following: • Design construction modifications to avoid encroaching on or bisecting a Section 4(f) resource. • Provide an alignment within the 2,000-foot-wide study corridor that avoids the protected property. • Provide crossings for trails either under or over the freeway.

RESOURCE AREA	TIER 2 ENVIRONMENTAL COMMITMENTS
	• Shift the 2,000-foot-wide study corridor away from the protected property to accommodate the project without using land from the protected property. • Use context-sensitive design in future stages of project development. • Incorporate natural design features, such as earthen berms and tree plantings. • Allocate replacement of parkland or open space. • Modify construction methods to minimize impacts. • Develop other measures in consultation with SHPOs, tribes, other consulting parties, and the public. • Coordinate with National Park Service and Pima County for any work associated with the Juan Bautista de Anza National Historic Trail. The results of the detailed Tier 2 cultural resources studies and surveys would be assessed to determine if any additional Section 4(f) properties are present.
Cultural Resources	FHWA has executed the Tier 1 Programmatic Agreement (PA) pursuant to Section 106 of NHPA to stipulate procedures for assessing effects of Tier 2 projects on properties listed in or eligible for the NRHP. The PA stipulates procedures for developing and implementing measures to avoid or minimize adverse effects or mitigate any unavoidable adverse effects as each Tier 2 project is planned. Tribal cultural sensitivity training will be conducted as part of Tier 2. The PA is included in Appendix C.
Air Quality	Tier 2 studies will include project-level air quality analyses wherever applicable, identify pertinent impacts and address more specific mitigation considerations, including methods to minimize the impact of construction activities on air quality.
Noise and Vibration	Tier 2 studies will address more specific mitigation considerations, such as a traffic noise impact and abatement analysis based upon the alignment and design of the Sonoran Corridor. Mitigation measures considered during Tier 2 studies will include noise walls, earthen berms, acquisition of a buffer zone, traffic management measures, and refinement of the horizontal and/or vertical alignment.
Hazardous Materials	Tier 2 studies will conduct updated searches of regulatory databases to reflect most recent records and address more specific avoidance and mitigation concerns, such as Phase 1 Site Assessments, hazardous materials testing, and development of a health and safety plan during construction. Must coordinate with the Corps Los Angeles Regional Office and ADEQ to identify and arrange for removal of any UXO in the selected corridor prior to any fieldwork.
Geology, Soils, and Prime and Unique Farmlands:	Tier 2 studies will include formal coordination with the Natural Resources Conservation Service as part of compliance with the Farmland Protection Policy Act, as appropriate, and address site-specific mitigation measures, such as avoidance of land subsidence areas, earth fissures, slope design, geotechnical considerations, erosion control, and development of a reclamation and revegetation plan.

