Draft Environmental Assessment

for

I-10, Junction I-19 to Kolb Road and SR 210, Golf Links Road to I-10

Pima County

010-E(210)S

010 PM 260 H7825 01L

October 2019

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated April 16, 2019, and executed by the FHWA and ADOT.

Draft Environmental Assessment

for

I-10, Junction I-19 to Kolb Road and SR 210, Golf Links Road to I-10

Pima County

010-E(210)S

010 PM 260 H7825 01L

October 2019

Approved by: Paul O'Brien Date: 10/24/19

Paul O'Brien, PE
Environmental Planning Administrator

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated April 16, 2019, and executed by the FHWA and ADOT.

This Environmental Assessment has been prepared in accordance with provisions and requirements of 23 CFR 771 and 774 relating to the implementation of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(c).

List of Figures

List of Tables

List of Appendices

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
ALRIS	Arizona Land Resource Information System
APE	area of potential effects
ASLD	Arizona State Land Department
ASM	Arizona State Museum
ASTM	American Society for Testing and Materials
AZPDES	Arizona Pollutant Discharge Elimination System
BE	Biological Evaluation
BMP	best management practice
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CD	collector-distributor
CDP	Census-Designated Place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLC	Critical Landscape Connection
CO	carbon monoxide
CO_2	carbon dioxide
Corps	U.S. Army Corps of Engineers
CT	Census tract
CWA	Clean Water Act
dB	decibel
dBA	noise levels in decibels measured with an A-weighted frequency
DCR	Design Concept Report
DMAFB	Davis-Monthan Air Force Base
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Environmental Overview
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FS	Feasibility Study
FY	fiscal year
GHG	greenhouse gas
I-10	Interstate 10
I-19	Interstate 19
Interstate System	Dwight D. Eisenhower National System of Interstate and Defense Highways
IPaC	Information for Planning and Consultation

Jacobs	Jacobs Engineering Group, Inc.
Kino Sports Complex	Kino Veterans Memorial Sports Complex
LAeq1h or Leq	logarithmic average of noise over a one-hour period
LEP	Limited English Proficiency
LOS	Level-of-Service
MLS	Multiple Listing Service
MOVES	Motor Vehicle Emissions Simulator
MP	milepost
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAR	Noise Abatement Requirements
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
Online Review Tool	Arizona Environmental Online Review Tool
PAG	Pima Association of Governments
Pb	lead
PCOSC	Pima County Office of Sustainability and Conservation
PDEQ	Pima County Department of Environmental Quality
PISA	Preliminary Initial Site Assessment
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PM_{10}	particulate matter 10 microns or less in diameter
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SHPO	Arizona State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route
STIP	Statewide Transportation Improvement Program
SWPPP	Stormwater Pollution Prevention Plan
TAZ	traffic analysis zone
TEP	Tucson Electric Power
TEP Station	TEP Irvington Station
TI	traffic interchange
TIP	Transportation Improvement Program
Title VI	Title VI of the Civil Rights Act of 1964
Tucson Truck Terminal	Triple T Truck Stop
UA	University of Arizona
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
UPRR	Union Pacific Railroad
U.S.	United States
U.S.C.	U.S. Code

USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VA	U.S. Department of Veterans Affairs
VA hospital	Southern Arizona VA Health Care System
Waters	Waters of the United States

ADOT and the contractor would follow the federal laws and regulations, guidelines, and the ADOT standards and specifications listed below for all relevant environmental resources:

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Uniform Relocation Act Amendments of 1987
- ADOT *Right of Way Procedures Manual*
- Title VI of the Civil Rights Act of 1964
- ADOT *Public Involvement Plan*
- ADOT *Air Quality Guidebook for Transportation Conformity*
- ADOT *Clean Water Act Guidance Manual*
- ADOT Temporary Traffic Control Design Guidelines
- ADOT *Erosion and Pollution Control Manual for Highway Design and Construction*
- ADOT *Noise Abatement Requirements*
- ADOT *Standard Specifications for Road and Bridge Construction*
- SAF-6.01 Asbestos Management Policy
- ADOT *Roadside Vegetation Management Guidelines*

The following mitigation measures are not subject to change without prior written approval from Arizona Department of Transportation (ADOT) Environmental Planning. These mitigation measures would be updated as required in the Final Environmental Assessment and in the final design stages of the project.

Arizona Department of Transportation Design Responsibilities

- During final design, the Arizona Department of Transportation would coordinate with emergency response and transit providers (Arizona Department of Public Safety, City of Tucson Police Department, Pima County Sheriff's Department, South Tucson Police Department, City of Tucson Fire Department, City of South Tucson Fire Department, Rural Metro Fire Department, Southern Arizona Veterans Hospital, Banner-University Medical Center South, and Sun Tran), and Tucson Unified School District and Sunnyside Unified School District to accommodate emergency and transit needs in the Transportation Management Plan (page 50).
- The Arizona Department of Transportation Southcentral District would coordinate with the Sunnyside School District to develop pedestrian or traffic control measures related to Craycroft Road and truck traffic through the Littletown community, as warranted (page 58).
- During final design, the Arizona Department of Transportation would coordinate with Pima County Natural Resources Parks and Recreation Department to minimize the temporary occupancy of the Julian Wash Greenway Trail (page 68).
- Where feasible, the noise barriers required as mitigation measures would be constructed as early as possible in the construction phasing to shield adjacent properties from construction-related noise (page 79).
- During final design, Arizona Department of Transportation Environmental Planning would determine Clean Water Act Section 404 and Section 401 permitting needs (page 87).
- Site-specific environmental site assessments would be conducted prior to property acquisition, as recommended in the June 2019 Preliminary Initial Site Assessment (page 94).

Arizona Department of Transportation Roadside Development Section Responsibilities

- Protected native plants within the project limits would be impacted by this project; therefore, the Arizona Department of Transportation Roadside Development Section would determine whether Arizona Department of Agriculture notification is needed. If notification is needed, the Arizona Department of Transportation Roadside Development Section would send the notification at least 60 (sixty) calendar days prior to the start of construction (page 91).
- The Arizona Department of Transportation Roadside Development Section would provide special provisions for the control of noxious and invasive plant species during construction that may require treatment and control within the project limits (page 91).

Arizona Department of Transportation Southcentral District Responsibility

- If any active bird nests cannot be avoided by vegetation clearing or construction activities, the Engineer would contact the Arizona Department of Transportation Environmental Planning biologist (602.399.3233 or 602.712.7767) to evaluate the situation (page 91).

Contractor Responsibilities

- With the exception of temporary, short-term closures (less than three hours), the contractor would maintain driveway access to all businesses and residences throughout construction. If a property has multiple driveways, at least one would remain open at all times (page 50).
- The contractor would contact the ADOT Environmental Planning Historic Preservation Team (602.712.6371 or 602.712.2343) at least 10 (ten) business days prior to the start of ground-disturbing activities to arrange for qualified personnel to monitor and be present during construction (page 64).
- If vegetation clearing would occur during the migratory bird breeding season (March 1 to August 31), the contractor would avoid any active bird nests. If active nests cannot be avoided, the contractor would notify the Engineer to evaluate the situation. During the nonbreeding season (September 1 to February 28), vegetation removal is not subject to this restriction (page 91).
- Prior to construction, all personnel who would be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors, would review the attached Arizona Department of Transportation Environmental Planning "Western Burrowing Owl Awareness" flier (page 91).
- If any burrowing owls or active burrows are identified, the contractor would notify the Engineer immediately. No construction activities would take place within 100 feet of any active burrow (page 91).
- If the Engineer, in cooperation with the Arizona Department of Transportation Environmental Planning biologist (602.399.3233 or 602.712.7767), determines that burrowing owls cannot be avoided, the contractor would employ a qualified biologist holding a permit from the United States Fish and Wildlife Service to relocate burrowing owls from the study area, as appropriate (page 91).
- The contractor would develop a Noxious and Invasive Plant Species Treatment and Control Plan in accordance with the requirements in the contract documents. Plants to be controlled would include those listed in the state and federal noxious weed and the state invasive species lists in accordance with state and federal laws and executive orders. The plan and associated treatments would include all areas within the project right-of-way and easements as shown on the project plans. The treatment and control plan would be submitted to the Engineer for the Arizona Department of Transportation Construction Professional Landscape Architect for review and approval prior to implementation by the contractor (page 91).
- Prior to the start of ground-disturbing activities and throughout the duration of construction and any landscape establishment period, the contractor would arrange for and perform the control of noxious and invasive species in the study area (page 92).
- To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment would be washed prior to entering the construction site and the contractor would inspect all construction equipment and remove all attached debris, including plant parts, soil, and mud, prior to the equipment entering the construction site (page 92).
- To prevent invasive species seeds from leaving the site, the contractor would inspect all construction and hauling equipment and remove all debris, including plant parts, soil, and mud, prior to leaving the construction site (page 92).

Contractor Responsibilities (continued)

- The contractor shall complete a National Emissions Standards for Hazardous Air Pollutants (NESHAP) notification for the work associated with demolition and submit it to the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for a five (5) working day review and approval. Upon approval, the contractor shall file the notification with the Pima County Department of Environmental Quality prior to commencement of work associated with demolition (page 94).
- The contractor cannot start work associated with the demolition of structures until 10 (ten) working days have passed since the submittal of the notification to the regulatory agencies (page 94).

I. Introduction

A. Explanation of an Environmental Assessment

This Environmental Assessment (EA) for the Interstate 10 (I-10), Junction Interstate 19 (I-19) to Kolb Road and State Route (SR) 210, Golf Links Road to I-10 project was prepared in accordance with the National Environmental Policy Act (NEPA), as amended (42 United States [U.S.] Code [U.S.C.] 4321 et seq.) and Council on Environmental Quality (CEQ) regulations that implement NEPA (40 Code of Federal Regulations [CFR] 1500–1508).

23 U.S.C. 327 established a Surface Transportation Project Delivery Program that allows the Secretary of the U.S. Department of Transportation (USDOT) to authorize states to assume the USDOT responsibility under NEPA. The Federal Highway Administration (FHWA) and the Arizona Department of Transportation (ADOT) executed the NEPA Assignment Memorandum of Understanding on April 16, 2019. This allows ADOT to be the lead federal agency on the project. The FHWA participated as joint lead agency in planning and preparing technical and environmental documents prior to signing the Memorandum of Understanding.

According to CEQ regulations (40 CFR 1508.9), the EA is to describe the need for a proposed project, alternatives for implementing or constructing a proposed project, and the environmental impacts of a proposed project and alternatives. The EA also provides a listing of agency and persons consulted. This document serves as a tool for ADOT to identify potentially significant impacts on social, economic, and environmental resources and measures to avoid, minimize, and mitigate such impacts.

The proposed project is to fund, design, and improve the I-10 freeway from I-19 to Kolb Road and to provide an extension of SR 210 from Golf Links Road to I-10. These actions are to provide transportation facilities meeting capacity, operational, and safety needs of the public into the design year 2040.

The project has been assigned Federal No. 010-E(210)S and ADOT No. 010 PM 260 H7825 01L. Throughout this EA, the term “project limits” is used to represent the construction footprint (area of disturbance), while the term “study area” includes surrounding land outside but adjacent to the project limits. The term “project vicinity” is used to denote a more expansive landscape context. The Federal Aviation Administration (FAA) (Tucson International Airport) and the Department of Defense (Davis-Monthan Air Force Base [DMAFB]) were invited to become cooperating agencies in the preparation of the EA (Appendix A). The FAA declined the invitation, noting that the project as described would have no impact on Tucson International Airport or other airports (see Appendix A). Though the FAA declined to serve as a cooperating agency, it has been involved in continued project development and is considered a participating agency. The DMAFB accepted the invitation on June 24, 2019 (see Appendix A).

B. Project Location

The proposed project involves I-10 and SR 210 in the city of Tucson, the city of South Tucson, and unincorporated Pima County, Arizona (Figure 1). The project limits along I-10 begin at its junction with I-19 at milepost (MP) 260.8 and continue east to just beyond Kolb Road at MP 272.3 (Figure 2). The SR 210 project limits begin at Golf Links Road and extend south along Alvernon Way to I-10 (MP 265.0) (see Figure 2). Figure 2a depicts additional local street detail at selected locations. SR 210 is also known as Barraza-Aviation Parkway or East Aviation Parkway.

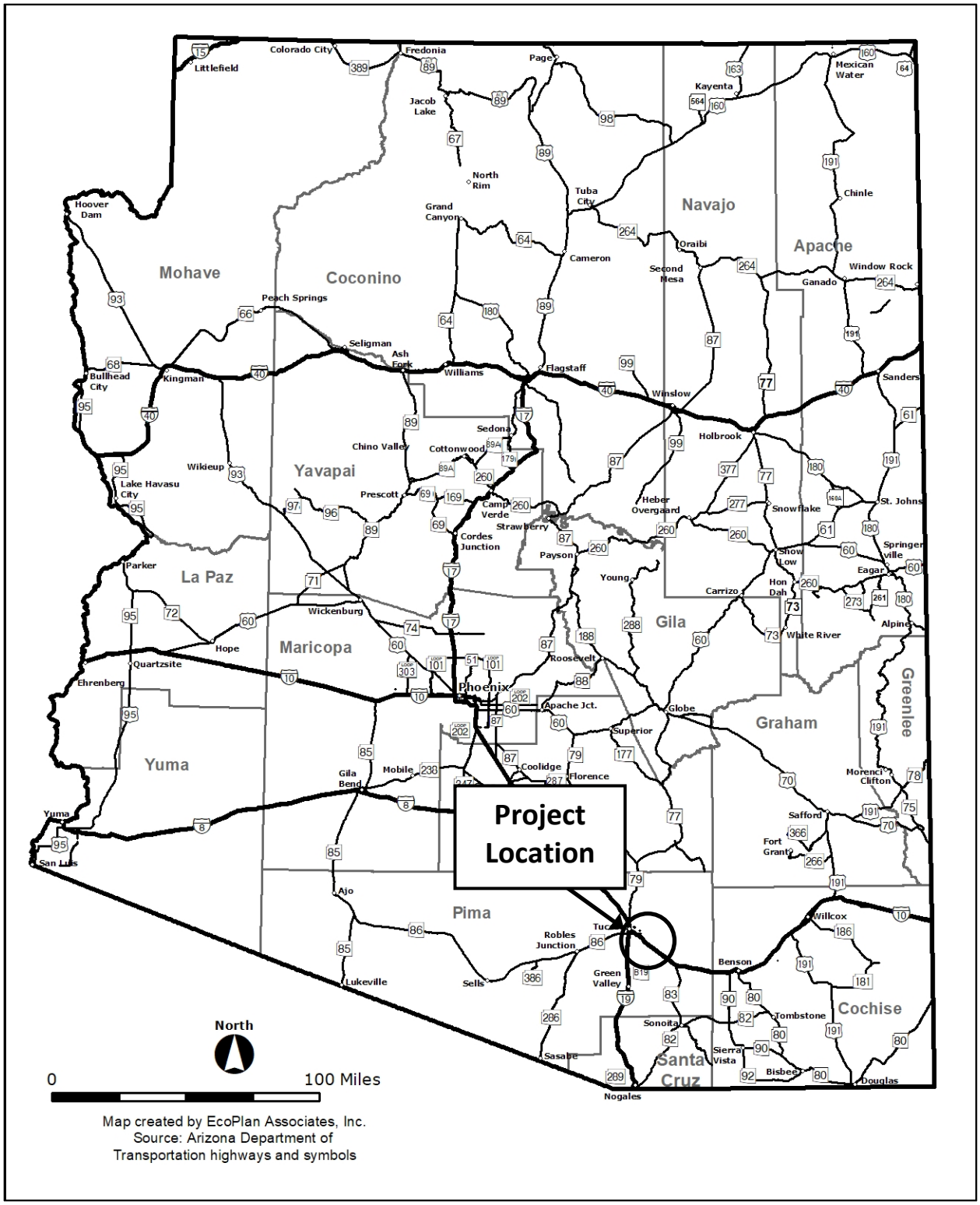

Figure 1. Project location

Figure 2. Project vicinity

Figure 2a. Local street detail

Throughout this document, the term SR 210 is used. The project corridors occur within:

- Township (T) 14 South (S), Range (R) 13 East (E), Sections 25 and 26
- T14S, R14E, Sections 27–34
- T15S, R14E, Sections 3, 4, 10, 11, 13, 14, and 24
- T15S, S15E, Sections 19, 20, 29, and 30

The project vicinity is defined as the regional setting for the project. This includes a substantial portion of the southeast Tucson metropolitan area. Major employers, military installations, transportation facilities, public services, commercial centers, and residential communities are within 3 miles of the project limits.

The study area is the area where existing information and field data were collected to identify all known resources in the affected environment. The study area was defined early in the planning through the *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Study Update* (ADOT 2015). The I-10 study area was based on the existing I-10 corridor (a half-mile on each side of the freeway centerline), and the SR 210 extension study area was based on reasonable connection points to I-10 and jurisdictional limits, and took into consideration the presence of the DMAFB and the Union Pacific Railroad (UPRR).

The study area along I-10 can be characterized as urban from I-19 to Kolb Road. The majority of the lands adjacent to I-10 are developed; however, tracts of vacant land occur on both sides of the interstate. The SR 210 study area is dominated by commercial and industrial development, including the DMAFB.

C. Project Background and Overview

I-10 in Arizona was planned by the Arizona Highway Department from 1956 to 1958 to replace the original SR 84 and SR 93 between Casa Grande and Tucson. The section of interstate through metropolitan Tucson was completed in 1961. Subsequent improvements and modifications have occurred throughout the I-10 corridor since 1961. Major improvements include the addition of I-10 traffic interchanges (TIs) at Kolb Road in 1983 and Valencia Road in 1986, and reconstruction of the I-10/I-19 system interchange in 2004.

I-10 is a full access-controlled interstate freeway. From the west end of the project (at I-19) to Kino Parkway, I-10 has three lanes eastbound and three lanes westbound, with 10-foot-wide inside and outside shoulders. From Kino Parkway to the east end of the project, just east of Kolb Road, I-10 has two eastbound lanes and two westbound lanes, with 10-foot-wide outside shoulders and 4-foot-wide inside shoulders. I-10 has a variable median width (26 feet to 84 feet) through the study area. The narrower medians west of the Park Avenue TI include a concrete barrier in the center of the median. East of the Park Avenue TI, the medians widen and contain landscaping or natural vegetation. TIs are located at major cross streets from west to east: 6th Avenue, Park Avenue, Kino Parkway, Palo Verde Road, Alvernon Way, Valencia Road, Craycroft Road, Wilmot Road, and Kolb Road. Country Club Road is a grade-separated crossing of I-10 with no on- or off-ramps.

SR 210 is a divided multilane urban highway alongside the UPRR that is functionally classified as an Urban Other Freeway and functions as a business spur route (a short road forming a branch from a longer, more important road). Currently, SR 210 is about 4 miles long and is oriented northwest–

southeast from Broadway Boulevard in downtown Tucson to Alvernon Way/Golf Links Road near the DMAFB. The 4-mile segment was opened in 1998. SR 210 is about 1.75 miles northeast of I-10 and roughly parallels it. The intersections with cross streets are signalized. The SR 210 extension associated with this EA would begin at Palo Verde Road, providing a new connection on the Alvernon Way alignment to I-10, thus completing an alternate route from I-10 on the south into downtown Tucson.

Original plans for SR 210 called for a connection at the west end at I-10 and St. Mary's Road. The I-10/ St. Mary's Road connection had been delayed for several years; however, in 2008 the City of Tucson approved the I-10 west end link. Construction of this last mile from Broadway Road to I-10 is scheduled to begin in late 2019. This last mile, which has been renamed Downtown Links, is not a part of this project. In 2010, ADOT and the FHWA commissioned the preparation of a two-phased study to define and evaluate future safety and capacity improvements to I-10 from the junction with I-19 to the junction with SR 83. The study also included the extension of SR 210 from Golf Links Road to a connection with I-10 at a location to be determined. The study and potential future construction are programmed in the ADOT Fiscal Year (FY) 2019–2022 Statewide Transportation Improvement Program (STIP). The STIP identifies the following projects: East Corridor Design Concept Report I-19 East to Kolb Road (current Design Concept Report [DCR]/EA phase), I-10 Country Club Road TI (FY 2022), and I-10 Kino Parkway TI (FY 2021–2022). The FY 2020–2024 Pima Association of Governments (PAG) Transportation Improvement Program (TIP) identifies the I-10/Country Club Road TI as TIP ID No. 74.07 (*Note:* the TIP project funding is identified as $8 million for design; no construction funding is identified) and the I-10 Kino Parkway TI as TIP ID No. 39.13 (TIP funding is listed as $1,914,000 for Utilities and $6,086,000 for design).

Transportation Planning Efforts

ADOT, the FHWA, the City of Tucson, the City of South Tucson, PAG, and Pima County understand that significant future growth in population around the Tucson area will occur south and southeast of Tucson. I-10 cuts diagonally across this growth area and would be impacted by future growth. East of the system interchange with I-19, I-10 was constructed in the 1960s as a rural interstate highway with rural design criteria, typically with just two lanes of traffic in each direction. A third lane in each direction was added from I-19 to west of Kino Parkway in 1991.

The Feasibility Study (FS) and Environmental Overview (EO) was the first phase of the 2010 ADOT and FHWA-commissioned study. The FS and the EO evaluated several alternatives for improving I-10 and extending SR 210 to I-10. The subsequent *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Study Update* (ADOT 2015) recommended three build alternatives to be evaluated further as a part of the second phase of the study—the development of a DCR/EA. Due to future construction funding limitations prior to the 2040 design year, the limits of the DCR were revised to end at Kolb Road, which is designated as a future north–south parkway and is a logical terminus along I-10. The number of recommended build alternatives to be evaluated further in the second phase of the study was also reduced to two after further review by the stakeholders.

The FS, which was completed in 2015, focused on the SR 210 extension and the existing I-10 corridor; no new I-10 alignments or bypass segments were considered. Potential improvements to I-10 included adding travel lanes, introducing a collector-distributor (CD) parallel facility, frontage roads, interchange access ramps, removing and adding a TI to improve TI spacing, and reconfiguring existing TIs. The FS and current DCR/EA also evaluate the No-Build Alternative.

The SR 210 alignment extension options were constrained by the DMAFB and the UPRR to the north and by I-10 to the south. Possible connection alternatives were also constrained by other land uses, parks, schools, and neighborhoods. The FS (ADOT 2015) examined the traffic demands and operational and engineering considerations of project development. Improvements to I-10 and SR 210 in the study area have been a goal of ADOT, the City of Tucson, Pima County, and PAG since 2003. The extension of SR 210 is under consideration to improve mobility and operations of I-10 into the downtown Tucson area. The I-10 and SR 210 corridors are being addressed together due to the linked mobility and operational goals of improving I-10 service into downtown Tucson. Traffic analysis studies prepared in support of the FS confirm the linked relationship between the two corridors. The FS was coordinated through the City of Tucson, the City of South Tucson, Pima County, PAG, and major stakeholders. The process included public involvement through stakeholder meetings and public open house meetings. General support for the project was received from the jurisdictions and the public. Thus, preparation of the current DCR/EA was initiated.

This chapter was prepared in accordance with 23 CFR 450.212 (Transportation Planning Studies and Project Development), 23 CFR 771 (Environmental Impact and Related Procedures), FHWA guidance on elements of a purpose and need, and ADOT NEPA EA and Environmental Impact Statement (EIS) guidance (ADOT 2019a). This section provides a baseline and the fundamental reasons for the development of alternatives that will help the study team evaluate and select a recommended alternative.

A. Need

This chapter identifies the underlying factors (or needs) that guide the project development goals (or purpose). The development of alternatives and analysis of potential impacts are guided by several key regulations and guidance documents:

- 23 U.S.C. 327 (Surface Transportation Project Delivery Program)
- 23 CFR 450.212 (Transportation Planning Studies and Project Development)
- 23 CFR 771 (Environmental Impact and Related Procedures)
- FHWA Technical Advisory T 6640.8A. *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987)
- FHWA guidance: Environmental Review Toolkit: Elements of Purpose and Need (FHWA 2018)
- ADOT NEPA EA and EIS Guidance (ADOT 2019a)

The Interstate Highway System was intended to relieve congestion, improve safety, and enhance the commerce—facilitating the movement of goods and people throughout the nation. Increases in traffic volumes on I-10 in Tucson have contributed to a reduction in operational effectiveness, particularly the segment between I-19 and Kolb Road. With multiple access points to I-10 in close proximity, short weaving (merging/exiting) distances between interchanges contribute to traffic congestion, further compounding the problem.

Most of the TIs were designed 25 to 40 years ago and have operational limitations. The operational efficiency on I-10 in the coming years is expected to further degrade based on capacity limitations and operational inefficiencies of the TIs. Through the DCR, an Updated Traffic Operational Analysis (ADOT 2019b) was conducted. Using the year 2040 PAG Travel Demand Model, future traffic volumes were evaluated for the no-build and build alternatives. The analysis concluded that without improvements, I-10 performance would reach unacceptable levels of congestion in the study area.

Traffic Capacity and Operation

A Traffic Operational Analysis was conducted to evaluate the effectiveness of the existing roadway system for existing traffic (year 2010) and future traffic volumes as projected by the 2040 PAG Travel Demand Model. The analysis used visual simulation modeling, which measures the effectiveness of traffic movement. These are then translated to a Level-of-Service (LOS) description by facility type, based on the 2010 Highway Capacity Manual definitions (Transportation Research Board 2016). LOS is a qualitative measure of the operational efficiency or effectiveness of a roadway. Six LOS values are defined and are designated by the letters A through F, with LOS A representing the best operating conditions and LOS F representing the worst. The specific terms in which each LOS is defined vary with

the type of facility involved. Per ADOT Roadway Design Guidelines (ADOT 2014), for mainline I-10 and SR 210, LOS D is the minimum design criteria for urban conditions while LOS B is the minimum design criteria for rural conditions (Figure 3).

Analysis of 2010 traffic shows that I-10 within the project limits operates at LOS D or better in the morning and afternoon peak hours, except for isolated areas where peak hour LOS is worse than LOS D, as discussed in the FS. Except for the eastbound I-10 off-ramp to northbound Kino Parkway, ramps along I-10 operate at LOS D or better. Except for the Valencia Road to westbound I-10 intersection, intersections along the I-10 and SR 210 corridors operate at LOS D or better. Figure 4 shows the LOS values for 2010 existing conditions and the projected 2040 No-Build scenario.

In the future, traffic volumes will increase on this segment of I-10 due to anticipated growth south and east of downtown Tucson and growing demand on I-10 as an interstate facility, which will lead to capacity and access restrictions on and along I-10. For the projected 2040 traffic volumes, the existing I-10 mainline for the entire project will be LOS E or worse in the morning and afternoon peak hours. Approximately half of the existing I-10 ramps will be LOS E or worse in the morning or the afternoon peak hours. Over 80% of the existing I-10/crossroad intersections will be LOS E or worse in the morning or the afternoon peak hours. The majority of the intersections along the SR 210/Alvernon Way corridor will be LOS E or worse during the morning or the afternoon peak hours.

Poor operational performance for local, regional, and interstate traffic will result from operations on this portion of I-10 declining to LOS D and then to LOS F by 2040. With a decline from LOS D to LOS F, the roadway would fail to function as intended, resulting in forced flow and extensive delays.

The combination of demand exceeding capacity and poor access along I-10 will restrict and compromise the primary functions of the roadway network in the study area. This will contribute to an increased traffic capacity problem, which means that traffic will continue to worsen in the study area.

Safety

East of the system interchange with I-19, I-10 was constructed in the 1960s as a rural interstate freeway with rural design criteria and typically only two lanes of traffic in each direction. Several of the TIs (Park Avenue, Kino Parkway, and Palo Verde Road) include loop on/off-ramps that have short ramp weave distances that adversely impact traffic operational efficiency and safety. Several interchanges are spaced closer together than the current recommended minimum of one mile, thus reducing weaving distances between successive ramps and contributing to reduced operational efficiency and crashes. As traffic volumes increase over time, the operational efficiency of the existing ramps will continue to degrade.

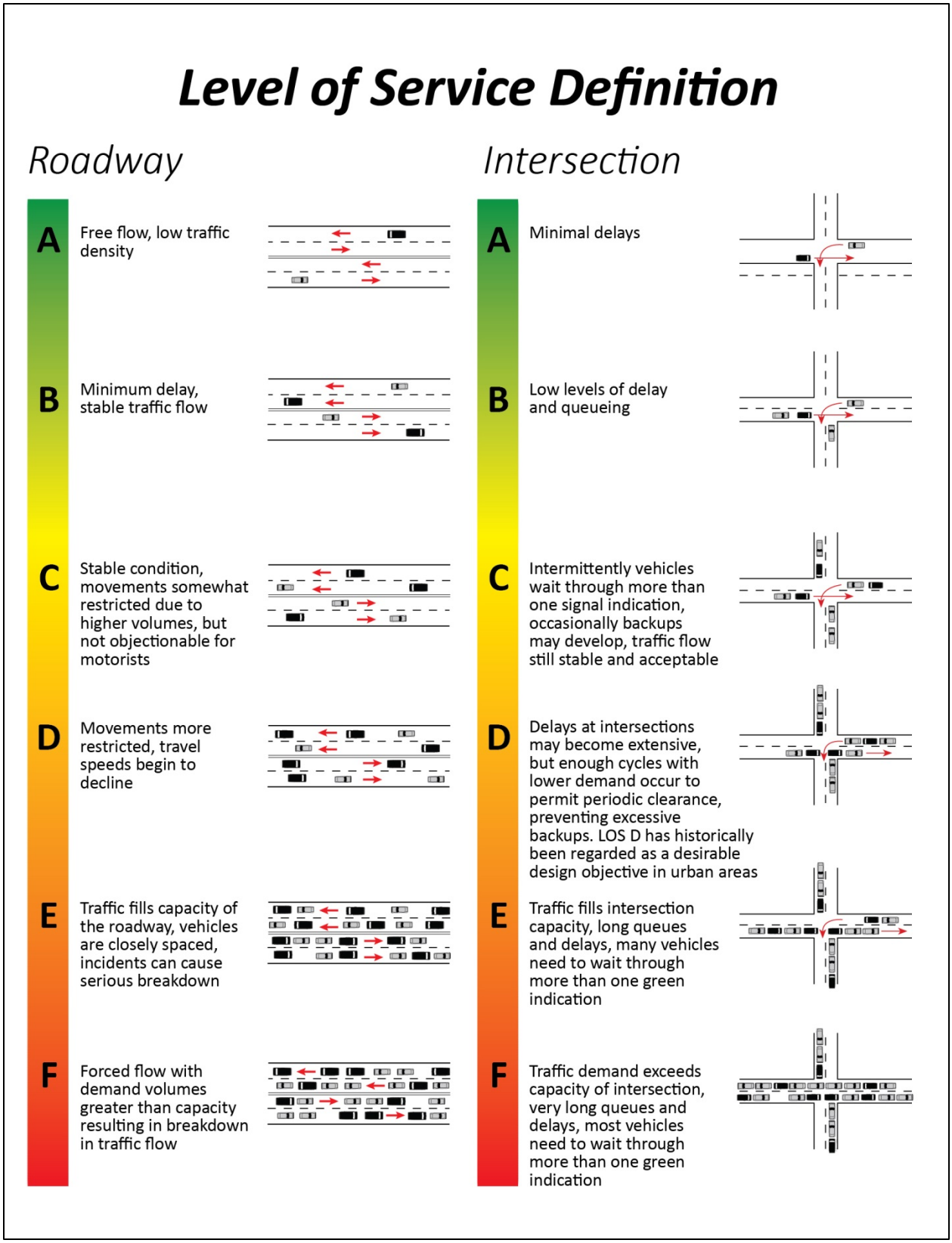

Figure 3. LOS definitions

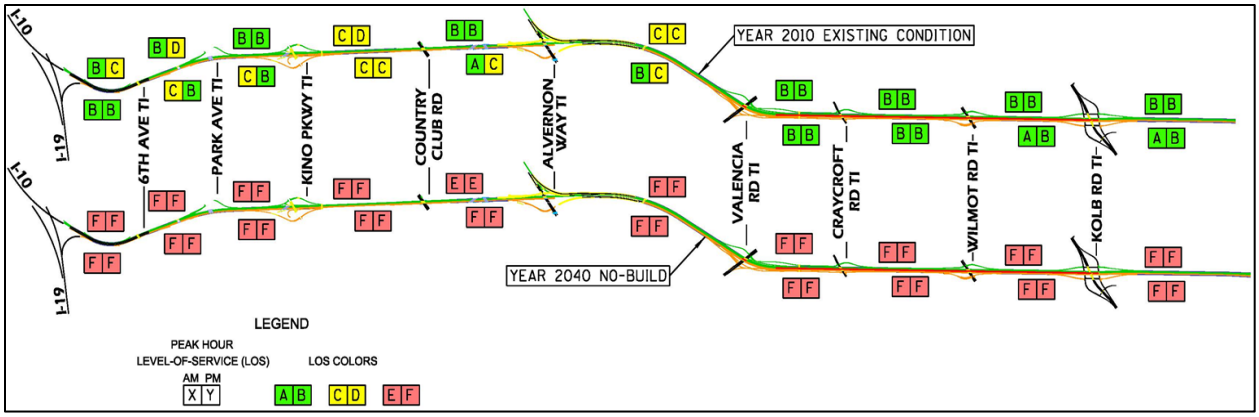

Figure 4. LOS values for 2010 existing conditions and projected 2040 No-Build scenario

Crash data analysis accomplished for the FS and updated for the DCR demonstrated that annual crash rates on I-10 within the project limits have been increasing. Some of these crashes may be attributed to the old 1960s design of I-10 and the interchanges (Table 1).

Table 1. 5-year crash summary (July 2011–June 2016)

Year	Total Crashes
July 2011–June 2012	335
July 2012–June 2013	372
July 2013–June 2014	393
July 2014–June 2015	470
July 2015–June 2016	486
Total	**2,056**

The analysis of crash data shows a higher density of crashes and fatalities along I-10 in the vicinity of those TIs with the older loop ramp design and less than desirable spacing between interchanges (Figure 5). The analysis also shows high crash densities along SR 210 near Ajo Way and several fatalities in the Golf Links Road Connection area.

Transportation System Connectivity

I-10 between I-19 and Kolb Road has eight interchanges with north–south major arterials. Five of these arterials encounter a physical obstacle, such as the UPRR switching yard and the DMAFB, and do not provide continuous north–south access from south of I-10 into central and north Tucson. As such, the three other interchanges (Kino Parkway, Alvernon Way, and Kolb Road) are major intermediate destinations for traffic from the south and southeast parts of the Tucson metropolitan area to access downtown Tucson.

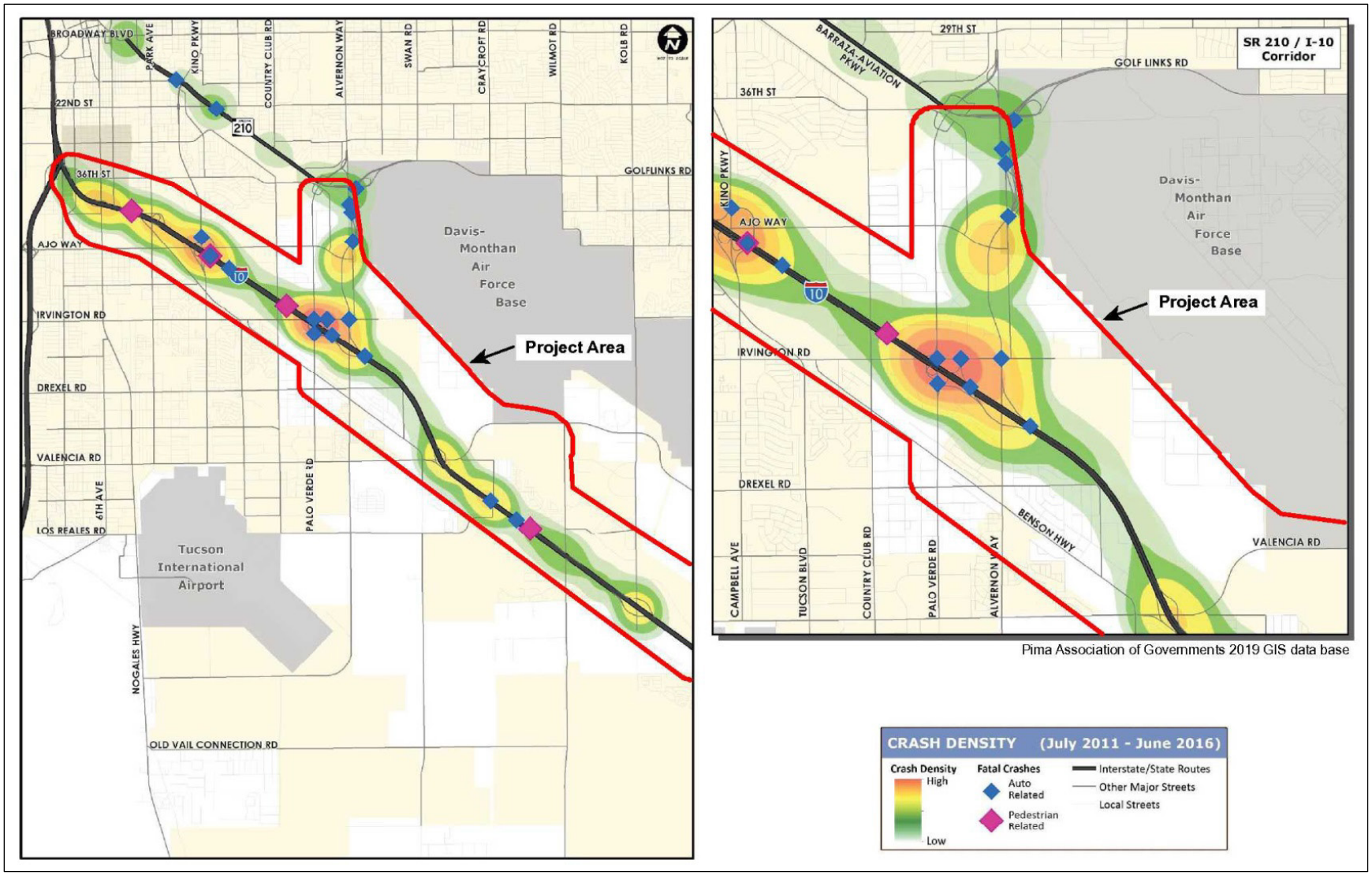

Figure 5. Project crash density 2011–2016

Subsequent to the construction of I-10, SR 210 was built as an urban highway and business spur, and it was intended to provide motorists with an alternate route into Tucson's downtown business district from points east and south of downtown. SR 210 is oriented northwest–southeast and extends southeast from Broadway Boulevard at 1st Avenue and terminates at Alvernon Way/Golf Links Road. Currently, I-10 motorists have no direct access to downtown Tucson via SR 210 and must use city arterials to get from I-10 to SR 210. Therefore, motorists must use an indirect route and are more likely to remain on I-10 longer, causing increased traffic volumes and congestion. Adding a connection between I-10 and SR 210 in southeast Tucson would facilitate the use of SR 210 as a business spur, providing local downtown traffic with a desirable alternative to I-10, offloading traffic, and thereby improving traffic operations on I-10.

The additional trips on the city arterials tend to exceed the capacity of the local roadway network, which causes motorists to stay on I-10. Commercial and commuter traffic heading into downtown Tucson also use I-10 and add to peak hour congestion, causing increased volume and stress to the operation of the interstate freeway. As is, the limited capacity and limited access for local trips prevents the existing roadway network in the study area from functioning as primarily intended.

Socioeconomic Conditions

Population and employment growth in a region typically increase the need for improved or expanded transportation services. Pima County had an estimated population of 1,016,206 in 2016, with 530,706 people in Tucson (U.S. Census Bureau 2017). Projections by PAG indicate population growth to 1,379,622 for Pima County and 718,187 for Tucson by 2040. Figure 6 depicts the traffic analysis zones (TAZ) for population per square mile. The growth is expected to align with the I-19 and I-10 corridors in the metropolitan area due to available land and job creation that is currently occurring in southeast Tucson. The lands adjacent to I-10 in the study area are key to that projected growth. The *Report on the Sub-Area Allocation Model Land Use Model and Scenario Results* (PAG 2015) projects employment density to significantly increase in the vicinity of I-10 and Kolb Road. Figure 7 depicts the TAZ for employment per square mile.

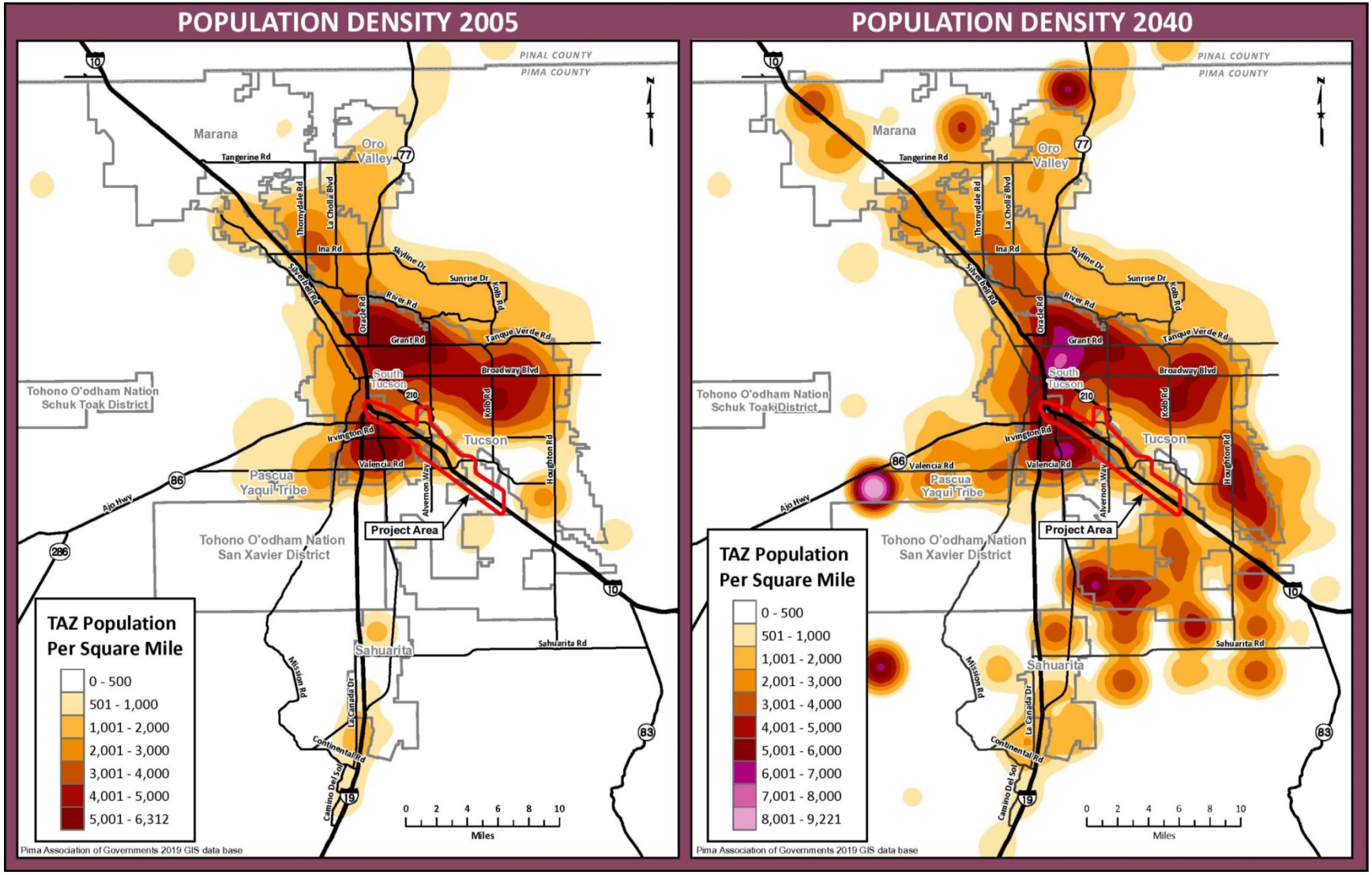

Figure 6. Projected population growth 2005–2040

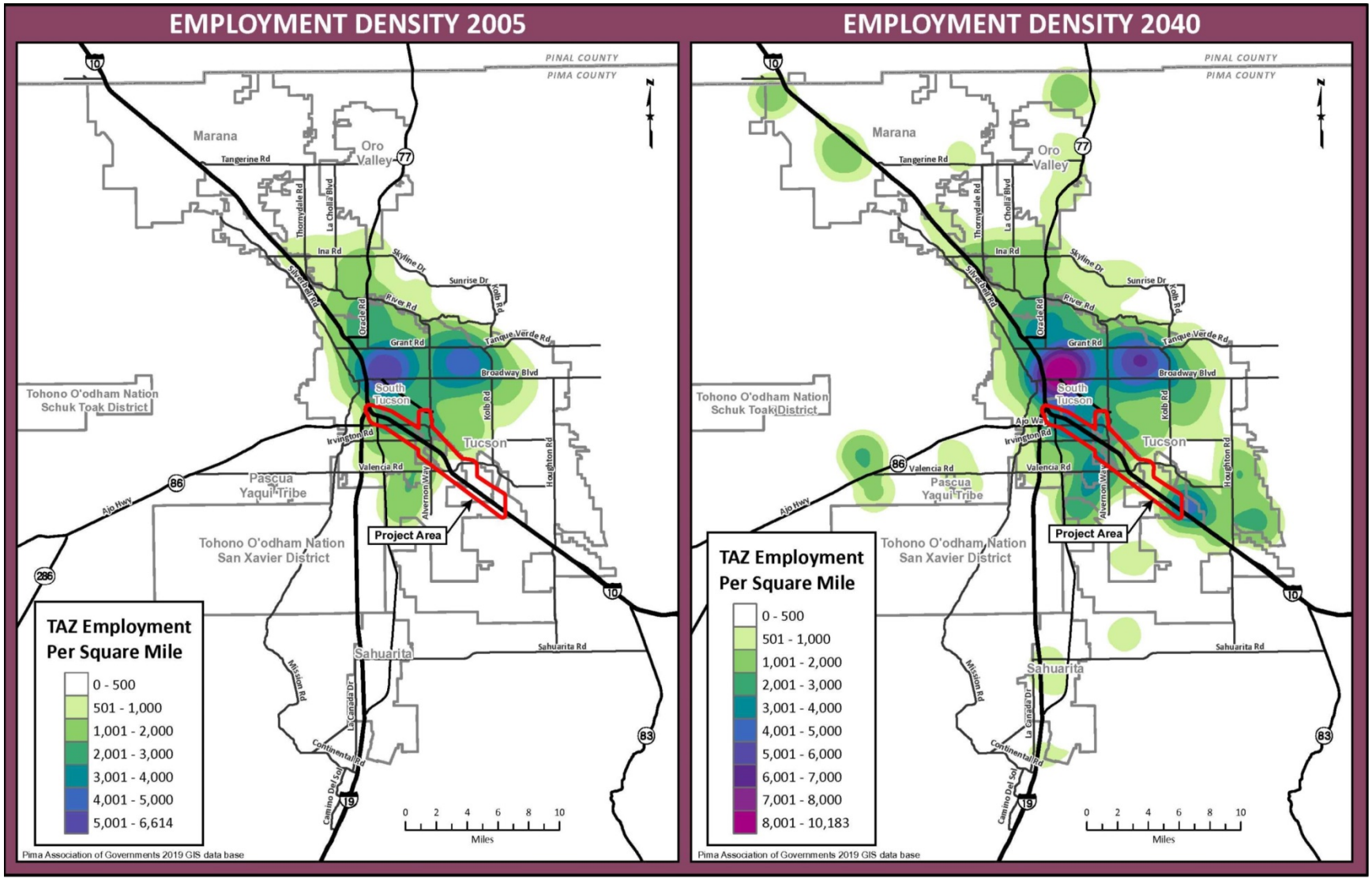

Figure 7. Projected employment growth 2005–2040

Need Summary

The Initial DCR (ADOT 2019b) identified the following needs associated with the proposed project:

- *Traffic Capacity and Operation*—Projected traffic growth will exceed the current capacity of I-10 and result in unacceptable LOS. Projected traffic growth by 2040 will result in substantive motorist delay times reflected as LOS E and F for I-10 without improvements (Figure 8). This is unacceptable for a regional transportation system.
- *Safety*—The I-10 TIs have poor operational performance and high crash rates due to spacing and outdated design types. As shown in Figure 5, there is a high rate of crashes and fatalities associated with the close spacing of loop ramp designed TIs. In addition, there is a high rate of crashes at the SR 210 connection to Alvernon Way.
- *Transportation System Connectivity*—There is a lack of north–south arterial options to deliver traffic to the downtown business district, resulting in local trips using I-10 for downtown access. The proposed I-10 improvements and the SR 210 extension are needed to provide improved connectivity to downtown Tucson, address the traffic operations deficiencies, and meet future travel demands. Much of I-10 within the project limits is over 40 years old, and the interstate lacks the capacity to handle projected traffic volume increases. Poor operational performance, high crash rates, and future capacity needs must be addressed. The extension of SR 210 to a connection with I-10 would provide improved access from I-10 to downtown Tucson, a primary travel destination.

The purpose of the proposed improvements to I-10 is to address deficiencies in the Interstate Highway System and develop improvements that will provide satisfactory service levels on the interstate through the 2040 design year.

B. Purpose

The purpose of the project is to address the deficiencies in the Interstate Highway System by improving LOS, reducing crash rates and severity, and providing motorists with an alternate route to Tucson's downtown business district. The proposed improvements to I-10 and the SR 210 extension to I-10 work in conjunction to address the needs. The purpose would be met through:

- Adding capacity to I-10 to meet future year 2040 traffic demands
- Improving operational characteristics of the I-10 TIs between I-19 and Kolb Road
- Providing a direct connection between I-10 and SR 210

Proposed improvements to I-10 and the extension of SR 210 to I-10 were initially evaluated in an FS/EO (ADOT 2015). The FS identified the transportation needs and examined a range of alternatives to meet those needs. This second phase of the study, a DCR/EA, continues the analysis and provides recommended projects.

Figure 8. 2040 No-Build LOS

C. Conformance with Regulations, Land Use Plans, and Other Plans

The proposed project conforms to local, regional, state, ADOT, and federal plans that include the following:

Transportation Plans/Studies

- ADOT Long Range Transportation Plan Final Report 2010–2035

  This study looked at transportation needs out to year 2050, with a focus on relieving congestion and meeting population growth needs. The interstate corridors, including I-10, are key to those long-range improvement needs (ADOT 2011).

- I-11 Intermountain West Corridor Study

  In 2016, ADOT and the FHWA initiated the Alternatives Selection Report and a Tier 1 EIS for the multimodal infrastructure that will connect Arizona and Nevada. The study was broken into segments, including the southern segment that starts in Nogales, Arizona, at I-19 and connects to US 93 near Wickenburg, Arizona. The study is currently in the Draft EIS phase and includes I-19 and I-10; thus, the I-10/SR 210 DCR/EA efforts remain in close coordination. The Draft Tier 1 EIS was released on April 5, 2019, and public hearings were held in April and May 2019. The I-11 range of reasonable alternatives and initially preferred alternative is not expected until early 2020 (ADOT 2019c).

- Sonoran Corridor Tier 1 EIS

  In May 2017, the FHWA and ADOT initiated the environmental review process for the Sonoran Corridor, a potential new transportation corridor that would connect I-19 to I-10 south of Tucson International Airport. A Tier 1 EIS is being prepared as part of this process in accordance with NEPA and other regulatory requirements. A future connection point with I-10 is expected to be east of Kolb Road in the vicinity of Rita Road. Coordination between the I-10/SR 210 and Sonoran Corridor study teams will be ongoing. Based on the preliminary Sonoran Corridor schedule, corridor alternatives are not expected until late 2019 (ADOT 2019d).

Statewide Transportation Program

The Arizona State Transportation Board–approved 2018–2022 Statewide TIP includes funding for the I-10/SR 210 Corridor Study identified as TIP No. 753.00, I-10 East Corridor Study (I-19 East to Cochise County line). The I-10/SR 210 study has been assigned Federal No. 010-E(210)S and ADOT Project No. 010 PM 260 H7825 01L. Based on the results of the DCR, future funding needs and priorities will be established. Two projects related to the study are programmed: I-10 Country Club TI, TIP No. 74.07, with $8 million programmed in FY 2022 for design; and I-10 Kino Parkway TI, TIP No. 39.13, with $8 million programmed in FY 2021–2022 for design and utilities (PAG 2018).

Land Use and Other Plans

The following plans are the tools to address future growth and identify transportation needs to support that future growth and employment for the surrounding region:

- *Report on the Sub-Area Allocation Model Land Use Model and Scenario Results* (PAG 2019a)
- *2045 Regional Mobility and Accessibility Plan,* May 2016 (PAG 2016)
- *Comprehensive Plan Update, Pima Prospers* (Pima County 2015a)
- *Pima County Streets and Routes Plan,* August 2015 (Pima County 2015b)

- *Plan Tucson: City of Tucson General and Sustainability Plan 2013* (City of Tucson 2013)
- *Rincon/Southeast Subregional Plan 1995.* Revised 2005 (City of Tucson 2005)
- *City of South Tucson, Arizona, Comprehensive Plan* (City of South Tucson 1999)

CEQ regulations require that reasonable alternatives, including a No-Build Alternative, be presented as part of a NEPA action and evaluated. This chapter summarizes the development and evaluation of the range of reasonable and practicable alternatives that were studied for the proposed project to improve capacity, safety, system connectivity, vehicular access, circulation, LOS, mobility, and traffic safety on I-10, Junction I-19 to Kolb Road and SR 210, Golf Links Road to I-10. The consideration of alternatives leads to a solution that satisfies the project purpose and need; and protects, or avoids or minimizes effects on, environmental, economic, social, and community resources. The build alternatives should be reasonable and practicable.

The ADOT project planning, scoping, and NEPA process involves evaluation of reasonable and practicable alternatives for the proposed project and justifies the reasons for eliminating any alternatives from further consideration. The term "reasonable" means technically, environmentally, and economically feasible. "Practicable" means the ability to be undertaken or constructed.

The tools used to develop and screen alternatives included review of field surveys; preliminary design and engineering analyses; preliminary evaluation of environmental, socioeconomic, and cultural resources; and consideration of input from federal, state, and local government agencies, elected and public officials, interested stakeholders, and the general public.

A. Alternatives Considered but Not Carried Forward

The FS considered a broad range of alternatives in evaluating possible SR 210 connection points to I-10. Those alternatives were named System Alternatives I, II, III, IIIa, IIIb, IIIc, and IV. The analysis completed for the SR 210 extension identified and evaluated these alignments, which are shown in Figure 9. Each of these alternative connection points was evaluated in the FS and the EO. Improvements evaluated for I-10 and the existing TIs were common to all of the system alternatives, except for the CD concept along the I-10 mainline and frontage roads being considered with System Alternative IV. At the conclusion of the FS, System Alternatives II, III, IIIa, IIIb, and IIIc were eliminated from further consideration for reasons noted below. The alternatives were presented to project stakeholders and the public throughout the process, including during multiple stakeholder meetings and a public open house meeting. Each of the alternatives discussed below could meet the project purpose and need; however, each had substantive social, economic, or environmental impacts, or were notably more costly than the alternatives carried forward into the DCR stage.