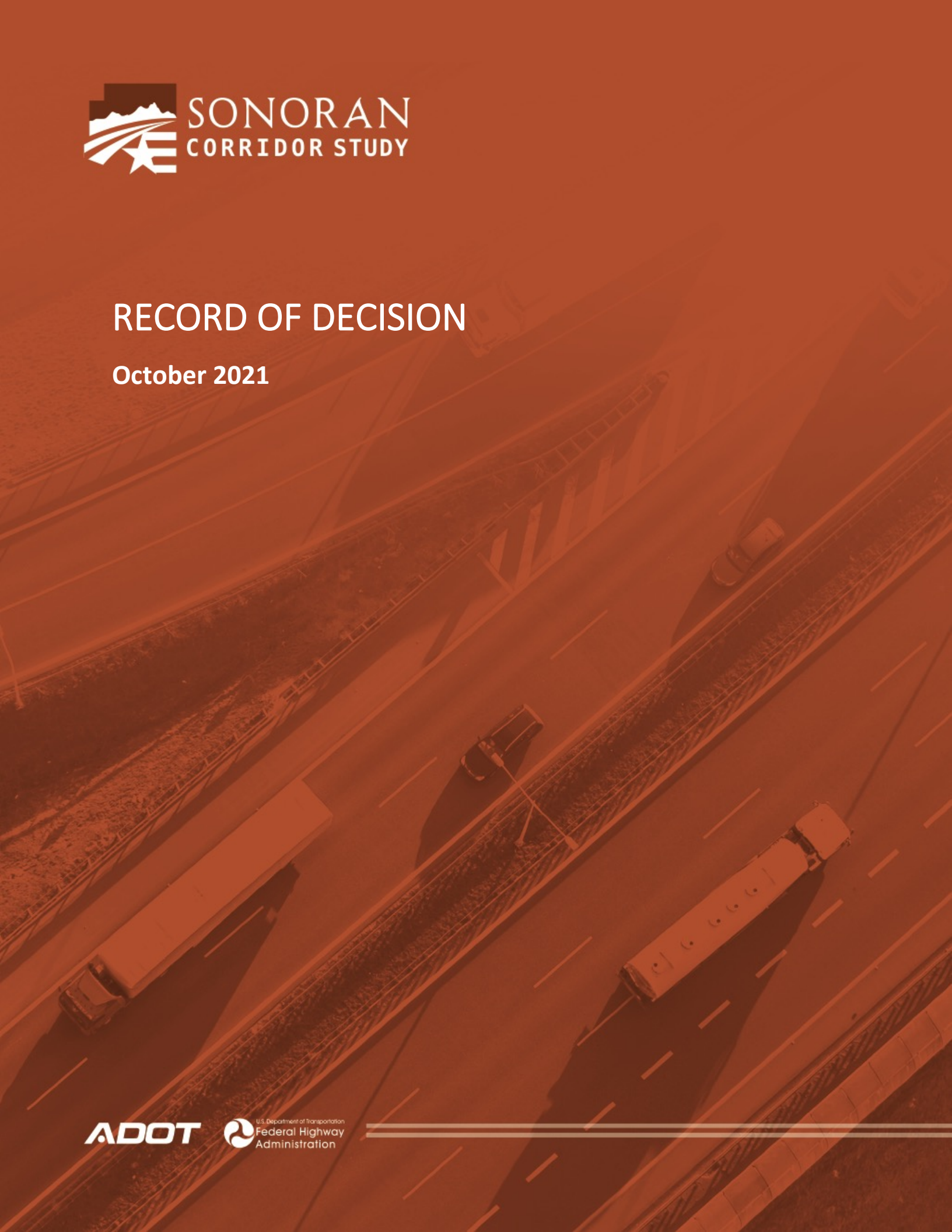
RESOURCE AREA	TIER 2 ENVIRONMENTAL COMMITMENTS
Biological Resources	Preconstruction surveys for listed or sensitive species, such as the Pima Pineapple cactus, will be conducted during Tier 2 to help identify the appropriate strategy to offset losses to any affected species. Tier 2 studies will address more specific mitigation considerations, such as biological habitat assessments, species-specific field surveys, vegetation removal, and control of noxious and invasive species during construction. ADOT will conduct a thorough Biological Evaluations to identify Endangered Species Act-listed species and any designated critical habitat, and avoid, minimize, and mitigate impact to any species or designated critical habitats. ADOT will conduct consultation with the U.S. Fish and Wildlife Service (USFWS), as appropriate. ADOT and stakeholders will identify crossing structures, design features, and supporting mitigation or conservation necessary to facilitate movement of wildlife across roadway barriers.
Water Resources	Tier 2 studies will address more specific mitigation considerations, such as designing the future construction footprint to minimize its impact on sensitive water resources to the extent possible, obtain Clean Water Act Section 401, 402, and 404 permits and certifications, as needed, and development of stormwater pollution prevention plans employing best management practices which minimize impacts to water quality.
Visual and Aesthetics	Tier 2 studies will address more specific mitigation considerations, such as the minimization of earthwork and grading and development of landscape design plans for visually sensitive areas. ADOT will comply with applicable local and county ordinances related to dark skies and employ best management practices in minimizing the impact of fugitive light on the night sky along the Sonoran Corridor

Note: Alternative 7 is 2,000 feet wide and the assumed right-of-way for a future facility alignment would be a maximum of 400 feet wide. The use of broad 2,000-foot-wide corridor alternatives in the Tier 1 analysis gives flexibility to identify and refine the specific roadway alignment within the corridor area of Alternative 7. At that time, development of the specific alignment and more detailed design would provide an opportunity to avoid or minimize impacts to the natural and human environments.

SONORAN CORRIDOR STUDY

RECORD OF DECISION

October 2021



ADOT

U.S. Department of Transportation
Federal Highway Administration

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Appendices

Acronyms

Acronym/ Initialism	Expansion
ADOT	Arizona Department of Transportation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EIS	environmental impact statement
FAHP	Federal-aid Highway Program
FAST	*Fixing America's Surface Transportation*
FHWA	Federal Highway Administration
I-10	Interstate 10
I-19	Interstate 19
LOS	level of service
NEPA	*National Environmental Policy Act of 1969*
PAG	Pima Association of Governments
RMAP	*Regional Mobility and Accessibility Plan*
ROD	Record of Decision
SHPO	State Historic Preservation Office (or Officer)
study area	Sonoran Corridor Study Area
SXD	San Xavier District of the Tohono O'odham Nation
Title VI	*Title VI of the Civil Rights Act of 1964*
TON	Tohono O'odham Nation
TUS	Tucson International Airport
U.S.C.	United States Code
US	United States
USFWS	United States Fish and Wildlife Service
V/C	volume-to-capacity ratio
VMT	vehicle miles traveled

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DECISION

The Federal Highway Administration concurs with the Arizona Department of Transportation in the choice to select the Preferred Alternative, Alternative 7, to advance to second tier (Tier 2) analysis. Corridor Alternative 7 (shown on Figure FEIS-1) has been selected as the Preferred Alternative because it effectively meets the overall need and purpose of the study which is to identify a high-priority, high-capacity, access-controlled transportation corridor that will improve the existing transportation network by affording better access to growth areas and existing activity centers; reduce congestion and improve the Level of Service that is predicted for the study area in 2045; and provide a system linkage between Interstate 19 and Interstate 10 south of the Tucson International Airport that improves mobility associated with regional, interstate, and international travel, while balancing environmental impacts of building a transportation corridor in the study area.

This decision is based on the evaluation of information presented in the Final Tier 1 Environmental Impact Statement and its supporting documentation, as well as the project's need and purpose, and input from the project team, agencies, tribes, and the public.