System Alternative II

Under System Alternative II (see Figure 9), SR 210 would be extended diagonally southeast, roughly following the DMAFB property line to Swan Road. At Swan Road, the alignment would turn south to connect with I-10 just west of the existing Valencia Road TI, which would be reconfigured. With this alternative, new SR 210 connections to Golf Links Road and Alvernon Way would be reconfigured through a series of ramps where the current connections are made. SR 210 would be depressed under Alvernon Way to the south and remain partially depressed along the DMAFB boundary to Swan Road. The new SR 210 would be grade-separated over Irvington Road as well as over the UPRR and the Tucson Electric Power (TEP) railroad spur. This alignment would be about 3.5 miles long.

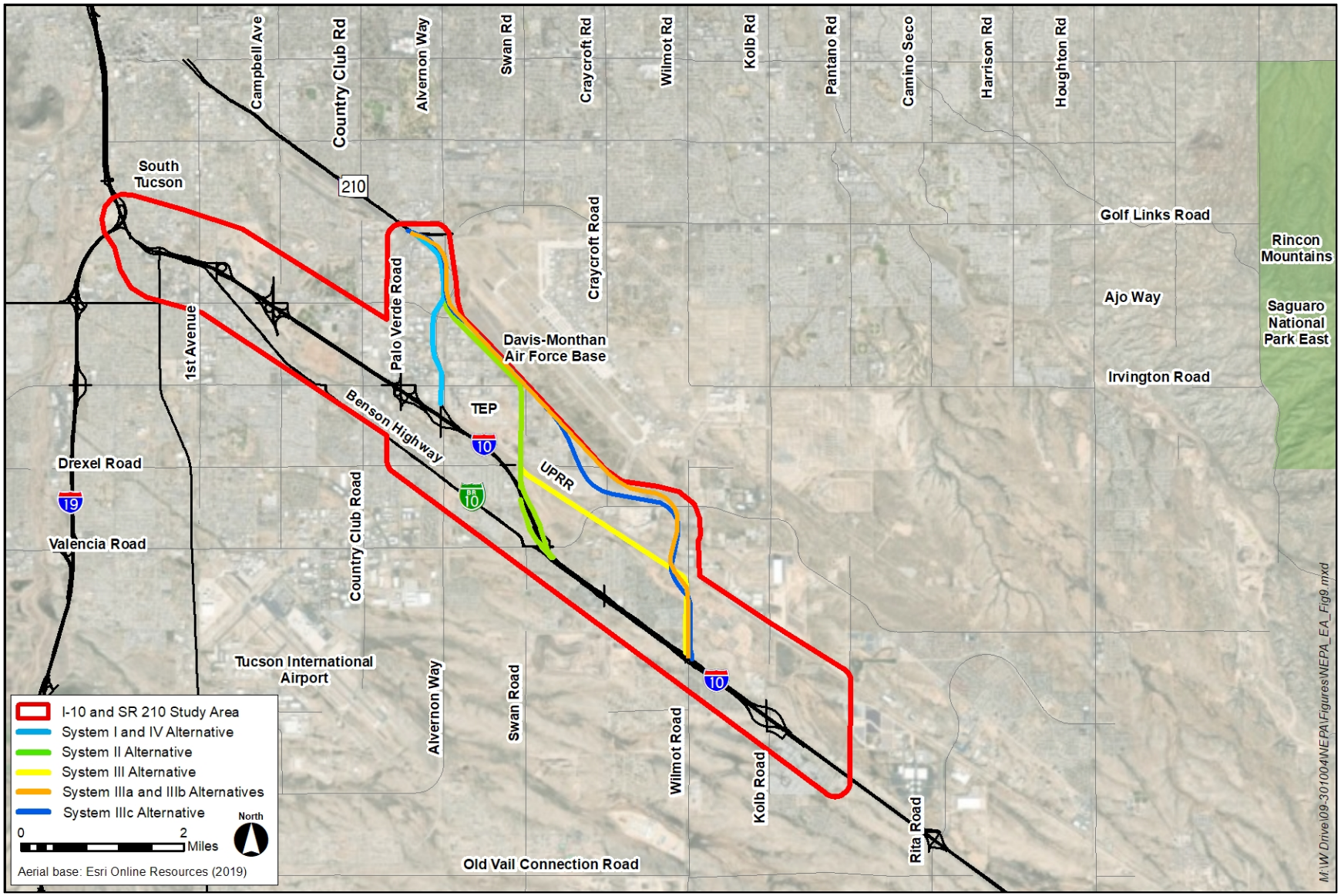

Figure 9. System alternatives study area—I-10 and SR 210

New right-of-way (ROW) in the triangular commercial/industrial area bounded by 38th Street on the north, Alvernon Way on the east, and Technical Drive on the south (see Figure 2a: Detail 1) would be required (see Figure 2a: Detail 1). From just south of the triangular area to I-10, new ROW would be required from commercial/industrial properties as well as the existing roadway ROW on Alvernon Way.

This alternative was dropped from further consideration due to potential ROW acquisition and encroachment on the DMAFB and higher costs than System Alternatives I and IV due to the longer length and new ROW acquisition along the Swan Road corridor.

System Alternatives III, IIIa, IIIb, and IIIc

The original System Alternative III (see Figure 9) would follow the same alignment as System Alternative II until reaching the UPRR. After crossing the UPRR, the alignment would head east parallel to, and along the south side of, the railroad to Wilmot Road. A new diamond interchange with Valencia Road would be built west of Craycroft Road. The alignment would cross over Wilmot Road, parallel the road on the east side, and then proceed south to connect to I-10.

This alternative would require the reconfiguration of the existing Wilmot Road/I-10 tight diamond TI. The existing Wilmot Road would remain for local access. This alignment would be almost 7.5 miles long and would impact a 100-year floodplain, would be in close proximity to two public schools (Billy Lane Lauffer Middle School and Craycroft Elementary School), and could adversely affect the community of Littletown, a minority population. System Alternative III would also directly impact a Pima County regional park (Thomas Jay Regional Park), a resource protected under Section 4(f) of the U.S. Department of Transportation Act of 1966. If federal funding were used to construct the SR 210 extension, Section 4(f) would apply. The use of park resources for project construction would not likely be approved by the FHWA because more viable options are available. For these reasons, System Alternative III was eliminated from further consideration.

Several variations to System Alternative III (System Alternatives IIIa, IIIb, and IIIc) were considered due to support from PAG and the Pima County Department of Transportation for an I-10/SR 210 connection at Wilmot Road (see Figure 9). Alignments were developed to avoid the regional park by keeping the SR 210 alignment north of the UPRR and adjacent to the DMAFB from Swan Road to Valencia Road (Figures 9 and 10). To provide an adequate intersection at Valencia Road, the SR 210 alignment would cross a corner of the DMAFB property under both system alternatives. Challenges were identified for the IIIa and IIIb variations, including ROW acquisition from the DMAFB, encroachment on the DMAFB Aircraft Clear Zone, the Accident Potential Zone, the Approach-Departure Corridor, and geometric/operational issues at Valencia Road. Thus, System Alternatives IIIa and IIIb were dropped from further consideration.

Additional modifications resulted in a System Alternative IIIc to reduce potential conflicts with DMAFB operations. Under System Alternative IIIc, the portion of the SR 210 alignment adjacent to the DMAFB would be depressed and would then shift away from the DMAFB boundary at Drexel Road to provide a setback or buffer from a runway hazardous object pad (munitions storage area). System Alternative IIIc would cross under Valencia Road and remain west of Wilmot Road until approximately Julian Wash, and then cross to the east side of Wilmot Road and continue to the I-10 connection.

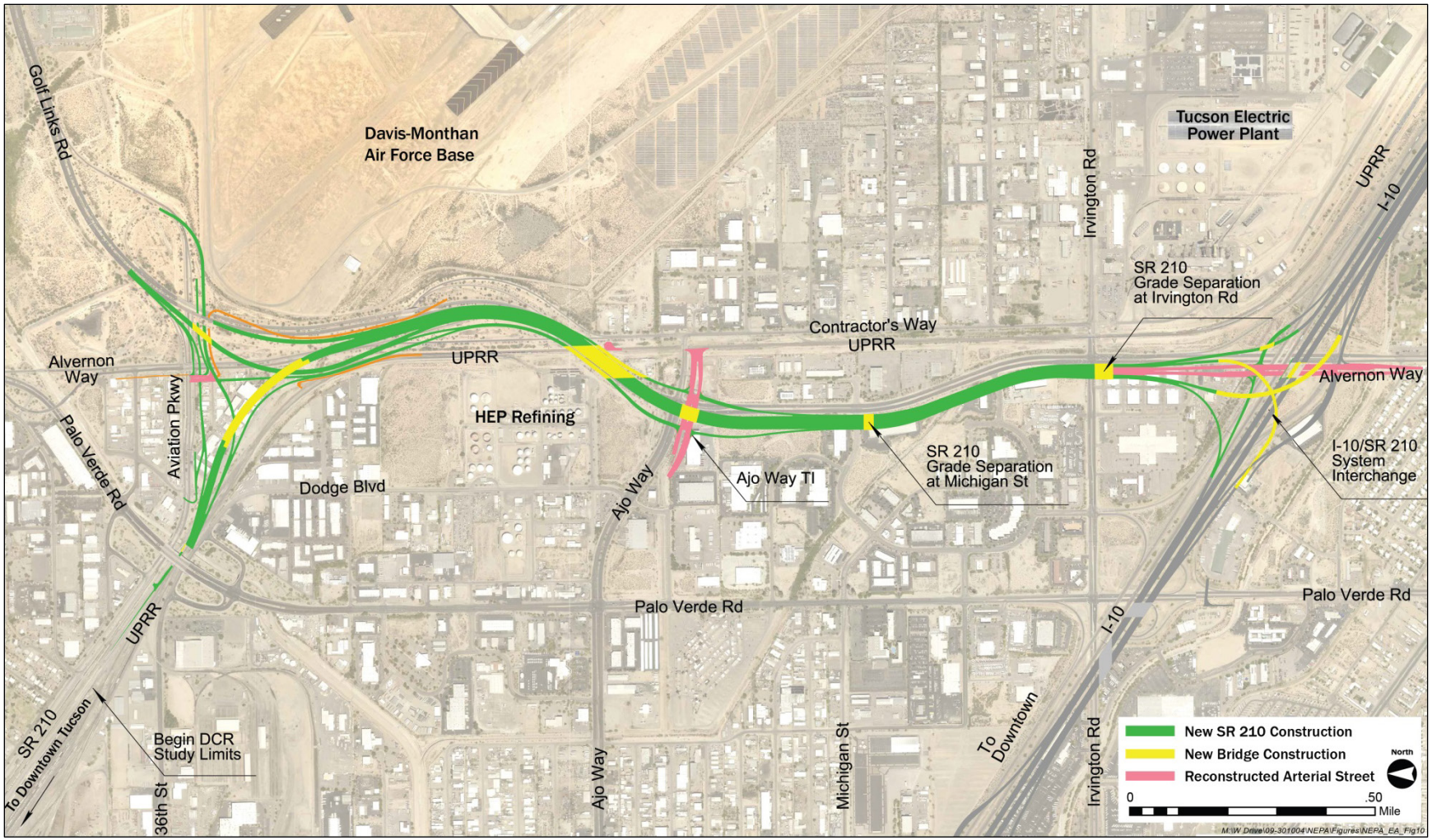

Figure 10. SR 210 extension alignment under System Alternatives I and IV

The System Alternative IIIc alignment would conflict with the DMAFB Approach-Departure Corridor and with potential hazardous materials sites, and would result in DMAFB security concerns. Coordination with the DMAFB resulted in an agreement to further consider the System Alternative IIIc through the DCR phase. However, upon further analysis of operational, cost, and environmental impact factors, the System Alternative IIIc alternative was eliminated. The unconventional alignment, extended depressed roadway segment, floodplain impacts, DMAFB Aircraft Approach/Departure conflicts, and high cost ruled out this alternative from further consideration in the DCR/EA phase.

Access Control Concepts for the I-10/Craycroft Road TI

Access issues involving the commercial and residential properties north of the I-10/Craycroft Road TI were identified as part of the I-10, Junction I-19 to Kolb Road and SR 210, Golf Links to I-10 project Phase II studies. The Craycroft Road/Travel Plaza Way intersection is too close to the westbound ramps of I-10, and traffic operations along Craycroft Road north of I-10 are degrading and are expected to continue to degrade in the future. A drainage concern was also identified. To address these concerns, eight access control concepts to manage commercial truck and other vehicle turning movements on Craycroft Road north of I-10 and to keep traffic moving were subsequently identified and evaluated. Concepts 1 through 7 were eliminated from further consideration for this project. A brief summary of the key components of the eliminated concepts and reasons for elimination follows. Impacts on the residential community of Littletown and on adjacent businesses were an important consideration in the elimination of Concepts 1, 2, 3, and 4.

Concept 1 would have purchased the truck-related businesses on the east side of Craycroft Road to eliminate a large portion of the freight traffic and would have constructed a raised median installed for access control. This concept was eliminated from consideration due to its high cost, lost tax revenue, and employment loss.

Concept 2, which had two variations (2a and 2b), would have realigned Elvira Road through the community of Littletown. These concepts were eliminated from consideration due to their adverse impacts on Littletown, a population protected under Title VI and EJ.

Concepts 3 and 4 would have constructed a roundabout on Craycroft Road north of I-10 and a raised median for access control. Concept 4 would also construct a one-way connector road from the Pilot Travel Center to Craycroft Road. These concepts were eliminated due to the potential that roundabout use would generate noise and light impacts (from headlights) on Littletown residents 24 hours a day. Concerns were also expressed from stakeholders that truck drivers would likely avoid using the roundabout to make a U-turn to return to I-10 via Craycroft Road, as intended, but instead use westbound Littletown Road to access the Valencia Road TI.

Concept 5 would have constructed a two-way connector road through Triple T Truck Stop to provide access to the I-10 westbound frontage road and a roundabout on Craycroft Road at the intersection with this two-way connector road. This concept was not preferred over Concepts 3, 7, and 8 because the area of impact was greater.

Concept 6 would have eliminated the westbound off-ramp at Craycroft Road and shifted the I-10 mainline to the south. This concept was eliminated from consideration due to potential loss of business to the Pilot Travel Center and the Triple T Truck Stop and because it would be more costly than Concept 7.

Concept 7 would have constructed a new signal at Craycroft Road and Travel Plaza Way, widened the I-10/Craycroft Road TI, and constructed a raised median for access control. Minimal impacts to the neighborhood would be anticipated other than ROW acquisition for widening the TI; however, it would not improve traffic flow (LOS) as much as Concept 8.

Concept 8, which would construct a two-way connector road through Triple T Truck Stop, a T intersection on Craycroft Road at the intersection with the connector road, and a raised median for access control, was refined and incorporated into the Recommended Build Alternative. Additional documentation on these alternatives is found in Appendix D.

B. Alternatives Considered

At the DCR stage, two build alternatives were carried forward: System Alternatives I and IV. These alternatives include the extension of SR 210 from Golf Links Road/Palo Verde Road south along the Alvernon Way alignment to a new TI with I-10. The variation between System Alternatives I and IV occurs with the option of a traditional I-10 mainline freeway with frontage roads to serve local access (System Alternative I) and a CD concept where an expanded frontage road system is developed to handle local access while limiting access points to I-10 (System Alternative IV). The CD system would occur between the Alvernon Way TI and the Kolb Road TI, with a goal of reducing the number of on-/off-freeway movements. Roadway typical sections showing the difference between System Alternatives I and IV are provided in Figure 11. Both alternatives were identified through agency and public scoping and public information meetings.

Both build alternatives satisfy the project purpose by improving operational characteristics of the I-10 TIs between I-19 and Kolb Road, adding capacity to I-10 to meet future year 2040 traffic demands, and providing a direct connection between I-10 and SR 210.

System Alternative I

I-10 Mainline Improvements

From I-19 to Alvernon Way, additional I-10 mainline travel lanes and auxiliary lanes between successive entrance and exit ramps would be needed to achieve an adequate LOS for the design year 2040. For System Alternative I, the required lanes in each direction would be:

- I-19 to Kino Parkway: four lanes
- Kino Parkway to Alvernon Way: three lanes

The existing I-10 centerline would be retained. From west of Park Avenue to Alvernon Way, construction would use the existing open median to provide a new concrete median barrier, a wide inside paved shoulder, and, as needed, a new traffic lane.

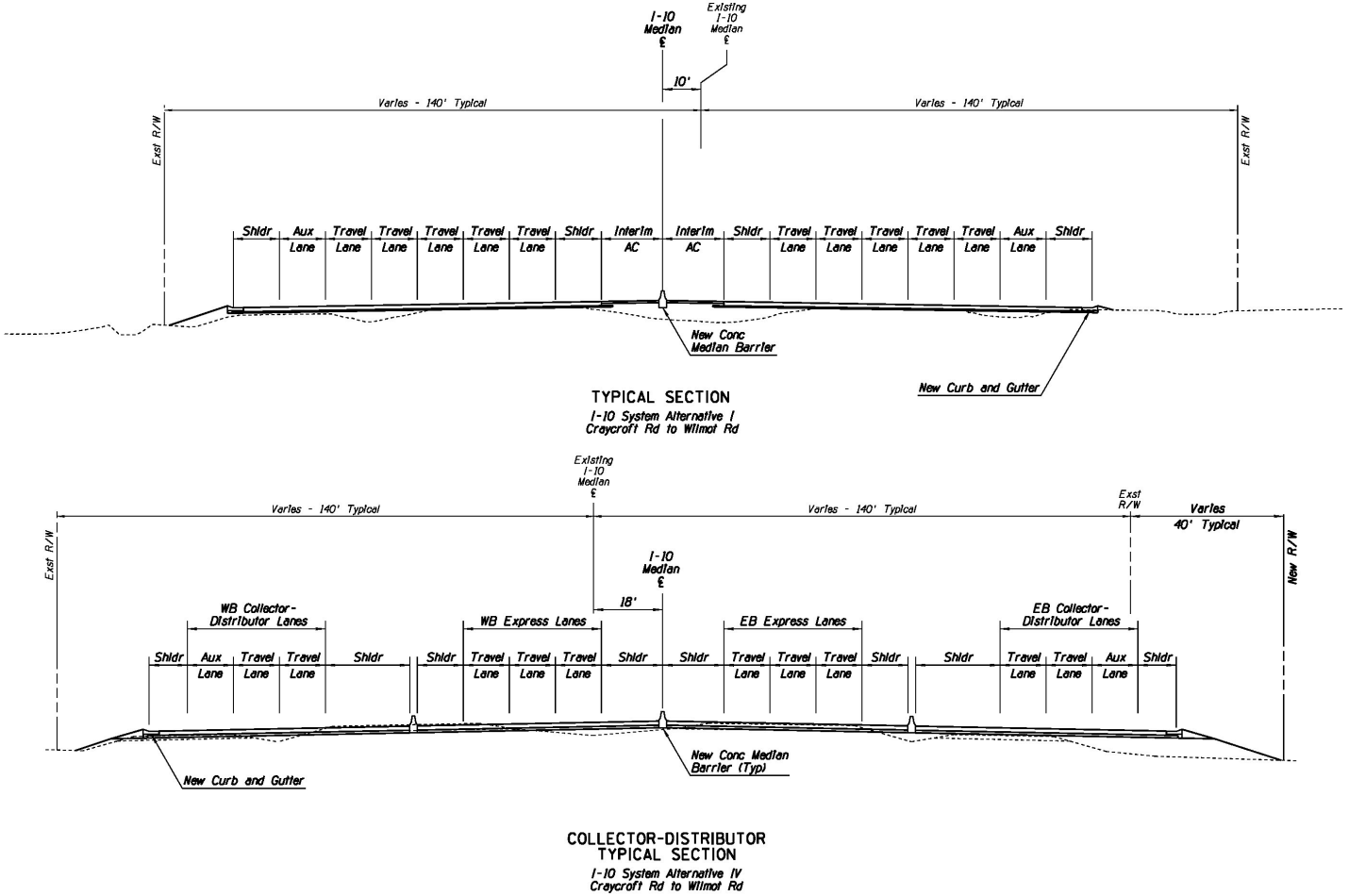

Figure 11. Typical sections for System Alternative I and System Alternative IV (CD roadway) for Craycroft Road to Wilmot Road

From I-19 to west of Kino Parkway, the intent of the design is to retain the existing pavement, widen as additional lanes are needed, and retain the existing I-10 vertical profile. East of Kino Parkway, I-10 would have a new vertical profile, which would be designed to accommodate overpass structure replacements at the TIs and a new structure over Country Club Road (see System I Preliminary Plan Sheets at www.azdot.gov/i10SR210study). The new TI at Country Club Road would alter local access in the southwest quadrant (residential properties). Missouri Street would be closed at Country Club Road. Neighborhood access would be replaced via Irvington Road with an extension of either Bentley Avenue or Treat Avenue to Irvington Road. Continued coordination with the City of Tucson in final design will determine the preferred connection. Either road option would connect with Missouri Street to reestablish neighborhood access (see Figure 2a: Detail 2). This would result in out-of-way travel of about a half-mile for ingress and egress from the neighborhood.

The Palo Verde Road TI would be removed due to TI spacing issues and an outdated loop ramp configuration. The distance between Palo Verde Road TI and Alvernon Way TI does not meet current standards, resulting in unacceptable weaving distances.

East of Kino Parkway, Pima County is expanding the Kino Sports Complex to the south side of I-10. A grade-separated crossing under I-10 with a light-well grate in the median to provide natural light for the undercrossing is planned. The crossing is being developed as a separate project from the I-10 improvements in coordination between ADOT and Pima County.

ROW would be needed for I-10 TI improvements, drainage, and frontage road adjustments. Under System Alternative I, 179 parcels covering about 160.6 acres would need to be acquired.

SR 210 Improvements

Under System Alternative I (see Figures 9 and 10), SR 210 would be extended south, generally along Alvernon Way, to intersect I-10 at the existing Alvernon Way TI. The TI would be reconfigured to accommodate this connection. With this alternative, the new SR 210 would cross Ajo Way on a new grade-separated TI. The length of this new roadway would be about 2.5 miles. The new roadway would replace existing Alvernon Way. New connections at Alvernon Way, Golf Links Road, and Palo Verde Road would be constructed. A new grade-separated diamond interchange with Ajo Way would be added, and SR 210 would be elevated over the UPRR, Michigan Street, and Irvington Road. Local access would change as a result of this system alternative because of grade separations on SR 210 at Michigan Street and Irvington Road. This would result in out-of-direction travel for businesses along Irvington Road and Michigan Street. Access would be via Ajo Way, Contractor's Way, or Palo Verde Road.

To accommodate the SR 210 extension, new ROW would be required from a triangular area of primarily commercial/industrial property bounded by 38th Street on the north, Alvernon Way on the east, and Technical Drive on the south (see Figure 2a: Detail 1); commercial property in the southwest quadrant of Irvington Road and Alvernon Way; and along Alvernon Way.

System Alternative IV

I-10 Mainline Improvements

From I-19 to Alvernon Way, additional I-10 mainline travel lanes and auxiliary lanes between successive entrance and exit ramps would be needed to achieve an adequate LOS for the design year 2040. The required lanes in each direction with System Alternative IV would be the same as noted previously for System Alternative I.

As with System Alternative I, the existing I-10 centerline would be retained. From west of Park Avenue to Alvernon Way, construction would use the existing open median to provide a new concrete median barrier, a wide inside paved shoulder, and, as needed, a new traffic lane.

From I-19 to west of Kino Parkway, the intent of the design is to retain the existing pavement, widen as additional lanes are needed, and retain the existing I-10 vertical profile. East of Kino Parkway, I-10 would have a new vertical profile, which would be designed to accommodate overpass structure replacements at the TIs and a new structure over Country Club Road (see System I Preliminary Plan Sheets at www.azdot.gov/i10SR210study). The new TI at Country Club Road would alter local access in the southwest quadrant (residential properties). Neighborhood access would be replaced via Irvington Road with an extension of either Bentley Avenue or Treat Avenue to Irvington Road (see Figure 2a: Detail 2). The Palo Verde Road TI would be removed due to TI spacing issues and the outdated loop ramp configuration. The distance between Palo Verde Road TI and Alvernon Way TI does not meet current standards, resulting in unacceptable weaving distances for urban design (ADOT 2019b).

East of Kino Parkway, Pima County is expanding the Kino Veterans Memorial Sports Complex (Kino Sports Complex) to the south side of I-10. A grade-separated crossing under I-10 with a light-well grate in the median to provide natural light for the undercrossing is planned. The crossing is being developed as a separate project from the I-10 improvements in coordination between ADOT and Pima County.

This alternative features CD roadways adjacent to the eastbound and westbound I-10 mainline roadway from Alvernon Way eastward through the Kolb Road TI. The adjacent CD roadways provide an expanded frontage road system to handle local destination traffic and the mainline freeway with limited access points for through traffic. The roadway typical sections comparing System Alternative I and System Alternative IV are shown in Figure 11, which shows a typical roadway cross-section in the CD segment between Craycroft and Kolb roads.

ROW would be needed for I-10 TI improvements, drainage, and frontage road adjustments. Under System Alternative IV, 190 parcels covering about 175.3 acres would need to be acquired. Because of the additional width of the CD roadways along I-10, some additional ROW may be required along the I-10 mainline and frontage roads, and at the TIs and areas of drainage improvements.

SR 210 Improvements

Under System Alternative IV (see Figure 10), SR 210 would be extended south, generally along Alvernon Way, to intersect I-10 at the existing Alvernon Way TI. The TI would be reconfigured to accommodate this connection. With this alternative, the new SR 210 would cross Ajo Way on a new grade-separated TI. The length of this new roadway would be about 2.5 miles. The new roadway would replace existing Alvernon Way. New connections at Alvernon Way, Golf Links Road, and Palo Verde Road would be constructed. A new grade-separated diamond interchange with Ajo Way would be added, and SR 210 would be elevated over the UPRR and Irvington Road. Local access would change as a result of this system alternative because no direct access would occur off the SR 210 extension.

An I-10/SR 210 system interchange would provide access between SR 210 and the eastbound and westbound I-10 CD roadways and would be integrated with the diamond interchange at the junction of Alvernon Way/I-10. The connection at SR 210 would share the same configuration as System Alternative I from Golf Links Road to I-10. This alternative would allow direct free-flow connections from I-10 to SR 210 at the Alvernon Way TI. New ROW would be required to accommodate the SR 210 extension from a triangular area of commercial/industrial property bounded by the 38th Street on the

north, Alvernon Way on the east, and Technical Drive on the south (see Figure 2a: Detail 1); commercial property in the southwest quadrant of Irvington Road and Alvernon Way; and along Alvernon Way. Additional ROW would be required for SR 210, the SR 210/Golf Links Road TI, the Ajo Way TI, and the I-10/SR 210 system interchange (Appendix B).

For both alternatives, the existing storm drain system between I-19 and Park Avenue would be retained, with minor modifications to accommodate the extra pavement width. East of Park Avenue, the rural-type drainage design would be converted to an urban-type design with catch basins and an enclosed storm drain system. In areas where existing water ponds, the storm drains would outlet into new retention or detention basins. Typically, the basins would be located in the infields of TIs, but some basins may be needed between interchanges, requiring new ROW. In areas where water discharges into existing cross-drainage structures, the storm drains will outlet into these structures. As needed to retain capacity in the cross drainages, the storm drains would outlet initially into retention/detention basins.

I-10/Craycroft Road TI

Reconstruction of the I-10/Craycroft Road TI as included in the System I and IV Alternatives would necessitate access changes along Craycroft Road north of I-10. The Craycroft Road/Travel Plaza Way intersection is too close to the westbound ramps of I-10, and traffic operations along Craycroft Road north of I-10 are degrading and are expected to continue to degrade in the future. A drainage concern was also identified associated with storm flows from the east that currently flow across Craycroft Road at Dream Street and just north of Travel Plaza Way. To address this concern, multiple access control concepts to manage commercial truck and other vehicle turning movements on Craycroft Road north of I-10 and to keep traffic moving were subsequently identified and evaluated. The concepts involved changes in roadway alignments, access, and traffic circulation, and implementation of drainage improvements. Implementation of these concepts would require varying amounts of new ROW, and some concepts would have required residential or commercial relocations, including multiple homes from the Littletown community. The recommended concept would improve Craycroft Road between I-10 and Dream Street. The improvements proposed along Craycroft Road include the following:

- Installing a signalized intersection on Craycroft Road just south of the Circle K convenience market
- Constructing a two-way connector road from the new intersection on Craycroft Road west and south to I-10 through the Tucson Truck Terminal (hereafter referred to as Triple T Truck Stop, as locally known) property to provide access to the westbound I-10 frontage road
- Constructing a new bus bay on the north side of the new two-way connector road just west of Craycroft Road
- Constructing a raised median in Craycroft Road from I-10 north to the new signalized intersection
- Constructing a one-way frontage road on the east side of Craycroft Road north and south of the new intersection to provide access separated from truck traffic for 10 residential lots (nine homes; one lot is undeveloped) that front Craycroft Road in this area
- Constructing a raised median to separate the new one-way frontage road from the northbound Craycroft Road travel lane
- Retaining the existing sidewalk on the east side of Craycroft Road
- Constructing curb, gutter, and sidewalk on the west side of Craycroft Road from the I-10 TI to the new bus bay and the Circle K convenience market

- Constructing drainage inlets, culverts, a drainage channel, and retention/detention basins (one north and one south of I-10)

Implementation of this recommended concept would require the acquisition of new ROW. Figure 12 depicts the proposed concept improvements and depicts the anticipated new ROW.

No-Build Alternative

The No-Build Alternative assumes that no major improvements would be made to I-10 or SR 210 in the study area. Maintenance of the existing I-10 and SR 210 would continue. The No-Build Alternative serves as a baseline and provides a means to compare the impacts of the alternative actions with the impacts of not undertaking either of the alternative actions. Throughout the analysis of impacts, a comparison of the build alternatives to the No-Build Alternative is made.

Build Alternatives

With the exception of a CD roadway system to be constructed on I-10 between Alvernon Way and Kolb Road with System Alternative IV only, the two build alternatives share the same general project components:

- Widening I-10 to four lanes in each direction from I-19 to Kino Parkway and three lanes in each direction from Kino Parkway to Alvernon Way
- Constructing a new TI at Country Club Road
- Removing the TI at Palo Verde Road
- Reconstructing or reconfiguring TIs at Park Avenue, Kino Parkway, Valencia Road, Craycroft Road, Wilmot Road, and Kolb Road
- Constructing a new I-10/SR 210 System TI at Alvernon Way
- Providing drainage improvements throughout the I-10 corridor project limits
- Extending SR 210 south from Palo Verde Road/Golf Links Road to I-10 along the Alvernon Way alignment
- Constructing a grade-separated intersection on the SR 210 extension at Ajo Way
- Constructing a SR 210 extension bridge over the UPRR and Irvington Road

For the comparative evaluation of the improvement alternatives, System Alternatives I and IV, several key factors were considered, as described in the following sections.

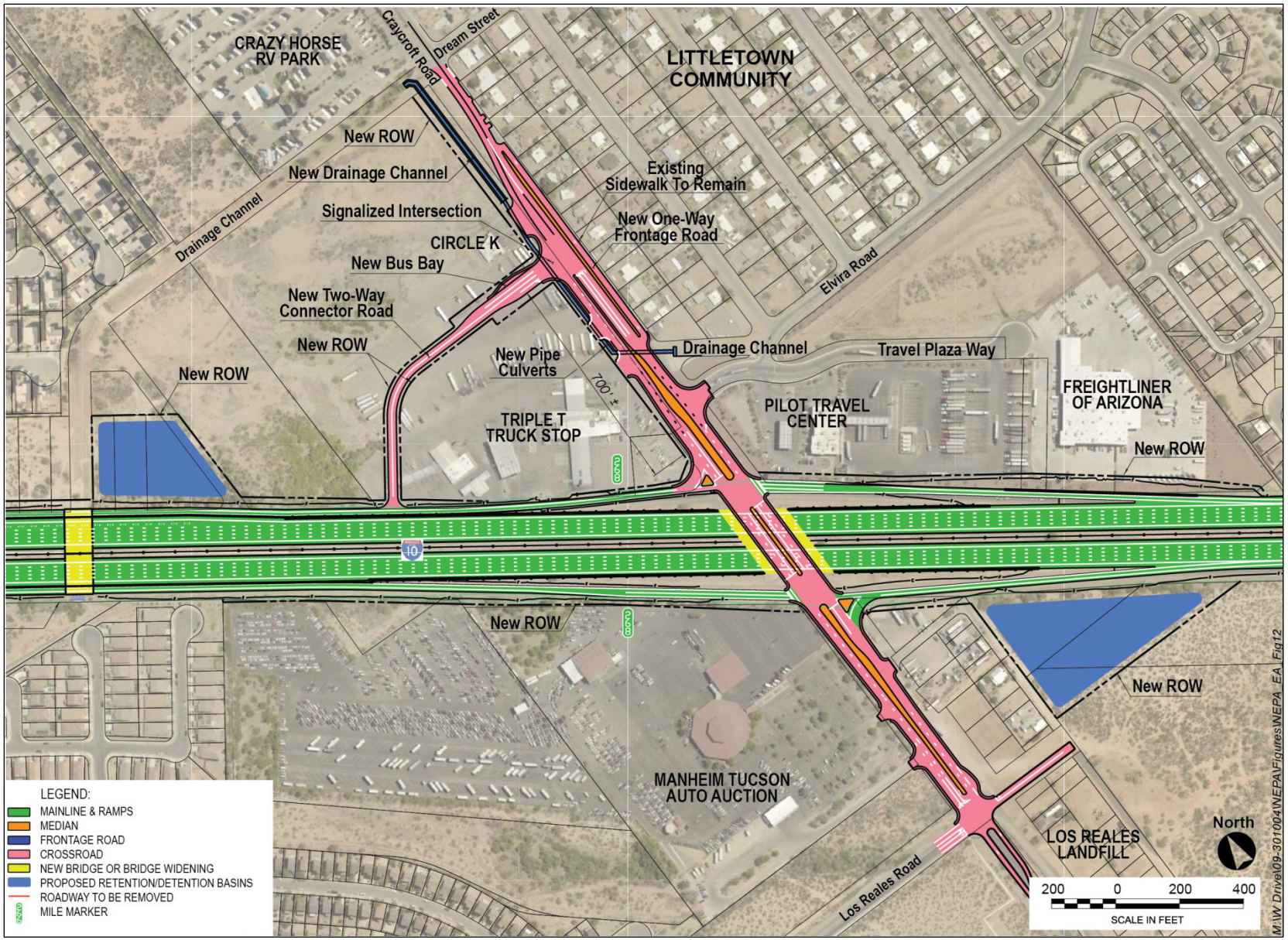

Figure 12. I-10/Craycroft TI access plan

Safety

Both alternatives would reconstruct I-10 and existing interchanges to improve existing conditions, such as short weaving distances (particularly with the successive loop ramps), TIs spaced closer than the desirable one-mile spacing, and short driver decision-making distances. The existing Palo Verde Road TI would be removed and replaced with a new interchange at Country Club Road under either system alternative.

Between Alvernon Way and Kolb Road, System Alternative IV would separate local and ramp weaving traffic from the regional traffic on the mainline lanes, potentially improving safety over System Alternative I. Both alternatives would provide pedestrian and bicycle connectivity along the SR 210 corridor and across I-10.

Traffic Operations

For I-10 between I-19 and Alvernon Way and the extension of SR 210, both alternatives would result in similar improvements to traffic operations. For I-10 between Alvernon Way and Kolb Road, improvements to traffic operations and LOS are similar between the two alternatives. However, the LOS differs on westbound I-10 between Country Club Road and Alvernon Way, and on eastbound I-10 between Kolb Road and Rita Road. In each case, the weaving action between the mainline traffic and the CD road traffic with System Alternative IV lowers the LOS in the morning peak period compared with that of System Alternative I.

Access

For I-10 between I-19 and Alvernon Way and the SR 210 extension, both alternatives would provide identical access to I-10 and SR 210 via the same TIs. Based on current ADOT criteria, the left-turn restrictions along interchange cross streets would be identical for both alternatives throughout the project limits. Both alternatives would provide the same pedestrian and bicycle access throughout the project limits.

The differences in access between the two alternatives occur between Alvernon Way and Kolb Road. Though both alternatives provide access at the same TI, the difference is that the ramp traffic would merge with I-10 mainline traffic under System Alternative I and with CD traffic for System Alternative IV. The use of concrete barriers to separate mainline traffic from CD traffic with System Alternative IV would slightly change the direct access.

Right-of-Way

ROW requirements are the same for both alternatives for I-10 between I-19 and Alvernon Way and for SR 210. The differences in ROW between the two alternatives occur between Alvernon Way and Kolb Road. Because System Alternative IV would have a wider pavement section than System Alternative I, more ROW would be required for System Alternative IV. System Alternative I requires 180 parcels and about 160.6 acres, while System Alternative IV requires 191 parcels and about 175.3 acres.

Cost

Between Alvernon Way and Kolb Road, System Alternative IV has a higher cost than System Alternative I due to a wider footprint. This increases the material quantities needed to construct embankment, pavement (for additional shoulders), concrete barriers (between mainline and the CDs), and structures (for the wider I-10 footprint), and requires more ROW. These quantities would also increase with the

use of two special ramps between the CDs and the I-10 mainline and the gates in the median barriers for first responder access. The total cost for System Alternative I is estimated at approximately $1.2 billion; the total cost for System Alternative IV is estimated at approximately $1.3 billion.

Environmental

Though the ROW requirements and parcels affected for System Alternative IV are slightly higher than for System Alternative I, the impacts to the environment are virtually the same for air, noise, cultural, biological, hazardous materials, EJ, and historic structures. Regarding social impacts, System Alternative I would be slightly less impactful than System Alternative IV. System Alternative IV would relocate a short stretch of the Rodeo Wash trail (approximately 250 feet). System Alternative I would have no impact on the trail. With the impacts on environmental resources nearly identical between System Alternatives I and IV, environmental impacts were a nominal factor in the selection of the Recommended Build Alternative.

Summary

The following construction factors are similar in impacts with either System Alternative I or System Alternative IV:

- Utilities—Impact would be identical.
- Earthwork—System Alternative IV would require about 12% more borrow material for embankments.
- Structures—Both alternatives would require the same number of new bridges or structures.
- Drainage—Both alternatives would require new drainage facilities, including catch basins and storm drain laterals. System Alternative IV would require installation of several more basins than System Alternative I.
- Constructability and Maintenance of Traffic—Both alternatives would be identical west and north of the SR 210 system interchange and nearly identical east of the system interchange to Kolb Road.

Final Alternatives for Analysis

Based on the evaluation of alternatives in the DCR, System Alternative I was selected as the Recommended Build Alternative for the following reasons:

- System Alternative I would provide a slightly better LOS than System Alternative IV at a cost that is $88 million less than System Alternative IV.
- System Alternative I would have less of an impact on adjacent property owners, with less land taken and fewer properties affected. System Alternative I would provide better access to commercial properties between Alvernon Way and Kolb Road.
- Both alternatives provide excellent safety improvements, better spacing between TIs, reduced congestion, and improved LOS.
- Agency and public response supported System Alternative I largely due to unfamiliarity with the CD concept in System Alternative IV.
- Environmental concerns are nearly identical between the two alternatives. System Alternative IV would relocate a short stretch (approximately 250 feet) of the Rodeo Wash trail. System Alternative I would not impact the trail.

The I-10/Craycroft Road TI option that was selected would avoid EJ impacts to the Littletown community.

System Alternative I is carried forward in Chapter IV for analysis as the Recommended Build Alternative while System Alternative IV is not analyzed due to the factors noted above.

C. General Project Schedule

The Initial DCR has been approved. Approval of the EA is subject to public review. After satisfactory public review, the EA would be approved and a Finding of No Significant Impact would be issued in mid-2020. Because the I-10/SR 210 project would cost over a billion dollars, it would be separated into smaller projects for construction. An implementation plan was developed as a part of the DCR. The plan included 18 projects that would be implemented over a 15- to 20-year period (Table 2). The timing of the projects would be dependent on availability of funding. The design of the first two projects, the I-10 TIs at Kino Parkway and Country Club Road, are included in the current PAG 2018–2022 5-year TIP. The selection of the first project would be determined by the Regional Transportation Authority as part of its review of the DCR. The current PAG 2018–2022 TIP shows the I-10/Kino Parkway TI being designed in FY 2021–2022 and the I-10/Country Club Road TI being designed in 2022. ROW and utility relocation work could begin the year following design, with construction to follow the year after that (PAG 2018).

Table 2. Implementation plan—project order of construction

No.	Location	Description
1	Country Club Road TI	Construct new TI and I-10 to three general-purpose lanes in each direction
2	Kino Parkway TI	Reconstruct TI and I-10 to three general-purpose lanes in each direction
3	Park Avenue TI	Reconstruct TI
4	6th Avenue TI	Widen crossroad and bridge over I-10
5	I-10 (Alvernon Way to Valencia Road)	Reconstruct I-10 to three general-purpose lanes in each direction
6	I-10 (I-19 to Kino Parkway)	Widen I-10
7	SR 210 (Palo Verde Road to Ajo Way) Stage 1	Construct Golf Links TI
8	SR 210 (Palo Verde Road to Ajo Way) Stage 2	Construct new SR 210
9	SR 210 (Ajo Way to I-10)	Construct new SR 210
10	I-10 (Valencia Road TI)	Reconstruct TI and I-10 to three general-purpose lanes in each direction
11	I-10 (Craycroft Road TI)	Reconstruct TI and I-10 to three general-purpose lanes in each direction
12	I-10 (Wilmot Road TI)	Reconstruct TI and I-10 to three general-purpose lanes in each direction
13	I-10 (Kolb Road TI)	Reconstruct TI and I-10 to three general-purpose lanes in each direction
14	I-10 (Alvernon Way to Craycroft Road)	Add one general-purpose lane in each direction into the median
15	I-10 (Craycroft Road to Kolb Road)	Add one general-purpose lane in each direction into the median
16	Kolb Road TI	Construct the Kolb Road express lanes
17	I-10 (Alvernon Way to Craycroft Road)	Add one general-purpose lane in each direction into the median
18	I-10 (Craycroft Road to Kolb Road)	Add one general-purpose lane in each direction into the median

IV. Affected Environment, Environmental Consequences, and Mitigation/Commitments

This chapter of the Draft EA discusses environmental resources that may be affected by the proposed project. The existing conditions for each resource, potential adverse impacts resulting from the Recommended Build Alternative (System Alternative I) and the No-Build Alternative, and potential mitigation measures to address adverse impacts are presented.

In this document, the term study area is used to reference the area where existing information and field data were collected to identify all known resources in the affected environment. The study area was defined early in the planning through the *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Study Update* (ADOT 2015). The I-10 study area was based on the existing I-10 corridor (a half-mile on each side of the freeway centerline). The SR 210 extension study area took into consideration reasonable connection points to I-10 and the limits of the DMAFB and the UPRR. The limits of the study area are depicted in Figures 9 and 10.

A. Issues Eliminated from Detailed Study

Based on early coordination and a review of the study area, the proposed project would have no impact on Section 6(f) resources, wild and scenic rivers, prime and unique farmlands, national natural landmarks, wilderness areas, 303(d) impaired waters, outstanding waters, wells, and scenic roads and parkways because these resources do not exist in the study area.

This study area is within the Upper Santa Cruz & Avra Basin Sole Source Aquifer, as designated by the U.S. Environmental Protection Agency (EPA). ADOT submitted notification of the proposed project to the EPA on August 14, 2019. No impacts to the aquifer are expected due to the scope of the project.

B. Land Ownership, Jurisdiction, and Land Use

This section describes land ownership, jurisdiction, and land uses in the I-10/SR 210 study area. “Land ownership” identifies public and private ownership; “jurisdiction” implies the authority that regulates land uses; and “land use” describes the existing occupation or physical use of the land. The study area is the area where existing information and field data were collected to identify all known resources in the affected environment. The study area was defined early in the planning through the *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Study Update* (ADOT 2015). In the *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Study Update*, the study area extended east along I-10 to SR 83 and included up to a mile from the freeway centerline, however, due to future construction funding limitations prior to the 2040 design year, the limits of the current DCR/EA were revised to end at Kolb Road, which is designated as a future north–south parkway and is a logical end to the project. The current I-10 study area was based on the I-10 corridor (a half-mile on each side of the freeway centerline), and the SR 210 extension study area was based on reasonable connection points to I-10 and jurisdictional limits. Figure 13 depicts land jurisdiction in the study area and surrounding area.

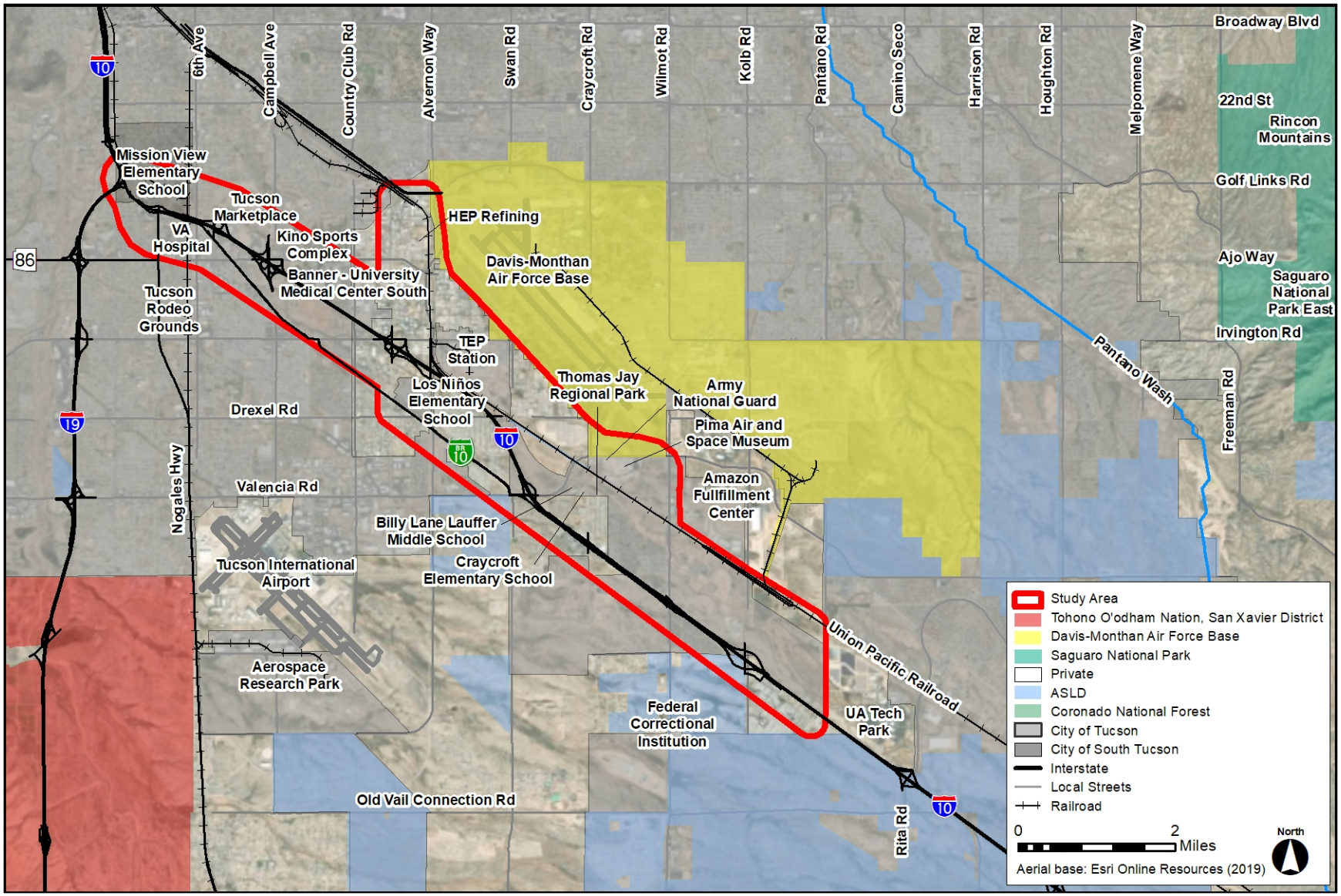

Figure 13. Land jurisdiction

Existing Conditions

Land Ownership/Jurisdiction

The study area is within the cities of Tucson and South Tucson, and unincorporated Pima County, Arizona (see Figure 2). Nearby jurisdictions include the Tohono O'odham Nation San Xavier District (3.5 miles southwest), Saguaro National Park East (6.5 miles northeast of I-10), and the U.S. Bureau of Prisons Federal Correctional Institution (1.5 miles south of I-10 on Wilmot Road). Federal lands are adjacent to SR 210 at Golf Links Road and adjacent to I-10 just east of 6th Avenue. State-owned/administered lands include those associated with the University of Arizona (UA) and undeveloped Arizona State Land Department (ASLD) parcels. Pima County's Kino Sports Complex is adjacent to I-10. All other adjacent lands are privately owned.

Land Use

The study area land use planning is directed by the City of Tucson, the City of South Tucson, and Pima County, Arizona. The *Plan Tucson: City of Tucson General and Sustainability Plan 2013* (City of Tucson 2013), the *Rincon/Southeast Subregional Plan 1995,* Revised 2005 (City of Tucson 2005), the *City of South Tucson, Arizona, Comprehensive Plan* (City of South Tucson 1999), and the *Comprehensive Plan Update, Pima Prospers* (Pima County 2015a) serve as the planning tools for growth and development in the study area and the surrounding region. These plans, the Arizona Land Resource Information System (ALRIS) (ALRIS 2014), and the Pima County–Pima Maps (Pima County 2019a) were used to determine existing land ownership, existing land use, and future land use within, and adjacent to, the corridor.

Existing land uses were verified using current Pima County and City of Tucson zoning data and aerial photography of the study area. Uses consist of rural, residential, commercial, industrial, office, recreational, governmental services, and Planned Area Development (master-planned communities that integrate mixed uses) (Figure 14).

Major land uses include the DMAFB, Tucson International Airport, Aerospace Research Park, the UPRR, the TEP plant, HEP Refining (bulk fuel oil storage facility), Southern Arizona VA Health Care System (VA hospital), Banner-University Medical Center South (formerly Kino Hospital), Kino Sports Complex, Tucson Marketplace (retail/commercial), UA Science and Technology Park (UA Tech Park), Tucson Rodeo Grounds, and an Amazon Fulfillment Center (under construction).

Residential development abuts I-10 at several locations: 10th Avenue vicinity (north and south sides of I-10), Alvernon Way to Drexel Road (south side), Valencia Road (north and south sides), Craycroft Road to Wilmot Road (north side), Wilmot Road to Kolb Road (south side), and east of Kolb Road on the south side (though separated by a commercial strip). Manufacturing, business parks, and light industry dominate the Alvernon Way corridor, with the UPRR generally paralleling Alvernon Way between I-10 and SR 210. The UPRR main switching and maintenance yard is just northwest of the study area. A large, 40-acre bulk fuel oil storage facility is west of Alvernon Way, and the TEP Irvington Station (TEP Station) is east of Alvernon Way at I-10. The area bounded by the DMAFB, Alvernon Way, and I-10 includes a number of auto and metal salvage operations, manufacturing, construction firms, materials supply, and storage facilities. The west portion of the study area is a major employment center, including critical facilities that support the region (e.g., TEP Station, HEP Refining, UPRR).

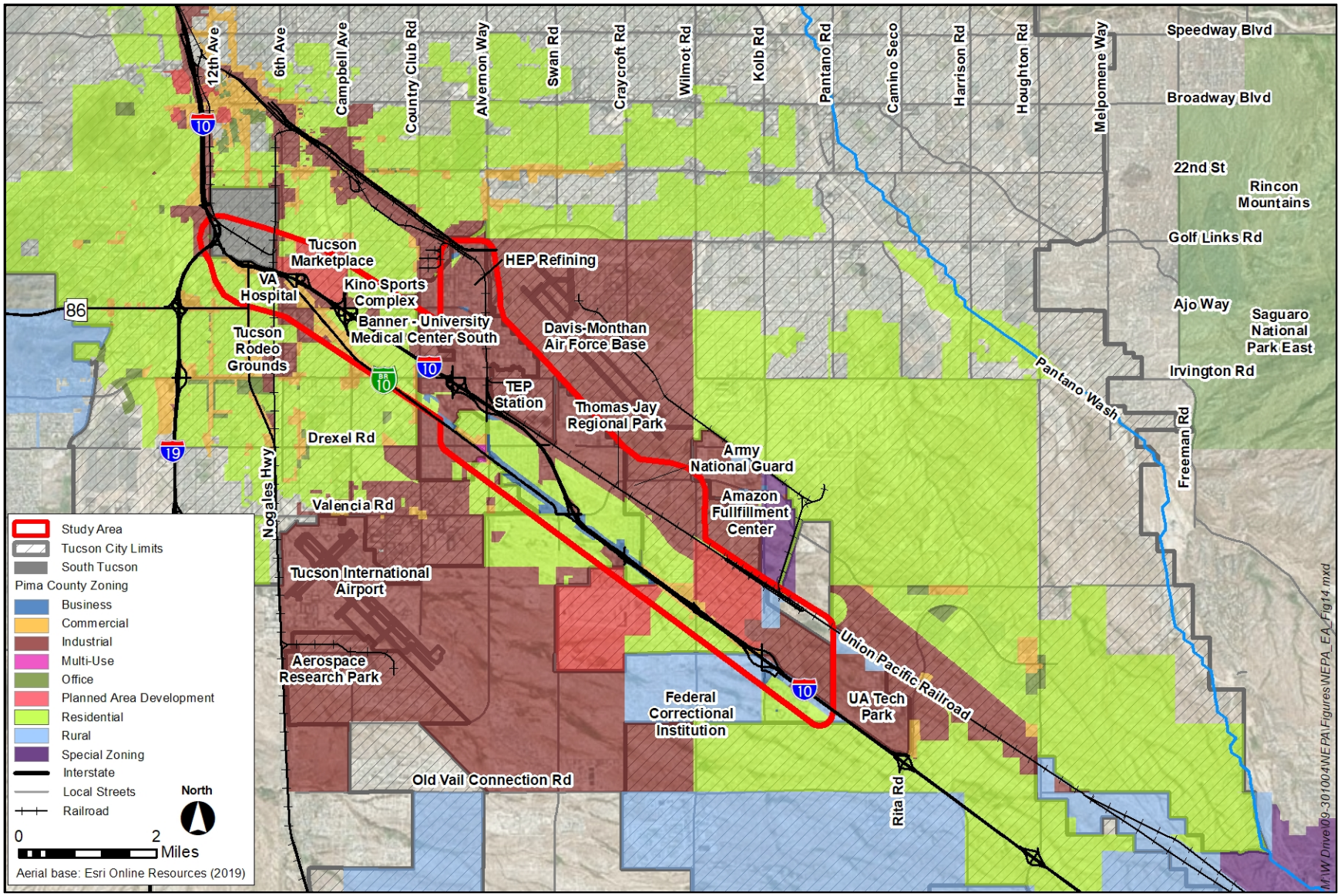

Figure 14. Zoning

The study area from the Valencia Road TI east includes areas of undeveloped desert lands adjacent to I-10, residential subdivisions between Valencia Road and Kolb Road interspersed with undeveloped desert, and commercial buildings and businesses. Other uses include the Pima Air and Space Museum, the Army National Guard facility, the Amazon Fulfillment Center, the UA Tech Park, two public schools, and Thomas Jay Regional Park. Undeveloped lands are generally in the vicinity of the Julian Wash floodplain.