Karla S Petty

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

October 27, 2021

Date of Approval

U.S. Department of Transportation
Federal Highway Administration

1 Background

The Federal Highway Administration (FHWA), pursuant to Title 23 of the Code of Federal Regulations (C.F.R.) Part 771, and Title 40 C.F.R. Parts 1500-1508, issues this Record of Decision (ROD) finding that the requirements of the National Environmental Policy Act of 1969 (NEPA) have been satisfied for the Sonoran Corridor Study. As the primary recipient of Federal-aid Highway Program (FAHP) funds in Arizona, the Arizona Department of Transportation (ADOT) served as the Sonoran Corridor Study sponsoring agency in conducting the environmental review process.

In accordance with 23 CFR 771.127(a), this Record of Decision document (ROD) presents the basis for FHWA's decision as specified in 40 CFR 1505.2. Specifically, this ROD:

- Identifies the Selected Alternative;
- Includes all reasonable alternatives considered and all factors, such as economic and technical considerations, FHWA balanced in making its decision and states how those considerations entered this decision; and
- Shows that FHWA has adopted practicable means to avoid impacts at the Tier 1 level and includes a list of environmental commitments that can be incorporated as measures to mitigate for environmental impacts that may result from the construction of a highway alignment within the corridor area of the Selected Alternative during Tier 2. Those can be found in Table ROD-1.

With approval of this ROD, FHWA has certified that all of the alternatives, information, analysis, and objections submitted by State, Tribal, and local governments and public commenters have been considered by the Lead agency and Cooperating agencies in developing the Tier 1 Environmental Impact Statement (EIS). The Federal Aviation Administration, US Army Corps of Engineers, US Bureau of Reclamation, US Environmental Protection Agency, and Arizona Game and Fish Department all served as Cooperating Agencies.

1.1 Combined Final Tier 1 EIS/ROD

Traditionally, and in accordance with Council on Environmental Quality (CEQ) Regulations (40 C.F.R. § 1506.10(b)(2)), Final EIS and ROD documents are issued separately with a minimum 30-day period between the Final EIS and ROD. 49 U.S.C. § 304(a)(b) and 23 U.S.C § 139(n)(2) directs, to the maximum extent practicable, the U.S. Department of Transportation (USDOT) to expeditiously develop a single, combined FEIS/ROD document, unless certain conditions exist. So, in accordance with these combined FEIS/ROD provisions and 23 CFR 771.124, FHWA has combined this ROD with the attached Final Tier 1 EIS. The decision to combine the two documents is based on the following:

- The Final Tier 1 EIS did not make substantial changes to the proposed action that were relevant to environmental or safety concerns; and
- There is no significant new circumstance or information relevant to environmental concerns and that bears on the proposed action or the impacts of the proposed action.

Applicable requirements for both the Final EIS and ROD that are set forth in 23 CFR 771 have been met, and statutory criteria or practicability considerations listed in USDOT's *Guidance on the Use of Combined Final Environmental Impact Statements/Record of Decisions and Errata Sheets in National Environmental Policy Act Reviews* that would preclude FHWA from issuing a combined FEIS/ROD document for the Sonoran Corridor Tier 1 Study do not exist.

1.2 Categorical Exclusion and NEPA Assignments

ADOT has assumed FHWA's responsibility for carrying out NEPA under two separate Memorandums of Understanding (MOU) that have been 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 to 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 is solely liable for environmental decisions made on projects funded under the FAHP pursuant to either the 326 MOU or the 327 MOU.

If funding from the FAHP is used for the design and/or construction of any future Tier 2 projects, those projects will need to be consistent with what is presented in the Tier 1 EIS. Although subsequent Tier 2 NEPA documents will need to be developed in conjunction with the Tier 1 EIS, they will need approval from ADOT in accordance with either the 326 MOU or the 327 MOU. In addition, any future Tier 1 EIS reevaluation or supplemental document will need approval from ADOT in accordance with the 327 MOU as well.

2 Planning and Development Process

Planning for a high-capacity, high priority corridor within the region between I-19 and I-10 south of Tucson International Airport (TUS) began in 2014 to address anticipated growth in the study area and in one of the few sections of the region able to accommodate significant growth and economic opportunity. As stated in the Draft Tier 1 EIS, the previous planning documents that were considered as part of this study include the following: The Pima County *Sonoran Corridor Study* (2015), 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) (2015), the *Sahuarita Farms Specific Plan* (2015).

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 designated 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 environmental process for this Sonoran Corridor Tier 1 study officially began with the Notice of Intent (NOI) to prepare a Tier 1 EIS, published in May 2017, which initiated project scoping. Associated technical analyses and other supporting documents were then developed and are now available on the

project's website. After publication of the Draft Tier 1 EIS and the close of the public comment period in January 2021, the FHWA and ADOT considered the Draft Tier 1 EIS information, public and agency comments received, and other supporting materials in the project file to reaffirm the Preferred Alternative in the Final Tier 1 EIS.

2.1 Need and Purpose

An early step in preparing an EIS is to develop a concise description of transportation problem(s) or other need(s) that exist in a defined study area and the purpose(s) or outcome(s) sought in addressing them. Thereafter, the EIS process continues with identification and evaluation of a reasonable range of alternative solutions that would meet these defined needs and purposes of a proposed action. The Need and Purpose statement in Chapter 1 of the Draft Tier 1 EIS (Appendix A) provides the basis for developing a reasonable range of alternatives and informing the selection of an alternative.