I-10 Corridor

The I-10 study area can be characterized as urban from I-19 to Kolb Road. Commercial, industrial, and residential development occurs on both sides of I-10, with a few scattered undeveloped parcels. Residential development abuts I-10 at several locations: north and south side of I-10 between 12th Avenue and 6th Avenue (see Figure 14), south of I-10 between Alvernon Way and the Swan Road alignment, north and south of I-10 at Valencia Road, north side of I-10 east of Craycroft Road, and south side of I-10 at Wilmot Road and Kolb Road. North of I-10 west of Kino Parkway is Tucson Marketplace, a large retail shopping center (anchored by Walmart and Costco). To the far east of the I-10 study area at Kolb Road is the developing UA Tech Park. The 1,268-acre tech park is largely undeveloped; however, 52 companies are currently established, employing over 6,000 individuals (UA 2019).

Major public land uses near I-10 include the VA hospital south of I-10 at 6th Avenue, and the Kino Sports Complex (north and south of I-10 east of Kino Parkway). Expansion of the sports complex south of I-10 is underway. The Pima Air and Space Museum (privately owned) is about a mile north of I-10 east of Craycroft Road. Several public schools are in the vicinity of I-10: Mission View Elementary (a quarter-mile north of I-10 in South Tucson), Los Niños Elementary (a quarter-mile south of I-10 on Alvernon Way), and Billy Lane Lauffer Middle and Craycroft Elementary (1/2 mile north of I-10 off Craycroft Road).

SR 210 Corridor

The SR 210 study area contains primarily industrial land uses. No residential development occurs adjacent to SR 210 within the study limits. Commercial and industrial development is primarily along the western portion of the SR 210 study area, particularly adjacent to the DMAFB and within the City of Tucson limits. Manufacturing, business parks, and light industry dominate the SR 210/Alvernon Way corridor. The UPRR generally parallels Alvernon Way between I-10 and SR 210. The UPRR main switching and maintenance yard is just northwest of the study area. A bulk fuel oil storage facility (tank farm) is west of Alvernon Way, and the TEP Station is east of Alvernon Way at I-10. The area bounded by the DMAFB, Alvernon Way, and I-10 includes a number of auto and metal salvage operations, manufacturing, construction firms, materials supply, and storage facilities. The western portion of the study area has a major employment center, including critical facilities that support the region (e.g., TEP Station, tank farm, the UPRR).

Future Development Plans

The proposed SR 210 extension corridor along Alvernon Way is developed. There is minimal vacant land, and the current industrial zoning is expected to result in limited further development from Golf Links Road to I-10. The I-10 corridor from I-19 to Kolb Road falls mostly within the City of Tucson *Rincon/Southeast Sub-regional Plan* (updated in 2005). The plan limits extend from Kino Parkway southeast to Houghton Road, well beyond the I-10 project limits. Several major planned developments are underway, with ongoing activity driven by market demand. Commercial ventures at The Bridges and Century Park Marketplace (I-10 and Kino Parkway vicinity) are well underway, with available vacant land for further development. La Estancia, a major residential development off I-10 between Wilmot Road

and Kolb Road, is underway and opening three new housing phases in 2019. The UA Tech Park is expected to continue to grow, and the new Amazon Fulfillment Center will continue to attract employment and additional housing demand in the near term.

Environmental Impacts—Recommended Build Alternative

Existing Land Use

The acquisition of private lands for new roadway ROW would result in the transfer of ownership to ADOT. ROW would also be acquired from the City of Tucson and Pima County for roadway ROW at cross streets and TIs. The total ROW acquisition is estimated at 179 parcels and about 160.6 acres. The actual number of parcels and acres will be adjusted as engineering design is advanced. Much of the necessary land acquisition consists of vacant land and minor partial takes from larger parcels, which are not expected to alter existing or future land use. However, 25 businesses, primarily along the SR 210 corridor, would have to be fully acquired (see Appendix B for list of properties and System I Preliminary Plan Sheets 1–16 at https://azdot.gov/planning/transportation-studies/interstate-10-and-state-route-210-study). The reconstruction of the SR 210/Golf Links Road connection under the Recommended Build Alternative would result in loss of access to all parcels in a triangular-shaped area bounded by the 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1, and System I Preliminary Plan: Sheet 13 of 16 at www.azdot.gov/i10SR210study). Numerous available commercial buildings/properties are within a 5-mile radius, 79 properties are for sale, and 24 properties are available for lease as of July 2019 (Multiple Listing Service [MLS] 2019 and CityFeet 2019).

Approximately 5.38 acres of undeveloped ASLD land would be acquired in the southwest quadrant of the I-10/Kolb Road TI with the Recommended Build Alternative (see System I Preliminary Plan Sheet 10 of 16 at www.azdot.gov/i10SR210study). The ROW is needed for the realigned southbound Kolb Road mainline which would be on an elevated structure over I-10.

Several parcels of current Pima County roadway ROW would be acquired for the SR 210 extension (Alvernon Way) and for TI modifications/reconstruction at Country Club Road, Alvernon Way, and Valencia Road. Those lands would become ADOT-owned ROW.

All other land to be acquired would be from privately owned parcels (see Appendix B). Acquisition of ROW would be undertaken by ADOT in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (49 CFR 24) (Uniform Act).

The need for temporary construction easements or drainage easements is not known at this time but will be identified during final design activities.

Under the Recommended Build Alternative, access to commercial, residential, emergency services, and social services would generally remain the same as the current conditions, except for the SR 210/ Golf Links Road area and the I-10 Country Club TI area. The area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1) would lose all access with reconstruction of the SR 210/Golf Links connection. At Country Club Road, access to the neighborhood in the southeast quadrant would be altered. Modifications at the I-10 TIs would require the relocation of several driveway connections to businesses. However, access to all remaining properties would be retained. Coordination with emergency services providers occurred during the FS and will continue through final design. Those entities did not indicate concerns with response times.

Access issues involving the commercial and residential properties north of the I-10/Craycroft Road TI were identified as part of the I-10, Junction I-19 to Kolb Road, and SR 210, Golf Links Road to I-10 DCR. The Craycroft Road/Travel Plaza Way intersection is too close to the westbound ramps of I-10, and traffic operations along Craycroft Road north of I-10 are degrading and are expected to continue to degrade in the future. A drainage concern associated with storm flows from the east that currently flow across Craycroft Road at Dream Street and just north of Travel Plaza Way was also identified in this area. To address this concern, multiple access control concepts to manage commercial truck and other vehicle turning movements on Craycroft Road north of I-10 and keep traffic moving were subsequently evaluated. The concepts involved changes in roadway alignments, access, traffic circulation, and drainage improvements. The preferred option would alter access to three commercial businesses—Triple T Truck Stop, Pilot Travel Center, and Freightliner of Arizona—and a residential area known as Littletown. This option avoids any acquisition of residential properties and would result in fewer impacts on the Littletown community.

Future Land Use

The Recommended Build Alternative is consistent with planned future land use. The affected jurisdictions recognize the need for improved I-10 capacity and operations and the extension of SR 210 to better serve downtown Tucson. The improved transportation facility would better serve the growing population and employment sectors along the project corridors. The ROW acquisition at SR 210 and the Golf Links Road vicinity would remove 25 businesses. Redevelopment in this area would be minimal due to lack of access with the new bridge and ramp configurations. Along I-10, much of the land to be acquired would be portions of parcels, leaving a viable remainder with access to frontage roads or cross streets available for development. Future development of vacant properties in the I-10 corridor would not be negatively impacted. The Craycroft TI proposed improvements could impact future development plans for vacant land held by Triple T Truck Stop. Though no development plans are currently in place, ADOT will coordinate with the Triple T Truck Stop to limit potential impacts as the project advances in design.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, routine maintenance and safety improvements would be expected to continue for I-10 and SR 210. No major widening or TI modifications would occur, and SR 210 would not be extended from its current terminus. The maintenance and safety improvements would be expected to occur within existing ROW. Without the project, the steady decline in freeway operations and safety and increasing traffic congestion might be viewed as a deterrent to some future development.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor will follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the Uniform Relocation Act Amendments of 1987, the ADOT *Right of Way Procedures Manual*, Title VI of the Civil Rights Act of 1964, and the ADOT *Public Involvement Plan*.

Conclusion

The Recommended Build Alternative would permanently acquire approximately 160.6 acres for transportation use. The majority of the acquired land is vacant or minor partial takes from larger parcels that are not expected to alter existing or future land use. The exception is the triangular area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1) where 25 business parcels and three houses would be acquired. Future land use plans would not be negatively affected by the

acquisitions. The proposed project is consistent with transportation planning by ADOT and PAG and is supported by local jurisdictions Pima County, the City of Tucson, and UA (see county/city/UA joint letter in Appendix H). The proposed SR 210 extension and I-10 improvements are key components of the region's transportation system.

The acquisition of land from private parties would remove taxable land from Pima County. This impact is considered minor because much of the land to be acquired is vacant or undeveloped. In the long-term, the Recommended Build Alternative would improve travel in the study area and region, and benefit future growth and development. New development, such as residential, commercial, light industrial, and warehousing and distribution uses, would increase property taxes due to a higher tax-yielding type of land use.

The No-Build Alternative would not result in changes to existing or future land use patterns or the acquisition of residences or businesses in the study area because no ROW would be required. With the No-Build Alternative, it could be expected that development would slow substantially in locations where future traffic volumes would approach and/or exceed the maximum capacity of I-10 and local cross streets.

C. Social and Economic Considerations

Socioeconomics is a term that describes the economic and social characteristics of a specific population, such as income, education, demographics, and occupation. The socioeconomic analysis evaluates the social and economic impacts of the proposed project on the local and surrounding population. It examines how a proposed project could affect the area's overall social and economic character, the well-being of current and future residents of the affected community, and the future cohesion of the community once the project has been implemented. The displacement and relocation of residents and businesses is addressed in this section, and potential impacts on minority, low-income, and other protected populations are also evaluated.

Existing Conditions

Demographics

Jurisdiction in the study area is split between unincorporated Pima County and the cities of Tucson and South Tucson. The county had an estimated population of 1,016,206 in 2016, with 530,706 in Tucson and 5,645 in South Tucson (U.S. Census Bureau 2017). Pima County growth has been moderate since the 2000 Census, about 15% between 2000 and 2010. The growth in the cities of Tucson and South Tucson has been 9% to 11% over the same period. Projections by PAG indicate population growth to 1,379,622 in the county and 718,187 in Tucson by 2040. The study area is moderately populated, with residential subdivisions dispersed between I-19 and Kolb Road along I-10. In the SR 210 study area, residential development is light, with most residences near I-10.

The primary employment sectors of government, trade/transportation/utilities, and education are well represented in the study area. The DMAFB, the largest employer in the city of Tucson, is adjacent to the study area. A broad variety of industrial/trade/commercial employment is adjacent to Alvernon Way and along the DMAFB boundary. More than 300 businesses are in the study area. Along I-10, commercial development is dominant, particularly at or near the TIs. The study area is ideally suited for industry and manufacturing due to the proximity of transportation services (the UPRR and I-10) and Tucson International Airport (about 3 miles south of I-10). TEP has a major facility near Alvernon Way and Irvington Road in the study area. The VA has a large medical facility just south of I-10 east of

6th Avenue. Several business parks are located throughout the study area. Education employment is represented at the UA Tech Park and six public schools. Employment along the Kolb Road corridor north of I-10 is growing dramatically due to a new Amazon Fulfillment Center and the UA Tech Park.

Current employment density (number of jobs per square mile) is greatest along I-10 from I-19 to Alvernon Way and along Alvernon Way to SR 210. Density ranges from 1,001 to 3,000 jobs per square mile. East of Valencia Road along I-10, current employment drops off to 0 to 500 jobs per square mile. Future job growth along I-10 between I-19 and Alvernon Way and Alvernon Way corridors is expected to grow to 3,001 to 4,000 jobs per square mile by 2040. The I-10 corridor around Kolb Road is projected to see the greatest job growth, up to 4,001 to 5,000 jobs per square mile (PAG 2019b).

Neighborhood Continuity

Neighborhood continuity, as used in this EA, describes the continuous or cohesive extent of a residential neighborhood, large or small. Schools and local or neighborhood parks are examples of land uses often located within or adjacent to residential areas to serve the residential community. Larger roads, highways, and railroads are examples of features that serve as barriers to neighborhood continuity and can separate or isolate residences from their larger community. A number of distinct residential neighborhoods are in the study area, many adjacent to I-10. The larger residential areas or residential subdivisions along I-10 include:

- Augie Acuña/Los Niños Neighborhood, south of I-10 between Alvernon Way and Drexel Road (Los Niños Elementary School and Augie Acuña Neighborhood Park are within the neighborhood)
- Littletown, north of I-10 along Craycroft Road (Billy Lane Lauffer Middle School, Craycroft Elementary School, Thomas Jay Regional Park, Littletown Community Center, and Julian Wash Greenway linear park and paved pathway are within or adjacent to this community)
- South Tucson, north of I-10
- Valstate Homeowners Association, south of I-10 between Swan Road and Craycroft Road
- Julian Ranch and Canterbury Ranch Communities, north of I-10 between Craycroft Road and Los Reales Road
- Desert Stone and Vista Montana Homeowners Association, south of I-10 between Wilmot Road and Kolb Road

The Augie Acuña/Los Niños Neighborhood and the community of Littletown are examples of residential neighborhoods where the neighborhood continuity is strengthened by the presence of schools and parks. Older neighborhoods, such as Littletown, have a sense of history or continuity over time. South Tucson is a 1-square-mile incorporated area completely surrounded by the city of Tucson. The population is predominately of Hispanic or Latino origin and has a distinctive character, as reflected in its restaurants, architectural style, and outdoor murals.

Emergency and Social Services—Police, Fire, Ambulance, Hospital

Two Pima County Sheriff's Department district offices and three fire departments are in the study area. The sheriff's offices and fire stations are about a half-mile from SR 210 and I-10. Two hospitals are in the study area: the VA hospital and Banner-University Medical Center South (formerly Kino Hospital) (see Figure 14). The VA hospital property abuts the I-10 frontage road ROW east of 6th Avenue. The main

hospital building is about 1,000 feet south of the frontage road. The Banner-University Medical Center main building is about 1,400 feet north of I-10 near the intersection of Ajo Way and Country Club Road.

Social Services, Schools, Recreation

Seven schools are in the study area: Mission View Elementary School, Los Niños Elementary School, Billy Lane Lauffer Middle School, Craycroft Elementary School, Wakefield Middle School, Vail Academy and High School, and Nelly Covert School (Arizona Children's Association). Only Vail Academy and High School is adjacent to I-10 or SR 210. The other six schools are situated a quarter-mile to a half-mile from I-10 or SR 210 (see Figure 14).

Nine existing county/city parks and three planned parks are in the study area. The parks range from small neighborhood "pocket" parks to a large regional sports complex (Kino Sports Complex). The parks are distributed across the study area, with only two immediately adjacent to the project ROW. The other parks, existing and planned, are offset from SR 210 or I-10 by 500 feet to a quarter-mile. The two largest parks, Kino Sports Complex and 100-Acre Wood Bike Park, are described below. A description of each park is located in Appendix C.

The Kino Sports Complex abuts I-10 just east of Kino Parkway. Currently, the baseball portion of the facility hosts baseball teams for tournaments and seasonal training events. The soccer portion of the complex is the home host for the United Soccer League *FC Tucson* team and provides a winter training facility for several Major League Soccer teams from around the United States. The baseball and soccer facilities also host local Tucson teams and a variety of entertainment events (e.g., concerts, charity functions, gem and mineral show). The complex is currently undergoing an expansion on the south side of I-10 to increase soccer capabilities to become a nationally recognized tournament venue. The expansion includes a new roadway tunnel under I-10 to provide access to both sides of the sports complex.

The 100-Acre Wood Bike Park to be located adjacent to Golf Links Road near the connection to SR 210 is a planned recreational area for bike moto-cross and trails use. The recreational area is being developed jointly by the City of Tucson and private bicycle organizations on property under the jurisdiction of the DMAFB. It is expected that its development will occur over several years. Initial construction began in early 2019 (City of Tucson 2018). The 100-Acre Wood Bike Park is not protected under Section 4(f) as the underlying ownership is military (DMAFB).

The study area is crossed by numerous linear trails, paths, or greenways (enhanced multi-use bike/pedestrian routes). There are 10 existing and 17 planned trails/paths/greenways (Pima County 2015c) (see Appendix C). The bike/pedestrian facilities vary from short, local neighborhood paths or trails within a park facility to long, extensive components of the Chuck Huckelberry Loop Trail (formerly "The Loop"), a regional interconnected bike/pedestrian trail system of about 131 miles in Pima County (Pima County 2019b). Two facilities cross I-10: Tucson Diversion Channel Trail and Julian Wash Greenway Trail. The Tucson Diversion Trail follows a constructed drainage channel under I-10 between Kino Parkway and the Kino Sports Complex. The Julian Wash Greenway Trail (part of the Chuck Huckelberry Loop Trail) parallels I-10 from I-19 to east of Kolb Road, crossing under I-10 at Drexel Road. The Palo Verde Greenway begins at SR 210 and Palo Verde Road and runs adjacent to Alvernon Way south to I-10. The planned Hidden Hills Trail would parallel I-10 from Wilmot Road to east of Kolb Road on the north side of the freeway. The remaining planned or existing bike/pedestrian facilities generally are located several hundred feet to a half-mile from SR 210 and I-10.

The SR 210 and I-10 corridors are served by public transit through the Sun Tran bus service. Express bus routes run along SR 210 (Route 101X), Alvernon Way/Palo Verde Road (Route 201X), and I-10 (110X) throughout the study area. Most of the cross streets have bus service from I-19 to Craycroft Road. East of Craycroft Road, no service in the study area occurs on Wilmot Road or Kolb Road. Sun Shuttle Dial-a-Ride also offers service throughout the study area (Sun Tran 2019).

Environmental Impacts—Recommended Build Alternative

Residential relocations would be required from a commercial/industrial area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1). No impact to neighborhood continuity would be expected because the homes to be acquired are from an industrial area.

The addition of a new TI at I-10 and Country Club Road would require the acquisition of one single-family residence at 4700 South Bentley Avenue. This home is on the edge of a small residential area (see Figure 2a: Detail 2). The acquisition of this home would decrease by one the number of residences within a small residential neighborhood, but its removal would have only a minor impact on neighborhood continuity because it would not divide or separate the remainder of the community. Population decline is not expected as a result of the Recommended Build Alternative.

The acquisition of approximately 25 businesses in the SR 210 corridor could impact business viability and would eliminate employment opportunities for any of these businesses that are relocated out of the study area. The needed acquisitions are clustered in the previously noted triangular area near SR 210/Golf Links Road, and at Alvernon Way and Irvington Road. These businesses are characterized as primarily commercial manufacturing (pool equipment, temporary tattoos/stickers), materials supply (drywall, windows, doors, marble /granite products, metal pipes, and wrought iron), and construction services. There are no businesses in this area that are neighborhood-oriented (e.g., grocery store, laundromat, gas station, medical services, general shopping). A number of vacant industrial/commercial buildings are within a 5-mile radius of the project. The MLS of Southern Arizona includes 79 commercial properties for sale and 24 commercial lease properties within a 5-mile radius of the project commercial relocations (MLS 2019).

Reconstruction of the I-10/Craycroft Road TI requires property acquisition from the Triple T Truck Stop to provide a connector road through their property to I-10 (see Figure 13). The land acquisition is not expected to impact current operations or employment but may impact future development/expansion plans. The Triple T Truck Stop property owners expressed concern related to future uses for this land, which is currently used for overflow parking.

The only other total acquisition of a business would occur outside the SR 210 corridor and would result from the reconstruction of the I-10/Park Avenue TI. It would require the acquisition of a motel located at 755 E. Benson Highway in the southwest quadrant of the I-10/Park Avenue TI.

All other ROW acquisitions along I-10 would be vacant land or partial takes from larger parcels not requiring business or residential acquisition.

Neighborhood continuity impacts are not expected with the Recommended Build Alternative. No ROW encroachment would occur within any of the large neighborhoods identified earlier. Access to residential properties would be retained, with a couple of exceptions. In the case of a small neighborhood in the southwest quadrant of I-10 and Country Club Road, the new TI eastbound off-ramp would eliminate access to this neighborhood from I-10 via Missouri Street. New access would be

established from the south by extending Bentley Avenue or Treat Avenue to Irvington Road (see Figure 2a: Detail 2). Three small residences are within the industrial/commercial area near the SR 210/Palo Verde intersection. These residences are disconnected from any neighborhood by the commercial land uses, UPRR and DMAFB.

The other change in access would be in the vicinity of the I-10/Craycroft Road TI. The construction of a median in Craycroft Road and a restriction to right-in, right-out turning movements associated with the three truck-related businesses would result in some out-of-direction travel for business ingress and egress. As noted previously, a new connector road would be added to provide an alternate route to eastbound and westbound I-10 (see Figure 13). The Craycroft reconstruction would add a short frontage road serving 10 residential lots that front Craycroft Road (nine homes are present; one lot is undeveloped). Those nine residences would access Craycroft Road via a new residential frontage road. The maximum out-of-direction travel for those residents is about 700 feet. The new frontage road would provide a buffer between truck traffic using the truck stops and the homes.

Access to schools and parks would not be altered by the Recommended Build Alternative. Coordination with the Sunnyside School District resulted in a recommendation to consider the addition of a traffic control signal on Alvernon Way near Los Niños Elementary School. With the school bus and parent pick-up/drop-off points, a signal could improve circulation during the busy morning and afternoon student arrival/departure times. During final design, the need and potential placement would be evaluated (see Appendix A).

In general, traffic congestion and delays may temporarily impact travel through the project limits during construction, impacting motorists, transit services, and emergency response providers. Access to schools, parks, emergency services, commercial properties, and neighborhoods would be maintained through traffic control plans, though delays or temporary access may occur due to construction activities. Following construction, all users would be expected to benefit from an improved transportation system and improved travel times. Coordination with emergency service providers would occur during final project design and construction.

Economic analysis will be updated during final design when additional project detail is available.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, routine maintenance and safety improvements would be expected to continue for I-10 and SR 210. No major widening or TI modifications would occur, and SR 210 would not be extended from current termini. The maintenance and safety improvements would be expected to occur within the existing ROW. No new ROW would be acquired; therefore, there would be no direct impacts to social services, emergency services, or employment. Future growth in the I-10 corridor could be less than expected due to the lack of adequate transportation infrastructure, a potential indirect effect. The further degradation of traffic operations due to traffic congestion could result in travel delays and extended emergency response times.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Uniform Relocation Act Amendments of 1987, the ADOT *Right of Way Procedures Manual,* Title VI of the Civil Rights Act of 1964, the ADOT *Public Involvement Plan,* and the 2010 Federal Highway Administration *Manual on Uniform Traffic Control Devices for Streets and Highways*.

Arizona Department of Transportation Design Responsibility

- During final design, the Arizona Department of Transportation would coordinate with emergency response and transit providers (Arizona Department of Public Safety, City of Tucson Police Department, Pima County Sheriff's Department, South Tucson Police Department, City of Tucson Fire Department, City of South Tucson Fire Department, Rural Metro Fire Department, Southern Arizona Veterans Hospital, Banner-University Medical Center South, and Sun Tran), and Tucson Unified School District and Sunnyside Unified School District to accommodate emergency and transit needs in the Transportation Management Plan.

Contractor Responsibility

- With the exception of temporary, short-term closures (less than three hours), the contractor would maintain driveway access to all businesses and residences throughout construction. If a property has multiple driveways, at least one would remain open at all times.

Conclusion

Social and economic impacts under the Recommended Build Alternative are expected to be minor. Four residential relocations would be required. Three of the homes are from a commercial/industrial area; therefore, no impact to neighborhood cohesion would be expected. The fourth residential relocation is on the edge of a neighborhood and would result in the loss of one residence from this smaller neighborhood; however, the remaining neighborhood would not be divided by the project.
The Recommended Build Alternative would have a minor impact on the Littletown homes that face Craycroft Road due to the potential increase in truck traffic. No negative impacts to schools or parks are anticipated. Motorists and emergency service providers would be subjected to traffic congestion and delays within the project limits during construction but would benefit in the long-term from an improved transportation system. Changes in access and circulation would be minor to moderate and would be mostly beneficial.

D. Title VI and Environmental Justice

Title VI of the Civil Rights Act of 1964 (Title VI) ensures that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, and national origin. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (Environmental Justice [EJ]), directs that programs, policies, and activities not have disproportionately high and adverse human health and environmental effects on minority and low-income populations.

An adverse effect is a significant individual or cumulative human health or environmental effects (e.g., the displacement of a household structure or business as a requirement to build a project).
A disproportionately high and adverse effect on minority and low-income populations is an adverse effect that:

- Is predominately borne by a minority population and/or a low-income population, or
- Will be suffered by the minority populations and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the nonminority population and/or non-low-income population.

Existing Conditions

For this Title VI and EJ evaluation, specific demographic characteristics were collected for those residential populations that could potentially be directly or indirectly affected by the project. From U.S. Census Bureau maps, 16 Census tracts (CTs)[1] were identified along the project corridor: CT 20, CT 21, CT 22.01, CT 22.02, CT 23, CT 24, CT 25.01, CT 36, CT 40.73, CT 41.12, CT 41.15, CT 41.16, CT 41.17, CT 41.18, CT 41.21, and CT 41.25. In addition, the community of Littletown, a Census-Designated Place (CDP)[2] that falls within CT 41.18, reflects a distinct area of the project along Craycroft Road east of I-10. The 16 CTs and the Littletown CDP are referred to as the "selected population" in this analysis. Figure 15 depicts these CTs and the Littletown CDP. Colors are used to depict the extent of the CT boundaries. The portion of the study area within the city of South Tucson is in CT 23.

Next, the demographic characteristics for the larger regions that surround and encompass the study area, the City of Tucson and Pima County, were collected for comparison purposes. These populations are referred to in this analysis as "comparison populations." In the following sections, percentages of minority and low-income populations are compared with comparison populations to determine which populations should be protected under Title VI and EJ.

Data used in this analysis were taken from the U.S. Census Bureau American Community Survey Five-Year Estimates from the 2012–2016 five-year running average, except as otherwise noted.

Title VI (Race, Color, and National Origin)

Title VI considers impacts to populations based on race, color, or national origin. Thirteen of the 16 CTs within the study area have minority populations meaningfully higher than those of one or more of the comparison populations. In addition, the Littletown CDP has a meaningfully higher minority population. Those CTs are identified in Table 3 and shown in Figure 15. The 13 CTs and Littletown CDP cover the majority of the project limits. Only the I-10 segment from Craycroft Road to Kolb Road (CTs 40.73 and 41.25) and the area adjacent to DMAFB (CT 360) is absent meaningfully higher minority populations.

Environmental Justice (Racial Minorities, and Hispanic and Latino Concentrations)

For this EJ evaluation, racial minorities are composed of the following racial categories from the Census: Black/African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Other Races, and Two or More Races. In addition to race, the Census also asks residents to identify whether they consider themselves of Hispanic or Latino origin. Total minorities, as used in this evaluation, are composed of racial minorities plus those of Hispanic or Latino origin who are not already counted in the racial minority category. Data from the Census indicate that racial minorities and persons of Hispanic or Latino origin live in the selected population; with 13 of the 16 CTs, plus the Littletown CDP, having minority populations meaningfully higher than those of one or more of the comparison populations.

[1] Census tracts are small, relatively permanent statistical subdivisions of counties designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions.
[2] A CDP is a concentration of population defined by the Census Bureau for gathering and evaluating statistical data.

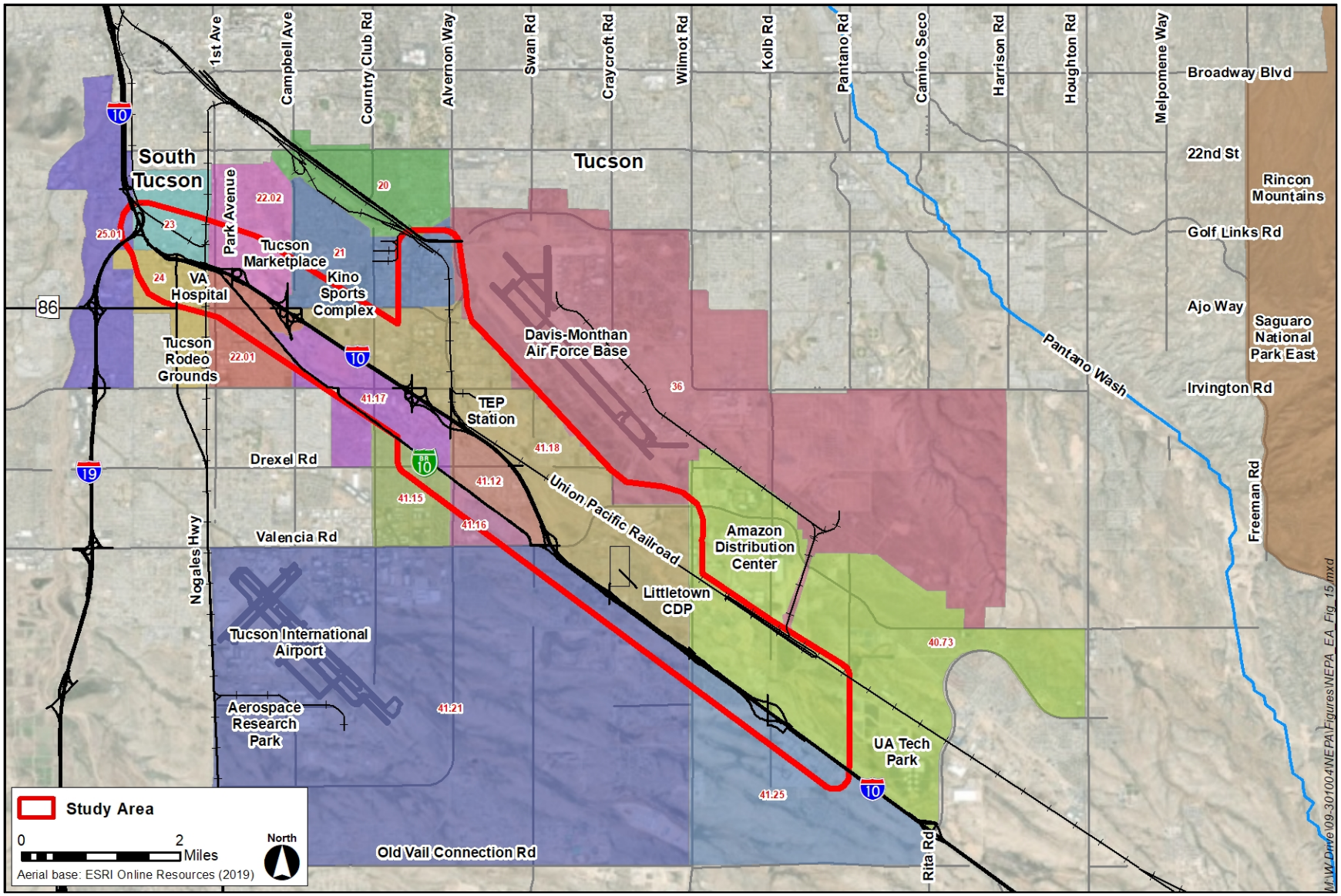

Figure 15. Census tracts in the study area

Table 3 summarizes total racial minorities, total residents of Hispanic or Latino origin, and total minorities for the selected and comparison populations. Selected population areas whose total racial minorities, total Hispanic or Latino origin, or total minority populations represent a meaningfully higher percentage (20% or more) than those of one or more of the comparison populations are considered "protected populations" for this Title VI and EJ evaluation. Thirteen of the 16 CTs (CT 20, CT 21, CT 22.01, CT 22.02, CT 23, CT 24, CT 25.01, CT 41.12, CT 41.15, CT 41.16, CT 41.17, CT 41.18, and CT 41.21) and the Littletown CDP are considered protected populations on this basis. The population percentages that are meaningfully higher than those of the comparison populations are highlighted in green in Table 3.

Table 3. 2012-2016 total racial minority, total Hispanic or Latino origin, and total racial and Hispanic or Latino minority

Area	Total Population	Total Racial Minority[a]		Total Hispanic or Latino Origin[b]		Total Minority (Racial and Hispanic or Latino Origin)[c]	
		#	%	#	%	#	%
CT 20	6,210	1,454	23.4	3,950	63.6	4,430	71.3
CT 21	5,980	2,937	49.1	4,791	80.1	5,435	90.9
CT 22.01	3,515	1,727	49.1	2,626	74.7	3,046	86.7
CT 22.02	3,224	1,474	45.7	2,364	73.3	3,026	93.9
CT 23	5,627	2,069	36.8	4,492	79.8	5075	90.2
CT 24	5,909	2,179	36.9	5,296	89.6	5,611	95.0
CT 25.01	5,798	4,510	77.8	4,018	69.3		77.8
CT 36	5,623	2,055	36.5	988	17.6	2,696	47.9
CT 40.73	4,752	876	18.4	1,082	22.8	1,739	36.6
CT 41.12	2,821	750	26.6	1,874	66.4	2,098	74.4
CT 41.15	6,891	5,583	81.0	5,494	79.7		81.0
CT 41.16	2,741	2,272	82.9	2,018	73.6		82.9
CT 41.17	6,440	2,507	39.9	5,105	79.3	5,760	89.4
CT 41.18	4,881	1,515	31.0	2,812	57.6	3,396	69.6
CT 41.21	8,374	2,856	34.1	4,521	54.0	6084	72.7
CT 41.25	6,681	1,266	18.9	1,882	28.2	2419	36.2
Littletown CDP	645	91	14.1	385	59.7	385	59.7
City of Tucson	527,586	139,950	26.5	225,003	42.6	287,549	54.5
Pima County	1,003,338	227,590	22.7	362,265	36.1	468,844	46.7

Source: U.S. Census Bureau 2016

CDP = Census-Designated Place, CT = Census Tract, # = Number, % = Percentage

Gray shading identifies the comparison populations

Green shading denotes the percentages of the population that are meaningfully higher than those of one or more of the comparison populations

[a] Percentage of residents who identify themselves as any race other than White: Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, some other race, and two or more races

[b] In addition to race, residents were asked to categorize themselves by one of two ethnicities: Hispanic or Latino and Not Hispanic or Latino

[c] Total minority is composed of all people who consider themselves Non-White racially plus those who consider themselves White racially and Hispanic or Latino. This value is not a sum of racial minority and Hispanic or Latino origin totals on this table.

For more detailed information, Appendix D: Tables D-1 and D-2 provide additional detail on the socioeconomic data collected for the population of each CT and the Littletown CDP, including a breakdown by race and the total number of residents who identify themselves as of Hispanic or Latino origin, regardless of their race.

Environmental Justice (Low Income)

Table 4 provides the percentage of the respective populations for the category of below the poverty level. The percentages of the population living below the poverty level were meaningfully higher than the comparison populations for CT 22.01, CT 23, and CT 41.15. These three CTs are considered to be protected populations on the basis of low income. The population percentages that are meaningfully higher than those of one or more of the comparison populations are highlighted in green in Table 4.

Table 4. 2012–2016 total below poverty level

Area	Total Population for Whom Poverty Is Determined	Below Poverty Level	
		#	%
CT 20	6,210	749	12.1
CT 21	5,915	2,014	34.0
CT 22.01	3,444	1,446	42.0
CT 22.02	3,145	1,150	36.6
CT 23	5,612	2,746	48.9
CT 24	5,847	2,279	39.0
CT 25.01	3,898	1,390	35.7
CT 36	4,922	669	13.6
CT 40.73	4,714	252	5.3
CT 41.12	2,821	905	29.7
CT 41.15	6,891	3,217	46.7
CT 41.16	2,710	607	22.4
CT 41.17	6,414	1,804	32.1
CT 41.18	4,527	529	11.9
CT 41.21	6,550	583	11.7
CT 41.25	5,953	357	8.9
Littletown CDP	645	97	15.0
City of Tucson	504,069	126,606	25.1
Pima County	976,120	186,299	19.1

Source: U.S. Census Bureau 2016

= Number, % = Percentage, CT = Census Tract

Gray shading identifies the comparison populations

Green shading denotes the percentages of the population that are meaningfully higher than those of one or more of the comparison populations

Title VI (National Origin, Limited English Proficiency)

Title VI of the Civil Rights Act and Executive Order 13166 prohibit recipients of federal financial assistance from discrimination based on national origin. In accordance with Title VI and Executive Order 13166, ADOT developed a Limited English Proficiency Language Access Plan. In accordance with this plan, the number of individuals who are not proficient in the English language was collected from the U.S. Census Bureau American Community Survey for 2015 for each of the selected populations associated with this project. Table 5 provides the total number of Limited English Proficiency individuals who speak Spanish or Spanish Creole at home and the percentage that this number represents of the total population for each of the selected populations.

Environmental Impacts—Recommended Build Alternative

The following section assesses whether the Recommended Build Alternative would have disproportionately high and adverse human health and environmental effects on the identified protected minority and low-income populations. The discussion is organized by impact topic.

Table 5. 2012–2016 language spoken at home by ability to speak English for the population 5 years and older

Areas	Population	Spanish or Spanish Creole	Speaks English Less Than Very Well	% of Total Population
CT 20	6,125	2,891	476	7.8
CT 21	5,548	3,477	1,389	25.0
CT 22.01	3,419	2,590	1,056	30.9
CT 22.02	2,809	1,556	691	24.6
CT 23	5,328	3,267	1,176	22.1
CT 24	5,607	4,248	1,961	35.0
CT 25.01	5,609	2,894	971	17.3
CT 36	4,671	323	71	1.5
CT 40.73	4,583	333	79	1.7
CT 41.12	2,544	1,237	428	1.7
CT 41.15	6,529	4,528	2005	30.7
CT 41.16	2,426	1,173	421	17.4
CT 41.17	5,380	2,871	773	14.4
CT 41.18	4,054	1,481	339	8.4
CT 41.21	7,653	3,299	769	10.0
CT 41.25	6,021	950	367	6.1
Littletown CDP	410	174	43	10.5

Source: U.S. Census Bureau 2015

= Number, % = Percentage, CT = Census Tract

Property Acquisitions and Displacement of Residents and Businesses

The Recommended Build Alternative is expected to require acquisition of four residences. All four residences are within CTs that are considered protected minority populations. One residence that is expected to be acquired as a result of the Recommended Build Alternative is south of I-10 and west of Country Club Road, in CT 41.17. This residence is north of Missouri Street on Bentley Avenue, on the edge of a small residential area (see Figure 2a: Detail 2). With the Recommended Build Alternative, the future eastbound off-ramp at Country Club Road would conflict with this property, requiring its acquisition. Because this residential property is on the edge of the residential community, its acquisition would not be expected to separate or isolate the remaining residents from a broader residential community. The acquisition would reduce by one the number of homes within a smaller neighborhood, but this would not be expected to negatively affect neighborhood viability.

The other three residences, which are also in a protected population (CT 21), are in the commercial/ industrial area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1) and are not part of a larger residential group of residences. These three houses must be acquired along with all of the existing commercial/industrial buildings in this area because implementation of the Recommended Build Alternative would cut off access to this discrete area. With these houses located in a commercial/industrial area, there is no neighborhood continuity or community cohesion associated with them. Furthermore, the acquisition of these three residences would not result in the separation or

isolation of minority individuals from a broader residential community because no such residential community is present.

Of the eight access control concepts for the I-10/Craycroft Road TI that are summarized in Chapter III, acquisitions would have been required with only Concept 2 (further defined as 2a and 2b). Concepts 2a and 2b are described and evaluated in a separate Title VI and EJ report for this area of the project (see Appendix D). Concerns were identified that Concepts 2a and 2b could have had a disproportionately high and adverse human health and environmental effect on a population protected under Title VI and EJ. The concepts would have realigned Elvira Road and required the acquisition of up to a dozen single-family residential properties in Littletown, a population protected under Title VI and EJ, and the displacement of the occupants. The take of residential properties would have diminished the size of the community. Routing commercial traffic (including truck traffic) through the interior of the community would have altered the residential character of the neighborhood and would have created a barrier within the community, segregating parts of the community from the whole. In summary, these two concepts for improving Craycroft Road would have resulted in impacts that would have been suffered by a minority protected population and would have been appreciably more severe or greater in magnitude than the adverse effect that would have been suffered by the nonminority population. Meetings were held with residents of Littletown, the Sunnyside Unified School District, and commercial landowners in the area to discuss various concepts and solicit input. In consideration of the potential impact on a protected population, Concept 8 (Appendix D) was developed, refined, and incorporated into the Recommended Build Alternative. The Recommended Build Alternative avoided the need to realign Elvira Road through the residential community of Littletown and did not require the acquisition of residences in Littletown.

Approximately 25 businesses would need to be acquired for the Recommended Build Alternative. One would need to be acquired at the Park Avenue TI, on the south side of I-10, in CT 22.01, a protected population. Several more would need to be acquired along Alvernon Way between I-10 and Irvington Road, in CT 41.18, also a protected population. The remaining businesses are within the commercial/ industrial area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1) in CT 21, a protected population. The acquisition of businesses could result in job loss within the study area. Depending on the locations to which these businesses are relocated, employment opportunities within the local area could be reduced. Impacts on existing employees could occur if the businesses are not reestablished at a new location or if the new location is not feasible for existing employees.

Of the access control concepts for the I-10/Craycroft Road TI, Concept 1 would have involved the acquisition of the commercial businesses east of Craycroft Road (i.e., Pilot Travel Center and Freightliner of Arizona) to eliminate a large portion of the freight traffic using Craycroft Road. Concept 1 would have had an impact on employment opportunities in the local area through the loss of two businesses (see Appendix D for more detail). Ultimately, the Recommended Build Alternative avoided the need for business relocations in this area.

Protected populations are present throughout much of the study area; 14 out of the 16 CTs in the study area are protected due to their percentage of minority and/or low-income residents. Because the purpose of the project is to address the operational deficiencies, limited capacity, and high crash rates on I-10 within the project limits and to provide improved access from I-10 to downtown Tucson, the complete avoidance of protected populations would not be feasible for this project.

The number of acquisitions of residences and businesses with this project is commensurate in consideration of the size and the scope of this project and the highly developed nature of the study area. The number of residential acquisitions is minimal compared with the overall body of residences in the study area. The number of commercial/business acquisitions is moderate compared with the length and scope of the project. The loss of these properties to their existing use would not have an appreciable impact on the study area demographics and characteristics. Impacts to the affected residences and the affected business owners and their employees would be expected; however, the level of impact would be reduced through compensation and relocation assistance, in accordance with the Uniform Act. While the residents and affected businesses to be acquired fall within protected populations, protected populations constitute a large majority of the study area. For all of these reasons, the impacts associated with these acquisitions would not be considered disproportionately high and adverse. Appendix B provides a list of the parcels that need to be acquired for the overall project, either as full or partial property takes. The economic analysis will be updated during final design when additional project detail is available.

Long-Term Changes in Access

The Recommended Build Alternative would result in long-term changes in vehicular access in the study area for local residents and business owners, as well as the broader community. Notable permanent changes in access with the project include the removal of the existing Palo Verde TI and the enhancement of the surrounding Country Club and Alvernon Way TIs, the establishment of new access to a residential community south of I-10 and west of Country Club Road—whose existing access off Missouri Street would be eliminated, and the elimination of all access to the area bounded by 38th Street, Alvernon Way, and Technical Drive (see Figure 2a: Detail 1). Furthermore, along Craycroft Road north of I-10, ingress and egress to the three truck-related businesses would be restricted to right-in and right-out turning movements. The access changes would direct truck traffic north on Craycroft Road to a new connector road through the current Triple T Truck Stop property. Some truck traffic may elect to travel north on Craycroft Road to Valencia Road to access I-10 in either direction.

With the proposed right-in and right-out turning movements, a minor to moderate increase in truck traffic could be expected along Craycroft Road in the vicinity of Littletown. A new frontage road would be constructed to provide access to the residences that front Craycroft Road. The frontage road would be a permanent change in access that would facilitate the separation of truck traffic from the local residential traffic, minimizing potential conflicts, but would not reduce accessibility. The existing sidewalk along the east side of Craycroft Road would be maintained and new sidewalk would be constructed on the west side of Craycroft Road from the Craycroft TI to the new bus bay and the Circle K convenience market. The change in circulation would be minor for Littletown residents, and the proposed concept would reduce congestion and enhance traffic flow and circulation.

The Sunnyside Unified School District expressed concern with any increase in traffic on Littletown Road because of the two schools that front this road (see Appendix A). District representatives noted that Littletown Road is narrow, the sidewalks are not continuous, there are gaps in the street lighting, roadway shoulders are narrow or do not exist, and no curbs or gutters are present to control drainage. Though the construction of a median in Craycroft Road would require traffic exiting the Pilot Travel Center and Freightliner of Arizona to turn right or north on Craycroft Road, the construction of a new two-way connector road through Triple T Truck Stop would provide a direct route to the I-10 frontage road for westbound or eastbound I-10 traffic, reducing the potential number of trucks that would use Littletown Road. ADOT will work with the Sunnyside Unified School District regarding the potential to

add a traffic signal or other traffic controlling measures to reduce the potential for conflicts along the schools' frontages.

Noise

The range of predicted peak hour noise levels for 2040 with the Recommended Build Alternative would be 57–80 dBA, which shows an increase over the existing condition (55–77 dBA) and the 2040 No-Build Alternative (56–78 dBA). Noise barriers were evaluated in 27 locations for their ability to mitigate impacts on sensitive receivers, including residences. Eleven of these walls met the criteria to be recommended for the project. ADOT will solicit input from affected landowners regarding the potential to construct noise barriers. Increases in noise will occur throughout the study area and would not represent a disproportionately high and adverse impact on protected populations.

Temporary, Construction-Related Impacts

It is expected that residents, business owners, employees, customers, suppliers, area residents, and motorists using the transportation network in the study area could be temporarily affected by construction-related activities. These impacts could include construction noise, vibration, dust, and temporary street restrictions or closures during construction. The impacts would be temporary and would cease following the completion of construction. Traffic control plans would be implemented to maintain access to schools, parks, emergency services, commercial properties, and neighborhoods throughout construction. For these reasons, and because these impacts would not be primarily borne by protected populations, construction-related impacts on protected populations would not be disproportionately high and adverse.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, routine maintenance and safety improvements would be expected to continue for I-10 and SR 210. No major widening or TI modifications would occur, and SR 210 would not be extended from current termini. The maintenance and safety improvements would be expected to occur within the existing ROW. It is anticipated that the social and economic conditions would be similar to the existing condition. Population and employment would be expected to grow in the region and study area. With an increase in traffic in the future, congestion and travel delays could impact accessibility to employment and housing. Congestion on I-10 and on surface streets would negatively affect all communities in the study area, including protected populations.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the Uniform Relocation Act Amendments of 1987, the ADOT *Right of Way Procedures Manual,* Title VI of the Civil Rights Act of 1964, and the ADOT *Public Involvement Plan.*

<u>Arizona Department of Transportation Design Responsibility</u>

- The Arizona Department of Transportation Southcentral District would coordinate with the Sunnyside School District to develop pedestrian or traffic control measures related to Craycroft Road and truck traffic through Littletown community, as warranted.

Conclusion

It is expected that all residents of the area would experience short-term impacts, such as noise, vibration, dust, and temporary street restrictions or closures, during construction. All residents would

benefit from the positive impacts of improving the interstate, state route capacity, improved connectivity to downtown, and improved operation of TIs.

Protected populations are present throughout much of the study area. Fourteen out of the 16 CTs in the study area are protected due to their percentage of minority and/or low-income residents. Because the purpose of the project is to address the operational deficiencies, limited capacity, and high crash rates on I-10 within the project limits, and to provide improved access from I-10 to downtown Tucson, the complete avoidance of protected populations would not be feasible for this project.

The project would require acquisition of four residences; however, three of these residences are from a commercial/industrial area, not a residential community. The fourth residence is on the edge of a small residential area and would not separate or isolate minority or low-income residents from the larger community. The Recommended Build Alternative would preserve neighborhood continuity and community cohesion throughout the study area; it would not cut off residents from jobs, schools, medical care, grocery stores, public transit, and other essential resources and services, or divide residential communities or diminish them.

Acquisitions would impact the affected residents and the affected business owners and their employees; however, the level of impact would be reduced through compensation and relocation assistance, in accordance with the Uniform Act. Though the residents and affected businesses to be acquired fall within protected populations, these populations constitute a large majority of the study area. Acquisition of approximately 25 businesses in the SR 210 alignment and a motel at the I-10/Park Avenue TI could impact employment or services/materials provided by those businesses. Through early coordination and Uniform Act requirements, ADOT would seek to minimize those impacts with business relocation assistance.

None of the business acquisitions could be classified as serving a neighborhood or local community. The SR 210 alignment businesses consist of manufacturing (pool equipment, temporary tattoos, decorative iron), construction service suppliers (marble/granite, metal pipes, windows, doors and screens, drywall, and refrigeration parts), auto paint and body shop, and storage/salvage yards. Several buildings are vacant, with no known previous use. The motel at I-10 and Park Avenue serves the traveling or visiting public for overnight or temporary stays. For all of these reasons, the impacts associated with these acquisitions would not be considered disproportionately high and adverse impacts on protected minority or low-income populations.

Under the No-Build Alternative, maintenance and safety improvements would be expected to occur within the existing ROW, and no residential or commercial acquisitions or relocations would be required. However, with an increase in traffic in the future and no improvements to the transportation system, congestion and travel delays could impact accessibility to employment and housing. Congestion on I-10 and surface streets would negatively affect all communities in the study area, including protected populations.

E. Cultural Resources

Cultural resources are properties that reflect the heritage of local communities, states, and nations. Properties judged to be significant and to retain sufficient integrity to convey that significance are termed “historic properties” and are afforded certain protection in accordance with state and federal legislation. Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 300101 et seq.) and NEPA require federal agencies to take into account the effects of their undertakings

on historic properties and afford the Arizona State Historic Preservation Office (SHPO) and other interested parties an opportunity to comment on such undertakings. To comply with these laws, an assessment of cultural resources was completed for this EA. Regulations for Protection of Historic Properties (36 CFR 800) implement Section 106 of the NHPA. These regulations define a process for federal agencies to follow as federal projects are planned and implemented.

Historic properties include prehistoric and historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties may be eligible for nomination to the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of the following criteria:

- Criterion A—be associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B—be associated with the lives of persons significant in our past
- Criterion C—embody the distinctive characteristics of a type, period, or method of construction; or represent the work of a master; or possess high artistic values; or represent a significant and distinguish able entity whose components may lack individual distinction
- Criterion D—have yielded, or may be likely to yield, information important in prehistory or history

Properties may be of local, state, or national importance. Typically, historic properties are at least 50 years old, but younger properties may be considered for listing if they are of exceptional importance (Criterion G). Once historic properties are evaluated, the federal agencies can determine whether historic properties are affected. The NRHP defines historic property as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP.

Existing Conditions

Archival research and record searches were conducted at the Arizona SHPO, the Arizona State Museum (ASM), the Arizona State University Archaeological Research Institute, the AZSITE cultural resource database, the Arizona state and Tucson field offices of the Bureau of Land Management, the NRHP, the City of Tucson, General Land Office map plats, and the ADOT Historic Preservation Portal. The results of the inventory are covered in two reports: *A Cultural Resources Class I Inventory for Interstate 10, from Interstate 19 to State Route 83, Pima County, Arizona* (Touchin et al. 2011a) and *A Cultural Resources Class I Inventory for State Route 210 (Barraza-Aviation Parkway) Extension, Pima County, Arizona* (Touchin et al. 2011b). These initial results were augmented by additional archival research conducted at the ASM Archaeological Records Office, the AZSITE cultural resources database, and the ADOT Historic Preservation Team Portal and reported in an ADOT Consultation Initiation Form prepared by Jacobs Engineering Group, Inc. (Jacobs). A historic building inventory for the area of potential effects (APE) and areas directly adjacent to it was conducted in 2018. The results of the inventory are reported in *A Historic Building Inventory for the I-10; Jct. I-19 to SR 83 and SR 210, Golf Links Road to I-10 Project, Tucson, Pima County, Arizona* (Ingwersen et al. 2019).

The archival research and records searches identified approximately 235 prior archaeological projects and nearly 100 previously recorded cultural resource within a half-mile study area. Of these, 84 cultural resources are within or immediately adjacent to areas where direct impacts from project construction would occur (project limits). These consist of 1 historic residential subdivision, 42 historic buildings, 31 historic in-use structures, and 8 archaeological sites.

Cultural resources eligibility determinations for listing in the NRHP are made by agencies with SHPO concurrence. Cultural resources eligibility recommendations are made by the recorder. Some resources remain unassessed and require archaeological testing for sites or research for other resource types to determine their NRHP eligibility.

Properties may be of local, state, or national importance. Typically, historic properties are at least 50 years old, but younger properties may be considered for listing if they are of exceptional importance (Criteria Consideration G). Once historic properties are evaluated, the federal agencies can determine whether historic properties are affected. The NRHP defines historic property as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP.

None of the archaeological sites or historic resources identified by the background research are listed in the NRHP. Table 6 provides a summary of the NRHP eligibility status of the 84 cultural resources located within or immediately adjacent to the project limits.

Environmental Impacts—Recommended Build Alternative

The in-use Southern Pacific Railroad mainline is within the project limits and was previously determined eligible for inclusion in the NRHP under Criterion A. The Recommended Build Alternative would construct a new bridge spanning the mainline alignment and install at-grade intersection crossing improvements at another. These improvements would not adversely affect the existing NRHP aspects of integrity of the Southern Pacific Railroad. No further cultural resources work is necessary.

El Paso Natural Gas Pipeline No. 1007 (AZ AA:12:875[ASM]) has previously been determined as NRHP-eligible under Criteria A, C, and D. In-use historic natural gas pipelines are exempt from consideration under Section 106 (ACHP 2002), and no further cultural resources work is necessary.

The El Paso & Southwestern Railroad's Fairbank-Mescal-Tucson Route (AZ EE:3:74[ASM]) was determined eligible for inclusion in the NRHP under Criteria A and D as a whole; however, the portion of the railroad alignment within the project limits previously was determined to be a noncontributing element of the property. No cultural resources work is necessary.