2.1.1 Project Need

Previous studies have identified key transportation needs and issues in the study area, which have been further refined through agency and tribal coordination and public involvement and the Scoping process. The following needs exist within the Sonoran Corridor study area:

- Population and employment growth— the current transportation network has limited ability to service new growth plans and provide access to existing activity centers.
- Congestion reduction—an increase of 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.

2.1.2 Project Purpose

Given the needs or problems that exist within the study area, the overall purpose of this study is to identify a high-priority, high-capacity, access-controlled transportation corridor that will:

- Improve the existing transportation network by affording better access to growth areas and existing activity centers;
- Reduce congestion and improve LOS that is predicted for the study area in 2045;
- Provide a system linkage between I-19 and I-10 south of TUS that improves mobility associated with regional, interstate, and international travel.

2.2 Alternatives Analysis (Corridor Selection Report)

A Corridor Selection Report (CSR) was prepared to describe and document the alternative analysis process that took place to identify the reasonable range of alternatives. Beginning with over thirty alternatives, the number of options was reduced to twelve through a series of analysis steps ranging from a determination of effective Interstate connection points and effects on the local communities. The twelve remaining choices were subjected to a comparative high-level technical assessment of transportation service and environmental effects detailed in the CSR. The three corridor alternatives

that were evaluated in the Draft Tier 1 EIS represented the best set of options for further analysis since they spanned the most optimal geographical area for meeting the project's purpose and performance objectives, had amongst the lowest relative impacts, and provided comparable but distinct opportunities for further impact mitigation.

3 Selected Alternative

Based on the analysis completed and the input from the public and agencies, all the alternatives have generally comparable effects, but in terms of the specific elements of the Need and Purpose statement, Corridor Alternative 7 (shown on Figure FEIS-1) is effective at balancing congestion reduction, mobility improvement, and accessibility and growth questions of the need and purpose with the environmental impacts of building a transportation corridor in the study area.

3.1 Description of Selected Alternative

The Selected Alternative is Corridor Alternative 7: El Toro South to Rita Road (shown on Figure FEIS-1). This alternative is 20.47 miles long and extends from the west at I-19 in Sahuarita, near El Toro Road, to I-10 at Rita Road. From I-19, it will travel east along a new alignment, then north along an extension of Alvernon Way to Old Vail Connection Road where it will follow Old Vail Connection Road to I-10 at Rita Road.

While Corridor Alternative 7 has potential effects on some environmental resources that may require mitigation, it effectively meets the Need and Purpose of the study based on the analyses completed. Corridor Alternative 7 improves service to future growth areas and existing activity centers by providing a major new access-controlled facility in the study area that serves the entire region. Corridor Alternative 7 also reduces congestion that is predicted for 2045, and improves the LOS within the study area. For instance, Alternative 7 has a 12.2 % reduction in study area network Volume-to-Capacity ratio (V/C) compared to the No-Build alternative. Lastly, Alternative 7 improves mobility as evident by the reduction in travel times compared to the No-Build alternative (16.6 minutes of travel time reduction between study area common endpoints for all alternatives), coupled with higher projected travel speeds in the corridor (near 70 mph compared to 57 mph traveling I-19 and I-10 and only 40 mph traveling Sahuarita Road in the No-Build alternative). Also, lower travel times is evident by reduced VHT despite higher travel demand as measured by higher VMT[1].

3.2 Phased Implementation Plan

Under any implementation scenario, the Selected Alternative is a long-term improvement that will likely be implemented in segments over time at a level of detail sufficient to move elements of the plan toward construction. A Phased Implementation Plan is presented in Appendix G of this Final Tier 1 EIS/ROD. Funding and implementation strategies will be developed in Tier 2, as appropriate, to implement the decisions made in Tier 1. Future Tier 2 NEPA studies will be initiated on individual Segments of Independent Utility (SIU), and must meet requirements of independent utility and logical

[1] Chapter 2, Section 2.6.4 of the Tier 1 DEIS (Appendix A)

termini provided in 23 CFR 771.111(f). One or more detailed highway alignments will be developed and evaluated for each SIU. For each SIU, all highway alignments will have a defined location within the Tier 1 EIS corridor, and the appropriate NEPA Class of Action will be completed with specified mitigation plans.

Two system interchanges would be part of the Tier 2 alignment configuration, one at I-19 south of El Toro Road and one at I-10 at Rita Road. While final local interchange locations have not been designated in the Tier 1 EIS, it has been assumed for travel forecasting purposes that connections to the Selected Alternative would be located at existing arterial roadways to provide linkages to local communities and activities within the study area.

4 Other Reasonable Alternatives Considered

This section contains information on other reasonable alternatives that were evaluated as part of the Tier 1 study. It also includes factors that FHWA and ADOT balanced in making its decision. All Tier 1 EIS Build alternatives are shown in Figure ROD-1.

4.1 No-Build Alternative (Environmentally Preferable)

Pursuant to 40 CFR § 1505.2(b), lead agencies are required to specify the environmentally preferable alternative(s) in the ROD in cases where an EIS has been prepared. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in Section 101 of NEPA. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment, and best protects, preserves, and enhances historic, cultural, and natural resources.