Table 6. Summary of cultural resources in or adjacent to the study area

Resource No.	Resource Type	Eligibility	Consultation
Historic, Architectural Resources			
Littletown subdivision	Historic residential subdivision	Ineligible	Heilman (ADOT) to Jacobs (SHPO) July 24, 2019; SHPO concurrence August 1, 2019
42 individual buildings	Historic commercial and residential buildings	Ineligible	Heilman (ADOT) to Jacobs (SHPO) July 24, 2019; SHPO concurrence August 1, 2019
Spanish Trail Apartments	Historic residential building	Unevaluated	Heilman (ADOT) to Jacobs (SHPO), September 17, 2019; SHPO concurrence October 22, 2019
Triple T Truck Stop	Historic commercial building	Eligible (C)	Heilman (ADOT) to Jacobs (SHPO) September 17, 2019; SHPO concurrence October 22, 2019
Historic, In-Use Structures			
Southern Pacific Railroad Mainline	Railroad alignment	Eligible	Remington (ADOT) to Jacobs (SHPO) December 8, 2009; SHPO concurrence December 24, 2009
ADOT Structure Nos. 1107–1112, 1162, 1163, 1217–1220, 1223–1226, 5555	Historic I-10 bridges and culverts (ca. 1965–1967)	Unevaluated but exempt	*Section 106 Exemption Regarding Effects to the Interstate Highway System* (Advisory Council on Historic Preservation 2005 [ACHP])
ADOT Structure Nos. 594–597, 1004, 1045, 1052	Historic I-10 bridges and culverts (ca. 1958–1960)	Ineligible	Clementino (ADOT) to Collins (SHPO) January 12, 2012; SHPO concurrence February 28, 2012
El Paso Natural Gas Pipeline No. 1007	Historic pipeline	Eligible but exempt	*Federal Register* 67(66), April 5, 2002 (ACHP 2002)
Franco Ranch Road	Historic roadway	Unevaluated	Not applicable
Old Vail Road	Historic roadway	Unevaluated	Not applicable
Twin Buttes Railroad	Historic railroad	Ineligible	Frye (FHWA) to Jacobs (SHPO) May 23, 2009; SHPO concurrence April 2, 2009
US Highway 80/SR 80	Historic highway	Eligible	FHWA, ADOT, and SHPO (2002)
Irvington Generating Station	Historic generating station	Ineligible	Patel (Pima County Department of Environmental Quality [PDEQ]) to Anyon (Pima County Office of Sustainability and Conservation [PCOSC]) August 31, 2017; PCOSC concurrence August 31, 2017. *Also* Patel (PDEQ) to Diehl (City of Tucson) August 31, 2017; City of Tucson concurrence September 7, 2017[1]
Archaeological Sites			
AZ FF:8:15(ASM)	El Paso & Southwestern Railroad's Fairbank-Mescal-Tucson Route railroad grade	Eligible; determined noncontributing in study area	Gasser (ADOT) to Miller (SHPO) April 26, 1999; SHPO concurrence May 26, 1999
AZ BB:13:40(ASM)	Hohokam sherd scatter and rock features	Unevaluated	Hollis (FHWA) to Jacobs (SHPO) March 23, 2009; SHPO concurrence April 2, 2009
AZ BB:13:46(ASM)	Hohokam sherd scatter and possible trash mounds	Unevaluated	Hollis (FHWA) to Jacobs (SHPO) March 23, 2009; SHPO concurrence April 2, 2009
AZ BB:13:47(ASM)	Hohokam artifact scatter	Unevaluated	Hollis (FHWA) to Jacobs (SHPO) March 23, 2009; SHPO concurrence April 2, 2009
AZ BB:13:399(ASM)	Hohokam artifact scatter	Unevaluated	Not available
AZ BB:13:578(ASM)	Rock features and historic trash scatter	Ineligible	Heilman (ADOT) to Jacobs (SHPO) July 24, 2019; SHPO concurrence August 1, 2019
AZ BB:113:666(ASM)	Hohokam artifact scatter and rock feature	Ineligible	Heilman (ADOT) to Jacobs (SHPO) July 24, 2019; SHPO concurrence August 1, 2019

Table 6. Summary of cultural resources in or adjacent to the study area

Resource No.	Resource Type	Eligibility	Consultation
AZ BB:13:739(ASM)	Historic concrete foundations	Ineligible	Heilman (ADOT) to Jacobs (SHPO) July 24, 2019; SHPO concurrence August 1, 2019

The historic alignment of US Highway 80/SR 80 is recognized as a component of the Arizona Historic State Highway System, considered by ADOT, the FHWA, and SHPO to be eligible for inclusion in the NRHP under Criterion D. A portion of the historic highway is preserved within the project limits as the in-use Benson Highway (Business 10). The remainder of the historic highway in the study area was subsumed by the construction of portions of I-10 in 1961; this became 50 years old, and therefore historic, in 2011. The portion of US Highway 80/SR 80 within the project limits has been effectively obliterated by ongoing interstate construction and maintenance activities conducted since the 1970s. As a result, this portion of US Highway 80/SR 80 no longer exhibits any historic characteristics and would not be adversely affected by the proposed project. No further cultural resources work is necessary.

The portion of I-10 and bridges, culverts, and overpasses within the project limits are exempt from consideration as historic properties under Section 106 of the NHPA as a result of a rule adopted by the Arizona Council on Historic Preservation (ACHP) in 2005 titled *Section 106 Exemption Regarding Effects to the Interstate Highway System.* In the ACHP exemption, the Dwight D. Eisenhower National System of Interstate and Defense Highways (Interstate System) was determined to be a transportation system of exceptional importance due to its scale and its impact on the social, commercial, and transportation history of the United States in the second half of the twentieth century. The exemption excludes the majority of the 46,700-mile Interstate System from consideration as a historic property under Section 106 of the NHPA (ACHP 2005). Because of this exemption, no cultural resources work is recommended for I-10 or its ancillary features, including ADOT Structure Nos. 1107–1112, 1162–1163, 1217–1220, 1223–1226, and 5555.

Two historic vehicular roads that are not components of the Historic State Highway System have been reported in the study area. Franco Ranch Road has not been previously evaluated for NRHP significance; in the study area, it has been significantly altered by widening and realignment. Given its lack of historic integrity, the portion of Franco Ranch Road in the study area would not contribute to any potential NRHP eligibility of the roadway as a whole. The second road, Old Vail Road, is also unevaluated for NRHP significance. The portion of the roadway in the project has been modified but retains some aspects of historic integrity. The Recommended Build Alternative would potentially diminish Old Vail Road's existing integrity of materials, workmanship, and design within the project limits; however, this would affect less than 4 percent of the overall alignment. Consequently, roadway improvements within the project limits would not adversely affect any potential NRHP eligibility of the Old Vail roadway as a whole. No further cultural resources work is recommended for these two roads.

Three prehistoric Hohokam artifact scatters (AZ BB:13:40[ASM], AZ BB:13:46[ASM], and AZ BB:13:47[ASM]), two of which contain possible features, are plotted within the project limits. None of these sites have been previously evaluated for NRHP eligibility. Though they are located in an area that has been heavily disturbed by previous I-10 construction, there is the potential for intact subsurface deposits to exist. Consequently, cultural resources monitoring during construction is necessary at these sites to mitigate any potential adverse effect.

AZ BB:13:399(ASM) is an additional Hohokam artifact scatter with one surface feature. The site has not been previously evaluated for NRHP eligibility, and a recent field visit failed to identify any surface evidence of the site. However, despite the lack of any surface manifestations of AZ BB:13:399(ASM), it may still contain intact subsurface deposits. Consequently, cultural resources monitoring during construction is necessary at the site to mitigate any potential adverse effect.

The building survey resulted in the inventory of 42 individual commercial and residential buildings located within or immediately adjacent to (abutting) the study area, some of which were located within the boundaries of the Littletown residential subdivision (Ingwersen et al. 2019). A total of 40 buildings and the Littletown residential subdivision have been determined ineligible for NRHP inclusion. No further cultural resources work is necessary for the 40 individual buildings or the Littletown subdivision.

The Triple T Truck Stop is a commercial building constructed in the Contemporary style. It is located within the APE at 5383 East Benson Highway. The building has been determined eligible for inclusion in the NRHP under Criterion C. Project activities would not impact the historic architecture or adversely affect the building's existing aspects of integrity. No further cultural resources work is necessary for the Triple T Truck Stop.

The Spanish Trail Apartments is a residential complex constructed in the Mid-Century Modern style that is adjacent to the APE at 305 East Benson Highway. The complex buildings are unevaluated for NRHP significance. No project activities would occur to the buildings associated with the Spanish Trail Apartment, and there would be no effect on the building's existing aspects of integrity. No further cultural resources work is necessary.

Because this project would employ federal funds, it is considered an undertaking subject to review under Section 106 of the NHPA. The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 327 and a Memorandum of Understating dated April 16, 2019, and executed by the FHWA and ADOT.

Consulting parties for this project are the DMAFB, SHPO, the ASLD, the ASM, Pima County, the City of Tucson, UPRR, the Ak-Chin Indian Community, the Gila River Indian Community, the Hopi Tribe, the Pascua Yaqui Tribe, the Salt River Pima-Maricopa Indian Community, the Tohono O'odham Nation (lead for the Four Southern Tribes), the Tonto Apache Tribe, the White Mountain Apache Tribe, and the Yavapai-Apache Nation. Consultation occurred on July 24, 2019 (see letter in Appendix E). Continuing consultation on the project was initiated on September 17, 2019 (see letter in Appendix E).

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no construction would occur. The No-Build Alternative would not have any direct or indirect effects on cultural resources.

Environmental Commitments and/or Mitigation Measures

Contractor Responsibility

- The contractor would contact the ADOT Environmental Planning Historic Preservation Team (602.712.6371 or 602.712.2343) at least 10 (ten) business days prior to the start of ground-disturbing activities to arrange for qualified personnel to monitor and be present during construction.

Conclusion

Based on the evaluation of potential impacts to cultural resources, ADOT has determined that a finding of "no adverse effect" is appropriate for this project.

F. Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, states that the Department of Transportation "may approve a transportation program or project … requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if (1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use" (49 U.S.C. 303[c]). On April 16, 2019, ADOT assumed the responsibility for various environmental regulations from the FHWA through a Memorandum of Understanding in accordance with 23 U.S.C. 327.

A "use" of a Section 4(f) resource, as defined in 23 CFR 774, occurs: (1) when land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes; or (3) when there is a constructive use of the Section 4(f) resource. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from a Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. For example, a constructive use can occur when:

- The projected noise level increase, attributable to the project, substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f)
- The proximity of the proposed project substantially impairs aesthetic features or attributes of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource (an example of such an effect would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building or substantially detracts from the setting of a park or historic site that derives its value in substantial part due to its setting)
- The project results in a restriction of access that substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site

Existing Conditions

A quarter-mile buffer around the study area for significant and publicly owned parks, recreation areas, wildlife and waterfowl refuges, and schools and a half-mile buffer for cultural resources eligible for listing in the NRHP within the cultural APE were reviewed to determine the presence of resources protected under Section 4(f). Cultural resources eligible for listing or listed in the NRHP under Criterion A, B or C and those listed under D that warrant protection in place (those structures that cannot be removed and studied elsewhere, such as a cemetery) may be afforded protection under Section 4(f) (refer to Section E for criterion descriptions).

Numerous parks, recreation areas, and schoolyards eligible for Section 4(f) protection are within the quarter-mile buffer, and several properties eligible for listing in the NRHP are within the half-mile buffer:

- Ten existing public parks/recreation areas
- Three planned public parks/recreation areas
- Eight existing trails/paths/trailheads
- Eight planned trails/paths/trailheads
- Four existing schools (two have recreational facilities open to the public during non-school hours)
- Six historic linear features (roadways, railroads, utilities)
- One historic building is eligible for the NRHP under Criteria C

A complete list of Section 4(f) resources is provided in Appendix C. The following Section 4(f) resources would be affected with implementation of the Recommended Build Alternative.

Julian Wash Greenway Trail

The Julian Wash Greenway Trail extends more than 12 miles along Julian Wash from the Santa Cruz River Park to Rita Road. The trails and paved paths accommodate outdoor activities such as cycling, walking, and wildlife viewing. Associated amenities include drinking fountains and restrooms. Several portions of the trail in the study area are primarily recreational in use. The remaining portions in the study area are primarily associated with drainage control structures and are not afforded protection under Section 4(f). Coordination with the owner/operator of the trail facilities (Pima County Flood Control District) confirmed the flood control or drainage function of trail portions versus recreational use.

Kino Sports Complex

Kino Sports Complex is a 155-acre recreational resource that has two complexes/areas on the north and south sides of Ajo Way. The south complex includes Tucson Electric Park, a Major/Minor League Baseball stadium. The north complex includes one lighted soccer stadium, two neighborhood parks—Sam Lena Park (two lighted softball fields) and Willie Blake Park (two soccer fields)—and Kino Environmental Restoration Project, which is part of the Chuck Huckelberry Loop Trail and offers a 2.2-mile paved multi-use path.

The Pima County Stadium District is in the process of a 144-acre expansion of the sports complex south of I-10. Phase I is underway and includes facilities for 12 natural grass, sand-based multi-use fields, 20 pickleball courts, and related infrastructure, including concessions, lockers, and an area for players and vendors. Phase 2 expansion plans would begin around 2025 to include additional soccer fields, a stadium, and commercial facilities.

To connect the existing complex north of I-10 to the expansion, an underpass has been incorporated into the proposed I-10 improvements and would be constructed as part of this project. The planning for I-10 and the sports complex expansion has been well coordinated between ADOT and the Pima County Stadium District. The two major coordination elements were the vehicular underpass and a new intersection on Kino Parkway that will access the sports complex. Through this joint planning effort, the current Phase 1 and planned Phase 2 sports complex expansions are designed to accommodate I-10 widening, and the I-10 improvements would benefit and serve the expansion. ADOT has determined

that Section 4(f) is not applicable under 23 CFR 774.11 because the interstate project and sports complex expansion have been jointly planned.

Environmental Impacts—Recommended Build Alternative

Park/Recreation-Related Section 4(f)—Julian Wash Greenway Trail

A new road across the Julian Wash Greenway Trail would be constructed at Bentley Avenue or Treat Avenue to provide access for vehicles from the neighborhood north of Irvington Road because the project would eliminate the current access to Country Club Road (see Figure 2a: Detail 2). The new crossing would be at-grade and would carry a low volume of traffic. The portion of the road that crosses the trail would result in a permanent incorporation of approximately 44 feet of the trail into a transportation facility; however, the road crossing would not impede the use of the incorporated portion of the trail after construction is complete. Traffic would be signed to yield to trail users. The addition of the road would enhance access to the trail from the adjacent neighborhood; all features and attributes that qualify it as a Section 4(f) resource would remain. The extent of this use would be minor and would not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

A *de minimis* impact finding would be appropriate because the following *de minimis* criteria are met:

1. The proposed improvements would result in the incorporation of approximately 44 feet of the more than 12-mile Julian Wash Greenway/Chuck Huckelberry Loop Trail for a new local neighborhood road. This would result in a direct impact. Traffic on the road would be minimal and would be signed for motorists to yield to users of the greenway. The greenway would continue to function in its current state. No other attributes or features would be affected by the proposed construction. The project would not adversely affect the activities, features, or attributes qualifying the resource for protection under Section 4(f). This use of the Section 4(f) resource is disclosed in this EA. The EA will be available for a minimum 30-day review/comment period and a public hearing will be held during the public comment period.
2. A form that provides notification of the ADOT *de minimis* impact determination will be sent to Pima County Natural Resources Parks and Recreation Department, the owner of the property. If Pima County concurs, it would acknowledge that the use of the Julian Wash Greenway for the extension of access into a neighborhood would not adversely affect the activities, features, or attributes qualifying the resource for protection under Section 4(f).

In addition, the Julian Wash Greenway Trail would be temporarily closed during construction while culverts are extended and TI/surface road improvements on Country Club Road, Drexel Avenue, Kino Parkway, and Alvernon Way are in progress. Attributes of this resource include the path crossings under the roadways and trailhead ramps connecting the surface streets with the path. Surface streets can be used to bypass the construction zone. Drexel Bridge would be widened to accommodate the Julian Wash Greenway over the bridge. The duration of the closure would be approximately 4 months per crossing, which is shorter than the duration of the overall project. The remaining trail would be of the same condition or better following construction. Potential temporary impacts to Julian Wash Greenway Trail during construction would qualify as a temporary occupancy, which is not considered a “use” of the resource because it satisfies all the conditions listed in 23 CFR 774.13. The project would not affect the activities, features or attributes of the trail/trailheads.

Coordination with Pima County Natural Resources Parks and Recreation Department, the official with jurisdiction, is ongoing regarding this temporary occupancy. Through the publication of the Draft EA and holding a public hearing, ADOT will seek concurrence that the use of this Section 4(f) resource would qualify as a temporary occupancy.

Historic Section 4(f)—Triple T Truck Stop

Located at 5383 East Benson Highway (I-10/Craycroft TI), the Triple T Truck Stop is one of a few remaining Mid-Century truck stops in Tucson. The building is NRHP-eligible under Criterion C. Approximately 3.7 acres of the 25-acre property would be required to provide access to commercial and residential properties north of the I-10/Craycroft Road TI. A loop connector road would be needed, requiring undeveloped land from the Triple T Truck Stop parcel. Refer to Appendix D for a detailed discussion of the access issues. Proposed ROW acquisition would extend to approximately 250 feet from the building. Though this acquisition would not impact the historic architecture, a portion of the parking lot would be incorporated into the transportation ROW for the project. In accordance with Section 4(f), ADOT notified SHPO of a *de minimis* impact finding. A Continuing Section 106 consultation letter was sent to SHPO on September 17, 2019, and SHPO concurred on October 22, 2019 (see Appendix E). This use of the Section 4(f) resource is included in this EA. The EA will be available for a minimum 30-day review/comment period, and a public hearing will be held during the public comment period.

Environmental Impacts—No-Build Alternative

No impacts to Section 4(f) resources are anticipated under the No-Build Alternative.

Environmental Commitments and/or Mitigation Measures

Arizona Department of Transportation Design Responsibility

- During final design, the Arizona Department of Transportation would coordinate with Pima County Natural Resources Parks and Recreation Department to minimize the temporary occupancy of the Julian Wash Greenway Trail.

Conclusion

The construction of the proposed project, which would result in the incorporation of a minor amount of the Julian Wash Greenway Trail for the construction of Bentley Avenue or Treat Avenue, would not adversely affect the activities, features, or attributes that qualify the Julian Wash Greenway Trail for protection under Section 4(f) and meets the requirements of a use with a *de minimis* impact. As such, the proposed project would not result in a use of these resources, and a temporary occupancy Section 4(f) exception applies to impacts under 23 CFR 774.13(d). Finally, the proposed project would not adversely affect the activities, features, and attributes that qualify this future recreational feature for protection under Section 4(f) and meets the requirements of use with a *de minimis* impact.

The ROW acquisition from the Triple T Truck Stop would not impact the historic building architecture. The use of a minor amount of land from the property would not compromise the properties eligibility as historic and under Section 4(f) meets the requirements of a use with a *de minimis* impact.

Comments obtained during the public comment period of the Draft EA will be compiled and provided to the officials with jurisdiction over the Section 4(f) resources for their consideration. No decisions will be made until the officials with jurisdiction have had the chance to review the public comments.

As design advances, ADOT would coordinate with Section 4(f) resource owners, as needed.

The proposed project would result in long-term, less-than-significant adverse impacts on the Julian Wash Greenway Trail and short-term, less-than-significant adverse impacts during construction due to temporary closures. The temporary occupancy of the Julian Wash Greenway Trail at Treat Avenue during construction would be short-term and coordinated with Pima County. No long-term impact was identified in association with the No-Build Alternative.

G. Air Quality Analysis

Air quality in the United States is regulated by the Clean Air Act (CAA) of 1970) and the Clean Air Act Amendments (CAAA) of 1990, which are administered by the EPA. Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel transportation conformity requirement under the CAA also applies for areas that are nonattainment or maintenance for any National Ambient Air Quality Standards (NAAQS). The CAAA directed the EPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. Under the Transportation Conformity section of the CAAA, a project cannot do the following:

- Cause or contribute to any new violation of any NAAQS in any area
- Increase the frequency or severity of any existing violation of any NAAQS in any area
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area

Under the CAAA, the Intermodal Surface Transportation Efficiency Act of 1991, the Transportation Equity Act for the 21st Century, and the Moving Ahead for Progress in the 21st Century Act, proposed transportation projects must be derived from a long-range transportation plan or regional transportation plan that conforms with the state air quality plans as outlined in the State Implementation Plan (SIP). The SIP sets forth the state's strategies for achieving air quality standards. The EPA's Transportation Conformity Rule requires conformity determinations from proposed transportation plans, programs, and projects before they are approved, accepted, funded, or adopted. Federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions toward attainment.

Air quality is assessed at the regional and project level. In the greater Tucson area, PAG is responsible for the regional assessment of transportation programs and project plans. The assessment evaluates regional air quality conformity and the results are documented in a regional transportation plan. The analysis and plan are coordinated with the EPA, the FHWA, the Federal Transit Administration, the Arizona Department of Environmental Quality (ADEQ), the PDEQ, and ADOT.

The Arizona State Transportation Board–approved 2018–2022 Statewide TIP includes funding for the I-10/SR 210 Corridor Study identified as TIP No. 753.00, I-10 East Corridor Study (I-19 East to Cochise County Line). One construction project related to the study is programmed: I-10 Country Club TI, TIP No. 28.16 programmed in FY 2022 (PAG 2018).

Areas can be classified as nonattainment, attainment, or maintenance. Geographic areas that exceed NAAQS for a criteria pollutant are considered "nonattainment" areas for that pollutant. Conversely, areas that are below a criteria pollutant standard are considered "attainment." Maintenance areas are defined as previously exceeding the NAAQS (nonattainment) for a criteria pollutant but are currently

attaining that standard. Maintenance areas are required to develop a maintenance plan outlining steps for continued attainment over the maintenance period.

As required by the CAA, NAAQS have been established for six major air pollutants. These pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter 10 microns or less (PM_{10}), particulate matter 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These standards are summarized in Table 7. Primary standards have been established to protect the public health; secondary standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare. Brief descriptions of those criteria pollutants relevant to transportation projects (O_3, CO, and PM) are provided in the following sections.

Table 7. National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
CO		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Pb		Primary and secondary	Rolling 3-month average	0.15 µg/m^3[a]	Not to be exceeded
NO_2		Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and secondary	1 year	53 ppb[b]	Annual mean
O_3		Primary and secondary	8 hours	0.070 ppm[c]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		Primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
SO_2		Primary	1 hour	75 ppb [d]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

[a] In areas designated nonattainment for the Pb standards before the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

[b] The level of the annual NO_2 standard is 0.053 parts per million (ppm). It is shown here in terms of parts per billion (ppb) for clearer comparison to the 1-hour standard level.

[c] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards also remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

[d] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will also remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4[3]). A SIP call is an EPA action requiring a state to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.

Mobile Source Air Toxics (MSAT)

In addition to the criteria pollutants for which there are NAAQS, the EPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in its latest rule on the *Control of Hazardous Air Pollutants from Mobile Sources* (2007:8430) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (EPA 2019). In addition, the EPA identified nine compounds with significant air quality contributions from mobile sources that are among the national- and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 *National Air Toxics Assessment* (EPA 2011). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel PM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. Though the FHWA considers these the priority MSAT compounds, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Using EPA's Motor Vehicle Emissions Simulator (MOVES) model version MOVES2014a, the FHWA estimates that even if vehicle miles traveled increases by 45% from 2010 to 2050, as forecast, a combined reduction of 91% in the total annual emissions for the priority MSATs is projected for the same period.

Particulate Matter

Particulate matter refers to solid or liquid particles suspended in the air that may be composed of acids, organic chemicals, metals, or soil and dust particles. Particle sizes range from those large enough to be seen as smoke or haze to those so small that they act as a gas and are visible only through an electron microscope. $PM_{2.5}$ sources include fuel combustion, power plants, and diesel vehicles. PM_{10} sources include fugitive dust from unstable or disturbed dirt surfaces, vehicle travel on unpaved roads, crushing and grinding operations, and open burning.

Greenhouse Gas

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and the World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, fluoroform, s,s,s,2-tetrafluoroethane, and difluoroethane.

Neither the EPA nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis. The FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance.

Construction Air Quality Impacts

NEPA requires construction air quality impacts consideration (at least qualitatively), even though quantitative analysis may not be required for the project under the transportation conformity regulations. During construction of roadway projects, soil-disturbing activities, operations of heavy-duty equipment, commuting workers, and the laying of asphalt may generate emissions that would temporarily affect air quality. The total emissions and the timing of the emissions from these sources would vary depending on the phasing of the project and the options chosen for the project.

Typical sources of emissions during construction of transportation projects include the following:

- Fugitive dust generated during excavation, grading, and loading and unloading activities
- Dust generated during demolition of structures and pavement
- Engine exhaust emissions from construction vehicles, worker vehicles, and diesel fuel-fired construction equipment
- Increased motor vehicle emissions associated with increased traffic congestion during construction
- Volatile organic compound and odorous compounds emitted during asphalt paving

Existing Conditions

The project is in an area designated as maintenance for CO (Tucson CO Maintenance Area) and attainment or unclassified for all other criteria pollutants. The Tucson region was previously a CO nonattainment area. It is currently subject to a maintenance plan (effective July 10, 2000). The project was evaluated for potential impacts comparing the Recommended Build Alternative to the No-Build Alternative. A summary of the evaluation is found in Appendix F. The full analysis is found at the project website (see Air Quality Report Final at www.azdot.gov/i10SR210study).

Air Quality Monitoring

The ADEQ conducts ambient air monitoring throughout Arizona with stations located in Pima County and, more specifically, the Tucson region. Data collected at these monitors help determine the current air quality status regarding the NAAQS, determine air quality trends, and assist in forecasting air quality trends. The trends in the region and study area indicate:

- CO concentrations are well below NAAQS limits and have not drastically changed between 2007 and 2017
- PM concentrations have not violated standards, though seasonal fluctuations have resulted in some daily exceedances in the period between 2007 and 2017
- O_3 has rarely exceeded the standard due to seasonal influences and has not violated the NAAQS standard in the 2007–2017 time period
- Nitrogen dioxide has been well below the NAAQS standard in the 2007–2017 time period

Mobile Source Air Toxics

In addition to the NAAQS for criteria air pollutants, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

MSATs are a subset of the 188 air toxics defined by the CAA Amendments of 1990. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted into the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

Seven of the MSATs have been labeled by the FHWA as priority MSATs: formaldehyde, naphthalene and polycyclic organic matter, acrolein, benzene, 1,3-butadiene, diesel PM, and diesel exhaust organic gases. The EPA is responsible for establishing NAAQS, national guidance, and guidelines for the uniform and scientifically reliable study of air pollutants. To date, there are no NAAQS for MSATs, and there are no established criteria for determining when MSAT emissions should be considered a significant issue.

Class I Areas

Under the provisions of the CAA, the EPA has designated a number of areas in Arizona as Mandatory Class I Federal Areas, where visibility is an important value. These include national parks and wilderness areas. These mandatory Class I areas are listed in 40 CFR 81.406. Of the mandatory Class I areas, Saguaro National Park is the closest to the study area. The nearest boundary of the park is approximately 10 miles northwest of the SR 210 study area and 7.5 miles northeast of I-10.

Transportation Conformity

The CAA requires that all regionally significant and federally funded transportation projects in nonattainment or maintenance areas demonstrate transportation conformity. Pursuant to the conformity provisions of the CAA, projects in nonattainment or maintenance areas must conform to an SIP and ensure that transportation activities will not cause or contribute to new violations, worsen existing violations, or delay attainment of air quality standards.

The conformity requirement is based on CAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the SIP for attaining the NAAQS. Transportation conformity applies to highway and transit projects and takes place on two levels: the regional—or planning and programming—level and the project level. The proposed project must conform at both levels to be approved. All projects within an attainment/maintenance area must be included in the current fiscally constrained and air quality conforming Regional Transportation Plan and TIP.

Transportation conformity at the project level is subject to “hot spot” requirements. The FHWA and ADOT agreed that although System Alternative I and System Alternative IV have an intersection with LOS D, the improvement in LOS for the intersection compared with the No-Build Alternative would result in lesser impacts to air quality, and a quantitative CO hot spot analysis is not required. The FHWA and ADOT determined that a qualitative analysis of CO impacts from the project would satisfy the project-level conformity requirements. Similarly, the FHWA agreed that a Level 3 MSAT analysis is warranted and recommended that the MSAT study area be refined. The project links to be considered in the MSAT analysis were shown to ADOT and agreed upon on April 4, 2019.

Documentation of interagency correspondence, including the completed questionnaires that provide methodologies for the analyses, can be found at the project website (see Air Quality Report Final at www.azdot.gov/i10SR210study).