Of the range of alternatives evaluated as part of the Tier 1 EIS, FHWA considers the No-Build Alternative to be the environmentally preferable alternative when compared to Corridor Alternatives 1, 7, and 8A. This alternative represents the base conditions for the Study Area and only includes committed capacity and access improvements in the Study Area based on PAG's 2045 Regional Mobility and Accessibility Plan (RMAP), as described in Section 2.5 of the Tier 1 Draft EIS, thus it would result in the least amount of new environmental resource disturbance and impact. The No-Build Alternative includes improvements to existing interstate facilities and the widening of several local roadways throughout the Study Area, which are most likely to impact environmental resources that have been previously disturbed. In contrast, Corridor Alternatives 1, 7, and 8A include environmental impacts associated the construction of new alignment, the Sonoran Corridor, as explained in more detail in Chapter 3 of the Tier 1 EIS, in addition to environmental impacts that may result from the already-planned improvements included No-Build Alternative. Therefore, they would be more environmentally impactful than the No-Build Alternative.

Although it is the environmentally preferable alternative, the No-Build Alternative does not meet the project purpose and need —it does not address any of the transportation needs explained in Section 2.1.1 of this ROD, and it does not meet the overall purpose of the Tier 1 EIS Study. Therefore, it was not chosen as the Selected Alternative.

4.2 Corridor Alternative 1

The concept of Corridor Alternative 1 came from a 2015 Pima County Sonoran Corridor study and was developed in early coordination with Tohono O'odham Nation (TON), including San Xavier District (SXD) leadership and staff, the TON Tribal Historic Preservation Officer (THPO), the allottees, the Allottee Association, and the TON Tribal Gaming Enterprise.

Corridor Alternative 1 connects I-19 on the SXD of the TON to Rita Road at I-10. From its connection at I-19, it travels east through SXD allotted lands to an extension of Alvernon Way where it turns northward to Old Vail Connection Road, then east to I-10 at Rita Road. It is the shortest of the corridor alternatives evaluated in the Draft Tier 1 EIS at 16.06 miles. As such, it offered the potential of reduced impacts and cost based solely on its length. From a transportation perspective, Corridor Alternative 1 performed well regarding travel time reduction (15.9 minutes) but serves a smaller number of areas of growth and activity centers in the study area and has a lower benefit to congestion reduction (5.4% reduced study area network V/C) compared to the Selected Alternative.

During development of the Draft Tier 1 EIS, TON leadership submitted a letter in support of further study of the corridor with the caveat that affected allottees must be included in the discussion and participate in the final decision about retaining Corridor Alternative 1 as a viable option to move forward into Tier 2. ADOT and FHWA had been in ongoing and frequent contact with SXD, TON, the Allottee Association, and the affected allottees who own property in the proposed Corridor Alternative 1. About only 12% of affected allottees responded to a survey to assess allottee preferences. In all, information collected from the affected allottees suggests a lack of critical support for Corridor Alternative 1. This lack of support from affected allottees, coupled with information presented in the previous paragraph, is the reason why Corridor Alternative 1 was not identified as the Selected Alternative.

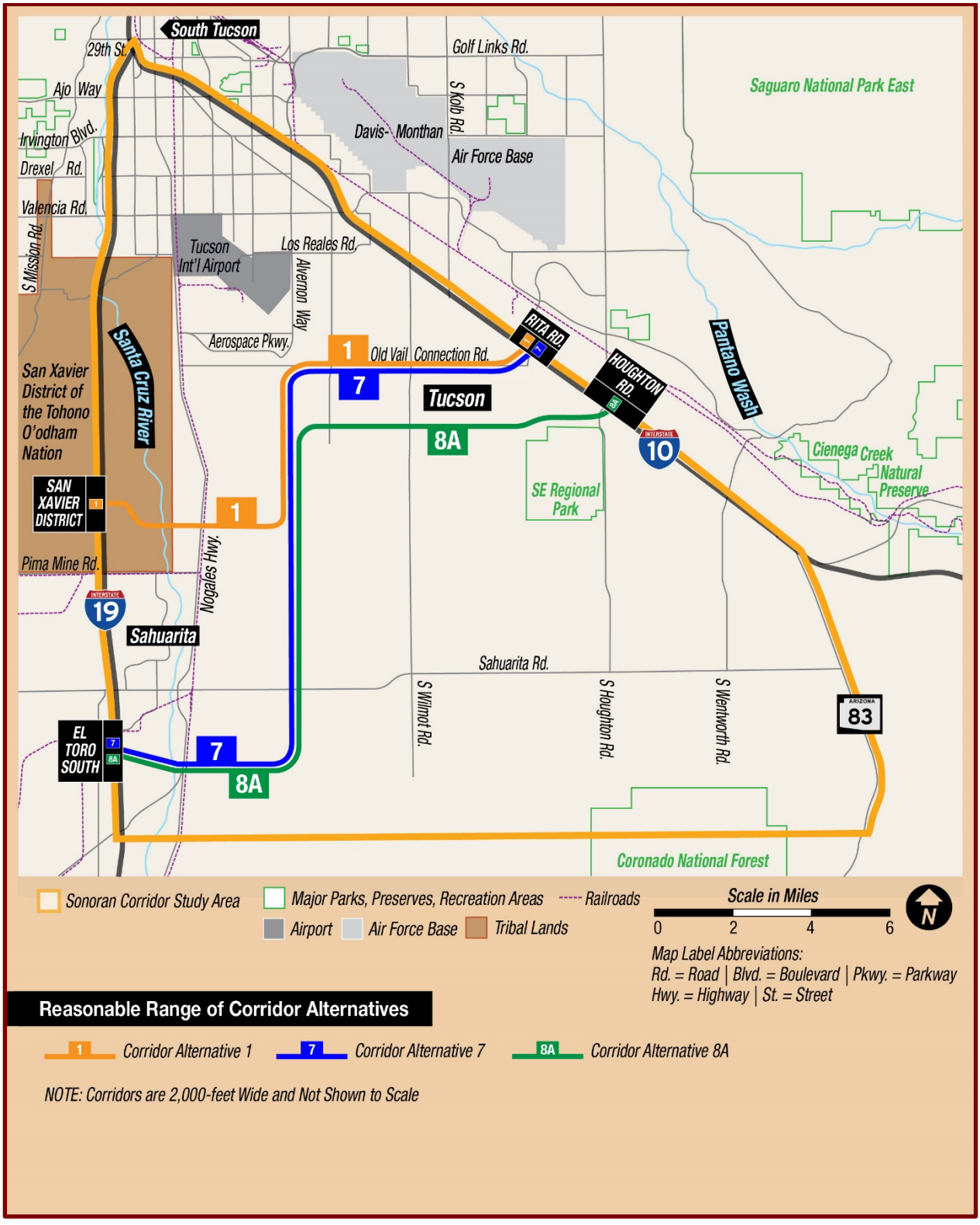
4.3 Corridor Alternative 8A

Corridor Alternative 8A is 21.04 miles long and is similar to Corridor Alternative 7, following a similar path from its southerly terminus and along Alvernon Way. It turns east to connect to I-10 at Houghton Road, about one and a half miles south of Corridor Alternatives 1 and 7 at Old Vail Connection Road. While Corridor Alternative 8A is effective in reducing travel time through the study area (17.8 minutes) and congestion (13.8% V/C reduction in study area network), it is located a further distance from activity centers compared to Corridor Alternative 7 which is evident based on an analysis that was completed in the Tier 1 EIS. The total distance between the corridor alternatives and 27 identified activity centers within and near the study area was summed up as shown in Table FEIS-2. The sum of the distance to the nearest point on the corridor alternative was considered to measure how effectively each corridor alternative serves the various activity centers. Corridor Alternative 7 had a sum of 66.59 miles while Corridor Alternative 8A had a sum of 75.72 miles. In this case, the shorter distance means better connection to activity centers.

In addition, based on input received from the public and agencies during public review and comment period, Corridor Alternative 8A was less favored compared to Corridor Alternative 7. Although Corridor Alternatives 7 and 8A cumulatively result in similar environmental impacts as shown in Table FEIS-1,

Corridor Alternative 8A has a higher number of residential units within the corridor area thus resulting in a potential higher number of relocations and displacements when compared to Corridor Alternative 7. Lastly, Corridor Alternative 8A is the longest of the three corridor alternatives, so it's assumed that Corridor Alternative 8A could potentially result in a higher construction cost compared to the Corridor Alternative 7. Corridor Alternative 8A was not identified as the Selected Alternative for these reasons.

Figure ROD-1. Reasonable Alternatives Considered



5 Recommended Measures to Mitigate Adverse Impacts

Through a comprehensive review of the potentially affected environment and environmental consequences, no known issues were identified that would necessarily preclude or prevent the implementation of the Selected Alternative or advancement of the proposed action into the Tier 2 phase of development. In accordance with 23 CFR 771.111(g), the Tier 1 EIS study focused on broad issues such as general location, areawide air quality and land use implications of each reasonable alternative that was evaluated. Individual Tier 2 studies will address site-specific details on projects impacts, costs, and appropriate mitigation measures, and will include appropriate thorough field surveys.

Due to the broad nature of analysis that was performed during Tier 1 and the long-range nature of the project, it was not feasible or necessary to conduct detailed studies and determine specific project impacts of many resources, and several environmental issues will need further investigation as part of Tier 2 studies. These investigations will include consideration of avoidance, minimization, and mitigation.

During subsequent Tier 2 Studies and future project design development, regulatory and selected permits will be required. Table ROD-2 provides a list of likely Federal, State and local permits that may necessary during Tier 2.

5.1 Tier 2 Environmental Commitments

Although the Tier 1 EIS focused on broad issues and identified potential impacts of the Selected Alternative, ADOT, acting as the lead agency under the 326 and 327 MOUs, has committed to analyses and actions designed to avoid, minimize, and mitigate the potential adverse effects of the proposed project in a future Tier 2 NEPA analysis. 40 CFR §1508.20 mandates mitigation of impacts, which may include avoiding an impact, minimizing an impact, correcting an impact, reducing or eliminating an impact over time, or compensating for an impact.

While the list is not exhaustive, Table ROD-1 lists environmental commitments for impacts likely to result from construction and operation of the Selected Alternative. The final determination of the appropriate mitigation measures will be made during Tier 2 projects when impacts are better defined, and the appropriate public and resource agencies have been consulted. Environmental commitments that can be incorporated during Tier 2 as specified in paragraphs (b) and (d) of 23 CFR 771.109 are described and summarized in Table ROD-1.

Table ROD-1. Tier 2 Environmental Commitments

RESOURCE AREA	TIER 2 ENVIRONMENTAL Commitments
Transportation	Tier 2 studies will address more specific considerations, such as continued coordination with local and county transportation agencies and development of a traffic management plan and its effects.
Land Use	Tier 2 studies will address more specific mitigation considerations, such as the acquisition of properties and conversion of land to transportation uses.
Socioeconomic Conditions, Displacements/ Relocations	During Tier 2 analyses, impacts will be avoided or mitigated through the design of the alignment minimize disruption to community features or resources; planning and locating new facilities outside of the selected alignment; building structures such as pedestrian overpasses to maintain any existing neighborhood connections; or modifying existing facilities to maintain access and function. If during the Tier 2 analysis it is found that displacements are unavoidable, all displacements would occur in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. ADOT will coordinate with the National Park Service and other local entities during Tier 2 to identify mitigation that will minimize impacts to the Juan Bautista De Anza National Historic Trail, as appropriate.
Environmental Justice and Title VI	Tier 2 studies will address more specific mitigation considerations, such as placing the alignment to avoid and minimize impacts to communities, consideration of features such as pedestrian overpasses to maintain neighborhood connections, and continued characterization of community demographics in order to more comprehensively identify environmental justice populations. Also, specific community impact assessments needed to identify disproportionately high and adverse effects on a particular EJ community and identify benefits that will offset those adverse effects will be conducted during Tier 2. Tier 2 studies will use early and continuous public outreach, with interpretation services and translated materials, to engage potentially impacted communities. The public engagement process will collect information to assist in identifying impacts and mitigation options, as well as maintaining open communication about the project throughout the construction phases.
Economic Resources	Tier 2 studies will address more specific impacts and mitigation considerations, including use of an updated travel demand model with current population and employment projections, addressing the spacing and number of interchanges, and a more detailed analysis of the impacts to businesses, including loss or improvement of access.
Section 4(f) Resources	As set forth in 23 CFR 774. 7(e)(2) & (3), ADOT will complete a Final Section 4(f) Evaluation during future Tier 2 studies. At that time, ADOT will focus on making final determinations of use, assessing avoidance and least harm as warranted, and identifying specific measures to minimize harm. Potential measures to minimize harm could include the following: • Design construction modifications to avoid encroaching on or bisecting a Section 4(f) resource. • Provide an alignment within the 2,000-foot-wide study corridor that avoids the protected property. • Provide crossings for trails either under or over the freeway.

RESOURCE AREA	TIER 2 ENVIRONMENTAL Commitments
	• Shift the 2,000-foot-wide study corridor away from the protected property to accommodate the project without using land from the protected property. • Use context-sensitive design in future stages of project development. • Incorporate natural design features, such as earthen berms and tree plantings. • Allocate replacement of parkland or open space. • Modify construction methods to minimize impacts. • Develop other measures in consultation with SHPOs, tribes, other consulting parties, and the public. • Coordinate with National Park Service and Pima County for any work associated with the Juan Bautista de Anza National Historic Trail. The results of the detailed Tier 2 cultural resources studies and surveys would be assessed to determine if any additional Section 4(f) properties are present.
Cultural Resources	FHWA has executed a Tier 1 Programmatic Agreement (PA) pursuant to Section 106 of NHPA to stipulate procedures for assessing effects of Tier 2 projects on properties listed in or eligible for the NRHP. The PA stipulates procedures for developing and implementing measures to avoid or minimize adverse effects or mitigate any unavoidable adverse effects as each Tier 2 project is planned. Tribal cultural sensitivity training will also be part of the Tier 2 commitment. The PA is included in Appendix C.
Air Quality	Tier 2 studies will include project-level air quality analyses wherever applicable and identify pertinent impacts and address more specific mitigation considerations, such as including methods to minimize the impact of construction activities on air quality.
Noise and Vibration	Tier 2 studies will address more specific mitigation considerations, such as a traffic noise impact and abatement analysis based upon the alignment and design of the Sonoran Corridor. Mitigation measures considered during Tier 2 studies will include noise walls, earthen berms, acquisition of a buffer zone, traffic management measures, and refinement of the horizontal and/or vertical alignment.
Hazardous Materials	Tier 2 studies will conduct updated searches of regulatory databases to reflect most recent records and address more specific avoidance and mitigation concerns, such as Phase 1 Site Assessments, hazardous materials testing, and development of a health and safety plan during construction. Tier 2 effort must coordinate with the Corps Los Angeles Regional Office and ADEQ to identify and arrange for removal of any UXO in the selected corridor prior to any fieldwork.
Geology, Soils, and Prime and Unique Farmlands:	Tier 2 studies will include formal coordination with the Natural Resources Conservation Service as part of compliance with the Farmland Protection Policy Act, as appropriate, and address site-specific mitigation measures, such as avoidance of land subsidence areas, earth fissures, slope design, geotechnical considerations, erosion control, and development of a reclamation and revegetation plan.

RESOURCE AREA	TIER 2 ENVIRONMENTAL Commitments
Biological Resources	Preconstruction surveys for listed or sensitive species, such as the Pima Pineapple cactus, will be conducted during Tier 2 to help identify the appropriate strategy to offset losses to any affected species. Tier 2 studies will address more specific mitigation considerations, such as biological habitat assessments, species-specific field surveys, vegetation removal, and control of noxious and invasive species during construction. ADOT will conduct a thorough Biological Evaluations to identify Endangered Species Act-listed species and any designated critical habitat, and avoid, minimize, and mitigate impact to any species or designated critical habitats. ADOT will conduct consultation with the US Fish and Wildlife Service (USFWS), as appropriate. ADOT and stakeholders will identify crossing structures, design features, and supporting mitigation or conservation necessary to facilitate movement of wildlife across roadway barriers.
Water Resources	Tier 2 studies will address more specific mitigation considerations, such as designing the future construction footprint to minimize its impact on sensitive water resources to the extent possible, obtain Clean Water Act Section 401, 402, and 404 permits and certifications, as needed, and development of stormwater pollution prevention plans employing best management practices which minimize impacts to water quality.
Visual and Aesthetics	Tier 2 studies will address more specific mitigation considerations, such as the minimization of earthwork and grading and development of landscape design plans for visually sensitive areas. ADOT will comply with applicable local and county ordinances related to dark skies and employ best management practices in minimizing the impact of fugitive light on the night sky along the Sonoran Corridor

Note: Alternative 7 is 2,000 feet wide and the assumed right-of-way for a future facility alignment would be a maximum of 400 feet wide. The use of broad 2,000-foot-wide corridor alternatives in the Tier 1 analysis gives flexibility to identify and refine the specific roadway alignment within the corridor area of Alternative 7 during Tier 2. At that time, development of the specific alignment and more detailed design would provide an opportunity to avoid or minimize impacts to the natural and human environments.

5.2 Anticipated Permits

During the Tier 2 studies and subsequent design development, federal state and local permits will be required. ADOT and its contractors will be responsible for complying with all related commitments and regulatory permit conditions made or obtained for the Selected Alternative. Table ROD-2 contains a list of Federal, State and local permits that are anticipated to be required for the construction of the Selected Alternative.

Table ROD-2. Anticipated Permits

PERMIT	RESPONSIBLE AGENCY
Federal Permits	
Section 404 of the Clean Water Act	Corps
Section 7 Endangered Species Consultation	US Fish and Wildlife Service (USFWS)
Notice of Proposed Construction Alteration	Federal Aviation Administration (FAA)
Determination of No Hazard	FAA
Conditional Letter of Map Revision (CLOMR)	Federal Emergency Management Agency
Section 401 of the Clean Water Act Certification	Corps/Arizona Department of Environmental Quality
State Permits	
Arizona Pollution Discharge Elimination System Permit	ADEQ
Construction Activity General Permit	ADEQ
Stormwater Pollution Prevention Plan Permit	ADEQ
Notice of Intent	ADEQ
Notice of Termination	ADEQ
Regional and Local Permits	
Fugitive Dust Activity Permit	Pima County Department of Environmental Quality
Building/Construction Permits	Affected jurisdictions
Utility Permits	Affected utilities

6 Monitoring and Enforcement Program

By virtue of the tiering process, several issues (mostly due to the conceptual nature of the definition of the Sonoran Corridor improvements) will remain for consideration in Tier 2 studies. After assuming FHWA's NEPA responsibilities under the 326 and 327 MOUs, ADOT is required to implement mitigation measures that are being presented as environmental commitments in this combined Final Tier 1 EIS/ROD document as specified in 23 CFR 771.109 parts (b) and (d) during Tier 2 studies in accordance with the recommendations contained in Table ROD-1 (Tier 2 Environmental Commitments), above. Future Tier 2 studies will be conducted through an ongoing program of public outreach and resource agency coordination. Through the Tier 2 studies, more specific definitions and details of the improvements and their potential impacts will be developed for consideration by the general public and the various resource agencies.

The appropriate NEPA Class of Action (Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement) for any SIU will be determined by ADOT according to the significance of project impacts. Although the tiering process has laid the foundation for the continued study of the Sonoran Corridor, the schedule for implementing the Selected Alternative is currently undetermined. FHWA and ADOT are committed to implementing the Selected Alternative in a prudent and responsible sequence. Construction will be conducted in a manner consistent with the Need and Purpose as conditions within the study area materialize and become more critical. The timing of the construction will depend on the availability of funding and the respective priorities, commitments, and needs within the region.

7 Conclusion

A decision on the Selected Alternative was made following a collaborative decision-making process that included consideration of social, economic, and environmental factors with an extensive outreach of resource agency and Tribal coordination and public involvement. The Selected Alternative and the environmental consequences associated with its selection were presented in the Tier 1 EIS. Approval of this ROD for the Sonoran Corridor denotes completion of the Tier 1 phase of project development. Tier 2 analyses with preliminary design of selected alternative alignments within the corridor area of the Selected Alternative, final design, right-of-way acquisition, and construction phases will follow. As the development of the project continues, ADOT will monitor changes during the final design process so that appropriate follow-up evaluations are completed and consistency with the Tier 1 EIS is maintained.