Environmental Impacts—Recommended Build Alternative

The Recommended Build Alternative was screened and compared with the No-Build Alternative. The Recommended Build Alternative would extend SR 210 to the south, generally along Alvernon Way, to intersect with I-10 east of the existing Alvernon Way TI. Under this alternative, I-10 would be widened to include the following:

- Four lanes in each direction from I-19 to Kino Parkway
- Three lanes in each direction from Kino Parkway to Alvernon Way
- Five lanes in each direction west of Alvernon Way

Modifications to TIs at Park Avenue, Kino Parkway, Craycroft Road, Valencia Road, and Alvernon Way to maximize weaving distances, the removal of the Palo Verde Road TI, and the addition of a TI at Country Club Road are also proposed.

Requirements of the air quality analysis are separated into the following four criteria areas:

- The impacts on air quality during construction were assessed qualitatively based on the expected construction activities and potential mitigation.
- The impacts of project operation were assessed by comparing the system alternatives–affected intersections to the No-Build Alternative LOS and qualitatively describe the improvement in LOS that would result in equal or lesser impacts compared with the No-Build Alternative.
- The impacts from MSATs were addressed quantitatively based on projected traffic volumes and resultant MSAT emissions and potential mitigation.
- The impacts of project operation on climate change were assessed qualitatively based on the projected traffic volumes and resultant GHG emissions.

The results of the quantitative MSAT and GHG analyses for the modeled scenarios of existing conditions (2017) and the analysis year (2045) are presented in Tables 8 and 9, respectively.

As shown in Table 8, there is a substantial decrease in MSAT emissions in 2045 from the existing year to the analysis year for all alternatives because of engine technology advancements and cleaner vehicle power alternatives included in the MOVES emissions development. The 2045 build scenarios are predicted to have a slight decrease in emissions from the 2045 no-build condition of approximately 5%. The two build conditions are predicted to have similar emission profiles because of their similar traffic volumes and the low emission factors developed by MOVES for year 2045 requiring a greater difference in traffic data to yield a noticeable change.

Table 8. Predicted MSAT emissions

Pollutant	Predicted MSAT Emissions (tons/year)				% Change from No-Build Alternative (Alt.)		% Change from Existing	
	2017 Existing	2045 No-Build Alt.	2045 System Alt. I	2045 System Alt. IV	2045 System Alt. I	2045 System Alt. IV	2045 System Alt. I	2045 System Alt. IV
1,3-Butadiene	2.8	0.0	0.0	0.0	-12.9	-12.9	-99.6	-99.6
Acetaldehyde	6.7	2.3	2.1	2.1	-9.1	-9.1	-69.2	-69.2
Acrolein	0.9	0.3	0.3	0.3	-9.5	-9.5	-68.0	-68.0
Benzene	40.1	12.8	12.1	12.2	-5.0	-4.8	-69.8	-69.7
Diesel PM	24.9	6.4	5.7	5.7	-9.9	-9.9	-77.0	-77.0
Ethyl Benzene	26.8	12.9	12.4	12.5	-3.8	-3.1	-53.6	-53.3
Formaldehyde	15.1	6.2	5.6	5.6	-9.8	-9.8	-63.0	-63.0
Naphthalene	2.0	0.6	0.6	0.6	-8.6	-8.6	-70.9	-70.9
Polycyclic Organic Matter	0.8	0.2	0.2	0.2	-3.8	-3.8	-74.5	-74.5
Total MSATs	**120.1**	**41.7**	**39.0**	**39.2**	**-6.4**	**-6.1**	**-67.5**	**-67.4**

Table 9. Predicted GHG emissions

Predicted CO_2e Emissions				% Change from No-Build		% Change from Existing	
2017 Existing	2045 No-Build	2045 System Alt. I	2045 System Alt. IV	2045 System Alt. I	2045 System Alt. IV	2045 System Alt. I	2045 System Alt. IV
2,244,662	2,075,355	1,974,387	1,974,386	-4.9	-4.9	-12.0	-12.0

CO_2e = carbon dioxide equivalent

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no SR 210 or I-10 improvements other than routine maintenance and spot safety improvements would occur. As traffic volumes are predicted to increase out to 2045, the result would be increased traffic congestion. Through improved engine technology and cleaner vehicle power options, the No-Build Alternative would result in air quality improvements, though not to the extent of the Recommended Build Alternative.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT *Air Quality Guidebook for Transportation Conformity,* the ADOT *Standard Specifications for Road and Bridge Construction,* and Pima County Department of Environmental Quality requirements.

Conclusion

The build design year scenarios are predicted to have a 7% decrease of CO_2 emissions from the no-build design year scenario and an even greater decrease when compared with the existing year. Overall, the project would have minimal impacts from construction activities, MSAT emissions, and GHG. Proposed project-related emissions would not have an adverse effect on neighboring Class I areas or ambient air

quality or cause a violation of the carbon dioxide NAAQS. Under the no-build scenario, MSAT and GHG emissions would decrease from current conditions due to EPA-mandated improvements in vehicular emissions. The degree of decrease would be less than the build scenario due to LOS improvement as a result of the project.

H. Noise Analysis

Noise is generally defined as any loud or undesired sound and is expressed in units of measurement called decibels (dB). The measurement of sound is further quantified based on the frequency that approximates what the human ear can detect. This is referred to as "A-weighting" scale; thus measurements are reported as "dBA." Noise analyses for transportation projects use an hourly equivalent sound level (LAeq1h or Leq), which is a logarithmic energy value over a one-hour time period.

The ability of an average individual to perceive changes in noise levels has been well-documented. Generally, a change of 3 dBA is barely perceived by individuals; however, a 10 dBA change is perceived as a doubling of noise levels. A noise analysis is focused on the perceived change from existing background or ambient noise levels as the result of a transportation project. The typical range of noise experienced by an individual varies from around 40 dBA (indoor, quiet living room) to 85 dBA on a sidewalk near a busy street.

New or expanded transportation facilities may introduce traffic-generated noise to adjacent or surrounding areas. The noise analysis evaluates existing or ambient noise through on-site monitoring and modeling and predicting traffic noise level changes in the project's build design year (2045) for the Recommended Build Alternative and the No-Build Alternative. The predictions use a computer model approved by the FHWA—Traffic Noise Model Version 2.5.

The key regulations and guidance that assist in the determination of noise impacts in Arizona and when it is applicable to provide mitigation for impacted noise-sensitive land areas (receptors) include:

- FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772) (FHWA 2010)
- ADOT NAR, May 2017 (ADOT 2017)

The Noise Abatement Criteria (NAC) has defined noise levels for land activity categories (Table 10).

For land use activities B and C, design year noise level must approach (within 1 dBA) or exceed 67 dBA to be considered for mitigation under ADOT NAR (ADOT 2017). In addition, guidelines also state that noise abatement should be considered when the noise levels substantially exceed the existing noise levels (23 CFR 772.5[g]). This criterion is defined by ADOT as increases in the Leq of 15 dBA or more above existing noise levels.

Table 10. FHWA Noise Abatement Criteria

Activity Category	dBA, LAeq1h	Activity Description
A	57 (exterior)	Land on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 (exterior)	Residential
C	67 (exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio structures, recording studios, schools, and television studios
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in categories A–D or F
F	—	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	—	Undeveloped lands that are not permitted

Sources: FHWA (2010); 23 CFR 772

Existing Conditions

Land use in the study area may be categorized as FHWA Activity Categories B, C, E, F, and G, as defined in 23 CFR 772 and ADOT NAR (ADOT 2017). Residential areas in the study area, which for this noise analysis is defined as within 650 feet of the future edge of pavement for the Recommended Build Alternative, include single-family, multi-family (apartments), and mobile home and recreational vehicle communities. These uses were evaluated as Category B in this noise study. Category C uses include schools, parks, a sports complex, multi-use pedestrian paths and trails, and a historic building, each afforded protection as the U.S. Department of Transportation Act of 1966 Section 4(f) resources in addition to a privately funded school, a nonprofit institutional structure, and a government health facility. The Section 4(f) properties were evaluated for mitigation per Category C NAC per 23 CFR 772 and the ADOT NAR. The noise level predictions reported inform the evaluation of Section 4(f) properties completed for the EA.

Commercial uses in the study area include hotels/motels, restaurants, gas stations/truck stops with convenience stores/food service, office buildings, and office parks categorized as Activity Category E. Locations with an outdoor use (pool, sitting, dining, or common area) were included in the evaluation of potential noise impacts. Residential planned area developments and a vacant residentially zoned parcel were evaluated as Category G uses. Category F land uses, such as industrial and warehouse areas, were not included in the study.

Noise Analysis Procedure

The Recommended Build Alternative would add additional capacity to I-10 from 6th Avenue toward the west end of the project (MP 260.8) to MP 270.3 east of Kolb Road. The freeway would be widened from its current two lanes eastbound and westbound to four lanes west of Kino Parkway, three lanes between Kino Parkway and Alvernon Way, and five lanes west of Alvernon Way. In addition, the

proposed project would reconstruct seven TIs, remove the Palo Verde TI and replace it with a TI at Country Club Road, and add a system-to-system interchange at Alvernon Way between I-10 and SR 210. SR 210 replaces Alvernon Way north to Golf Links Road. As such, the project is considered a Type I project per 23 CFR 772.5, and a determination of impacts and mitigation must be considered under 23 CFR 772 and NEPA.

Noise measurements were generally recorded before and during the morning (7 to 9 a.m.) peak traffic period and before the evening (4 to 6 p.m.) peak traffic period. Traffic volumes are highest but still free-flowing in the study area during these periods. Additional measurements were recorded during midday (approximately 9:30 a.m. to 4:30 p.m.) for noise model validation purposes. Measurements ranged between 51 dBA in an open desert area located adjacent to the Desert View neighborhood near the I-10/Valencia Road TI and approximately 630 feet from the freeway to 69 dBA in the Windmere Hotel parking lot southeast of the I-10/Park Avenue TI and approximately 220 feet from the freeway.

More than 500 residential receivers are within 1,000 feet of the study area; some are adjacent to, or have minimal setback from, I-10. Scattered subdivisions are on both sides of I-10 from I-19 to Kolb Road.

An isolated residential parcel near Alvernon Way and SR 210 is in the SR 210 study area, and several residential developments are in the Wilmot Road vicinity. The central portion of the study area between Rita Road and Wentworth Road has no residential receptors.

Field noise measurements were taken at five locations in the study area to determine ambient noise levels. Noise levels were taken during peak traffic volume periods: 7 to 9 a.m. and 4 to 6 p.m. See Appendix G for locations of the field noise measurements (see Noise Report Final at www.azdot.gov/i10SR210study)

Environmental Impacts—Recommended Build Alternative

This analysis was performed in compliance with the current (May 2017) ADOT NAR. The ADOT NAR establishes official policy on highway noise and describes the process that is used in determining traffic noise impacts and evaluating abatement measures. The ADOT NAR is based on the noise levels approaching the FHWA NAC. ADOT defines “approaching” as within 1 dBA of the FHWA NAC for Activity Categories A, B, C, D, and E. There are no noise impact thresholds for Activity Category F or G. ADOT requires that feasible and reasonable measures be considered and evaluated to abate traffic noise at all identified traffic noise impacts.

A summary of noise analysis parameters is presented in Table 11. In general, peak hour noise levels are predicted to increase above 2040 No-Build, with the Recommended Build Alternative producing the greatest number of impacts.

Table 11. Summary of noise analysis

Noise Analysis Parameters	Existing 2017	Future 2040	
		No-Build	Recommended Build Alternative
No. of modeled receivers	593	593	592
No. of representative noise receptors	1,626	1,626	1,625
Range of peak hour noise levels, dBA	55–77	56–78	57–80
No. of receptors exceeding the ADOT NAC	497	733.5	856.5
No. of barriers evaluated for mitigation	Not applicable (N/A)	N/A	27
No. of barriers satisfying ADOT NAR reasonable and feasible criterion	N/A	N/A	11
Total cost of recommended mitigation	N/A	N/A	$18,889,362
Cost of recommended mitigation unique to each alternative	NA	NA	$17,122,032

Note: Mitigation cost is based on $35/ft^2 for new construction; $85/ft^2 for wall segments on structure.

Noise Abatement Measures Determination (Recommended/Not Recommended)

ADOT considers mitigation for noise-sensitive areas predicted to be impacted by highway traffic noise levels from ADOT transportation improvement projects. The noise level impact determination used in this analysis is based on the ADOT NAR dated May 2017. Noise barriers (walls) were considered as mitigation measures that would provide noise shielding to impacted locations. Reasonableness and feasibility criteria were evaluated for each proposed noise wall or wall combination (two or more walls) per ADOT NAR guidelines.

A total of 27 noise walls were evaluated to provide mitigation of future (2040) peak hour noise levels associated with the Recommended Build Alternative.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, the project would not be built. According to FHWA regulations and ADOT requirements, noise mitigation can be provided only as part of a "Type I" construction project, which adds a transportation facility on a new alignment, increases the capacity of an existing transportation facility, or results in substantial vertical or horizontal alterations. Consequently, under the No-Build Alternative, noise mitigation measures would not be provided for any of the receivers.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT *Noise Abatement Requirements,* the ADOT *Standard Specifications for Road and Bridge Construction,* and local jurisdiction noise ordinances.

Arizona Department of Transportation Design Responsibility

- Where feasible, the noise barriers required as mitigation measures would be constructed as early as possible in the construction phasing to shield adjacent properties from construction-related noise.

Conclusion

ADOT considers mitigation for noise-sensitive areas predicted to be impacted by highway traffic noise levels from ADOT transportation improvement projects. The noise level impact determination used in this analysis is based on the ADOT NAR dated May 2017. Eleven of the walls evaluated for System I Alternative meet all ADOT NAR requirements and are recommended, and the remaining 16 walls are not recommended. Ten of the walls evaluated for System IV Alternative are also recommended for future

consideration, and the remaining 16 walls are not recommended. The cost of mitigation for System IV Alternative would exceed the cost of mitigation for System I Alternative by approximately $2.5 million based on these recommendations. The difference is primarily due to variations in noise wall height and length between the two alternatives necessary to achieve reasonable and feasible mitigation. All recommendations are based on preliminary (15% or less) design information and should be revaluated at future stages of design. See Appendix G for proposed wall locations.

I. Utilities and Railroad

Existing Conditions

The I-10/SR 210 study area contains a full range of utilities: water, wastewater, above- and below-ground power, above- and below-ground communications, and fuel oil/gas. Major electric power facilities originate out of the TEP Station near Alvernon Way and Ajo Way, a Kinder Morgan gas pipeline serves the fuel storage area near SR 210 and Alvernon Way, and an El Paso Natural Gas pipeline crosses the study area.

The UPRR parallels SR 210 in the study area, and crosses under Alvernon Way just north of Ajo Way. The proposed project would construct a new, wider bridge over the tracks at that location. The railroad continues to parallel Alvernon Way south to I-10 and then is immediately adjacent to I-10 from Alvernon Way to approximately Swan Road. The UPRR continues parallel to I-10 past Kolb Road, though it is offset by three-quarters of a mile to the northeast. I-10 crosses over the UPRR Nogales Subdivision line just west of Park Avenue (MP 261.4). The existing I-10 bridge over the UPRR would be widened in that location with the Recommended Build Alternative. Table 12 lists all known utilities and railroad in the study area.

Table 12. Utilities and railroad

Agency	Utility Type
American Telephone and Telegraph	Coaxial, fiber
City of Tucson DOT—Traffic Engineering	Streetlights, traffic signals
City of Tucson DOT—Streets & Traffic Maintenance Division	Irrigation
City of Tucson Facility Design and Maintenance	Electric, gas, sewer, water
City of Tucson Network Fiber	Fiber
Cox Communications	CATV, fiber
CenturyLink	Coaxial, fiber
El Paso Natural Gas	Gas
Kinder Morgan Energy	Petroleum
Level 3 Communications	Fiber
MCI	Fiber
Pima County Traffic Engineering	Traffic signals
Pima County Wastewater Management	Sewer
Ray Water Company	Water
Southwest Gas	Gas
Sprint Communications Company	Coaxial, fiber
TEP	Electric
Tucson Water	Reclaimed water, water
Voyager Water Company	Water
Zapco Energy Tactics Corp.	Methane gas
UPRR	Railroad

Environmental Impacts—Recommended Build Alternative

Based on preliminary design, there would be impacts to utilities with the Recommended Build Alternative. The project would impact utilities requiring relocations or modifications at multiple locations. Initial estimates place the cost for utility relocation/modifications at $69 million for the Recommended Build Alternative. During final design, the extent of impact would be determined and coordinated with the affected utilities. This coordination will include determination of prior rights with each utility and UPRR. Design plans are made available to the utilities early in the process to allow for proper planning and scheduling of service relocations or modifications. Service outages are expected to be of short duration. The public would be notified of any planned outages.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no impact to utilities or the railroad would occur.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT *Standard Specifications for Road and Bridge Construction.*

Conclusion

The preliminary design stage is not of sufficient engineering detail to determine the full extent of utilities in conflict with the proposed roadway improvements. An order of magnitude estimate places the cost at $69 million. Coordination with all affected utilities would continue throughout design and construction to minimize costs to utilities or ADOT, and service outages to customers.

J. Visual Resources

This section describes the characteristics of the viewshed in the study area and potential impacts on visual resources. For roadway improvement projects, visual resources are considered from two perspectives: (1) the view from the roadway to motorists and (2) the view of the roadway to the surrounding community. Visual resources and effects to these resources are defined by identifying key views and considering community goals and preferences, when applicable.

Existing Conditions

No designated scenic roads/byways are in the study area, and land management agency visual analysis requirements do not apply. Much of the study area is characterized by commercial/industrial development with large, multi-story commercial buildings and highly visible features. Neither SR 210 nor the I-10 corridor is considered a high value visual resource. Large-scale adjacent development includes Veterans Memorial Hospital, Banner-University Medical Center South, TEP Station, a bulk fuel oil storage facility, and the DMAFB. The rural portion of the study area has more open land, with large, undeveloped areas interrupted by the UPRR, residential subdivisions, Kino Sports Complex, Pima Air Museum, UA Tech Park, and commercial development. Major utility features of the UPRR and major overhead electrical transmission towers are visible from SR 210 and I-10 in the near foreground. The existing I-10 roadway includes nine grade-separated TIs, one railroad overpass, four grade separations over cross streets, and two structures over drainage features. The SR 210 extension along Alvernon Way includes grade-separated ramps at Golf Links Road/Alvernon Way. The I-19/I-10 TI is a multi-level system interchange that occupies almost 80 acres.

Distant views are of the Santa Catalina Mountains to the north, the Rincon Mountains to the northeast, the Santa Rita Mountains to the south, and the Tucson Mountains to the west. The nearest of the mountain ranges are the Rincon Mountains, about 6 miles northeast of the study area. Vegetation in the undeveloped areas is sparse, with low shrubs and trees. Foreground and midrange views east of Kolb Road are generally of natural terrain.

Environmental Impacts—Recommended Build Alternative

The Recommended Build Alternative improvements for the SR 210 extension and I-10 are generally contained within or immediately adjacent to the existing roadways and are structurally consistent with current roadway features. The Recommended Build Alternative introduces new elevated connecting ramps at several TIs: Park Avenue, Kino Parkway, Alvernon Way, and Kolb Road. The SR 210 extension along Alvernon Way also adds new ramps at SR 210/Golf Links Road, and a new grade-separated intersection at Alvernon Way/Ajo Way. Final design would include corridor landscaping and architectural treatments of structural elements.

All of the noted new elevated structures are situated in areas that are heavily commercial and industrial, except the modified TI at Kolb Road. The improvements to Kolb Road TI would add two new bridges over I-10. The northwest quadrant of that TI is commercially developed (UA Tech Park), the southwest and southeast quadrants feature residential development, and the northeast quadrant is currently vacant (future expansion area for the UA Tech Park). Nearby residents would experience a minor change in their views to the north with the added bridge structure. The change, however, would not be out of character with the existing I-10/Kolb Road TI; therefore, the impact would be minor.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no impact to visual quality would occur.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT *Standard Specifications for Road and Bridge Construction.*

Conclusion

There are no high-quality visual resources in the immediate vicinity of the I-10 or SR 210 study area. The foreground views are of urban structure (buildings, overhead utilities, roadway infrastructure). These views would only be minimally altered with the reconstruction of TIs and widened roadways. Distant views of surrounding mountain ranges would be minimally altered by the Recommended Build Alternative from some vantage points.

K. Drainage and Floodplain Considerations

This section identifies drainage and floodplain issues to be considered when evaluating impacts resulting from the Recommended Build Alternative and the No-Build Alternative. Included in this analysis are applicable drainage patterns, such as surface water and groundwater, and floodplains. Surface water includes water present above the soil surface, such as rivers, streams, lakes, ponds, and stormwater runoff. Groundwater is water that flows below the soil surface that can be collected by underground wells or other facilities constructed for collecting water or for monitoring.

Executive Order 11988, Floodplain Management, requires that impacts to floodplains be evaluated for all federal actions and directs agencies to reduce impacts to floodplains, minimize flood risks on human safety and well-being, and restore and preserve floodplain values. Floodplains are delineated and managed by the Federal Emergency Management Agency (FEMA). A floodplain is generally level land subject to periodic flooding from an adjacent body of water. National Flood Insurance Program Regulations (44 CFR 65.12) requires compliance with community floodplain ordinances.

A 100-year flood is a storm having a 1% chance of being exceeded in magnitude in any given year. The 100-year floodplain includes areas adjoining a water body that are inundated by water during a 100-year flood. The floodway is the area within the floodplain where the water is likely to be the deepest and fastest; this area should be kept free of obstructions to allow 100-year floodwaters to move downstream without increasing the water surface elevation more than 1 foot. FEMA Flood Insurance Rate Maps (FIRMs) depict the delineated 100-year floodplain. The 100-year floodplain is divided into flood zones including:

- Zone A: areas subject to inundation by 100-year floods that have been identified through qualitative methodologies; no base flood elevations have been determined
- Zone AE: areas subject to inundation by 100-year floods that have been identified through quantitative methodologies; base flood elevations have been determined
- Zone AH: areas subject to inundation by 100-year shallow floods where ponding occurs and flood depths are between 1 and 3 feet deep; base flood elevations have been determined
- Zone AO: areas subject to inundation by 100-year shallow floods typified by sheet flow on sloping terrain with flood depths of between 1 and 3 feet; base flood elevations have been determined
- Zone X: areas of 500-year flood, areas of 100-year flood with average depths of less than 1 foot.

Existing Conditions

A review of the FEMA FIRM panels dated June 16, 2011 (FEMA 2019) for the study area (maps 04019C2278L, 04019C2279L, 04019C2283L, 04019C2284L, 04019C2286L, 04019C2287L, 04019C2291L, 04019C2293L, 04019C2295L, 04019C2315L, 04019C2900L, 04019C2905L, 04019C2925L, and 04019C2940L) shows that portions of the study area fall within a 500-year floodplain (Zone X). Zone X consists of areas of moderate flood hazard between the 100- and 500-year floods (Figure 16). The major floodplain in the study area is the Julian Wash floodplain, which parallels I-10 from I-19 to the Pantano Road alignment east of Kolb Road. Special Flood Hazard Areas are also present:

- East of Kino Parkway, Tucson Diversion Channel—Zone A
- West of Palo Verde Road, unnamed flooding area south of I-10—Zone A
- South of Valencia Road, 1% Annual chance flood discharge contained in culvert—Zone A
- South of Valencia Road and north of the UPRR, Julian Wash—Zone X

Several natural and constructed watercourses cross the proposed SR 210 extension and I-10 in the study area. Six bridge structures and seven box culverts carry drainage runoff under Alvernon Way or I-10 in the study area. Two natural drainages, Julian Wash and Earp Wash, cross I-10 in box culvert structures. These drainages are heavily modified and channelized in the study area.

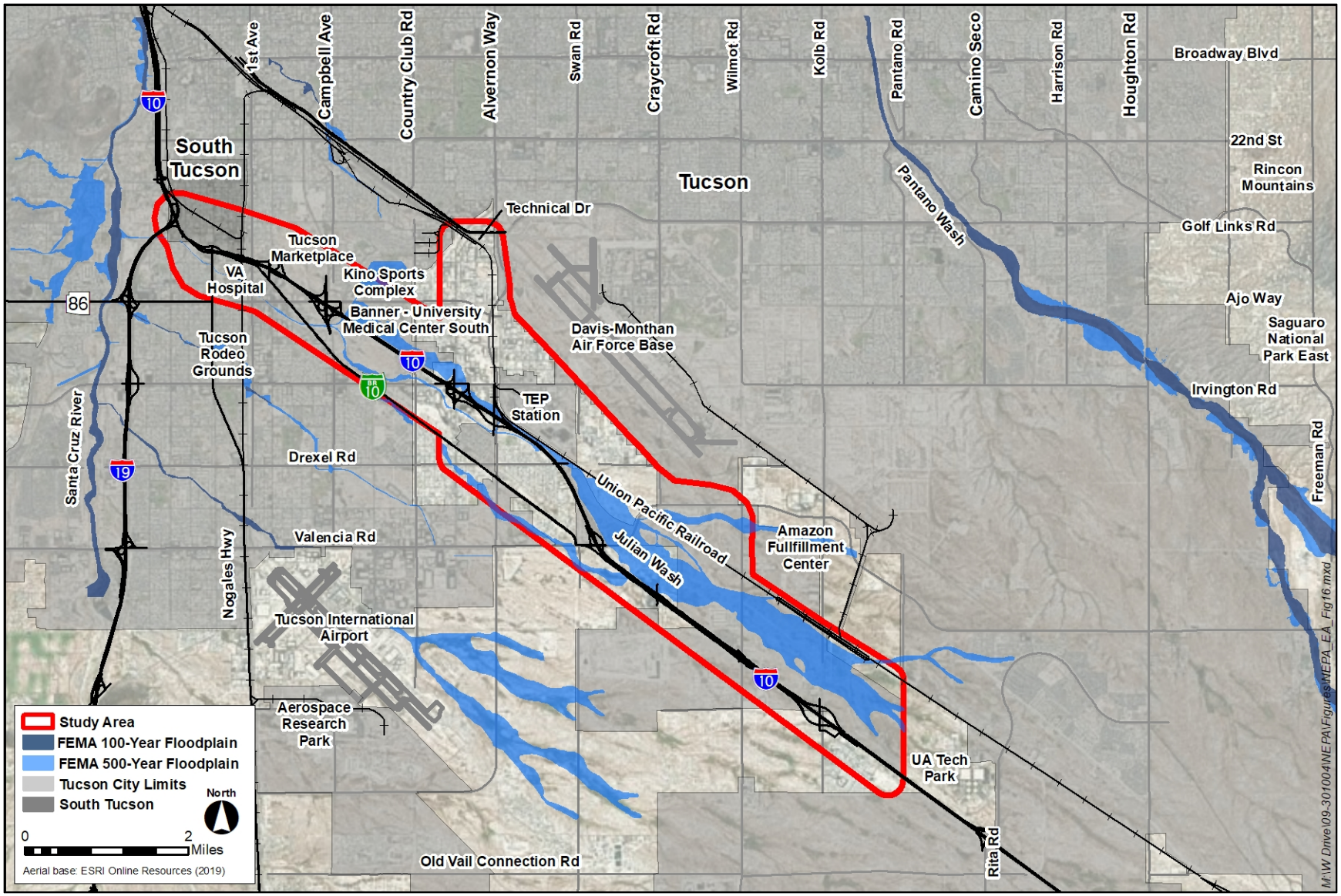

Figure 16. Floodplains

Environmental Impacts—Recommended Build Alternative

The Recommended Build Alternative would result in no impacts to 100-year floodplains. The major Julian Wash floodplain paralleling I-10 would not be impacted with this alternative because no roadway widening occurs within the floodplain or floodway. The proposed widening of the roadway structures over Julian Wash, Earp Wash, and the Tucson Diversion Channel would span the drainages and would not be expected to contribute to any flood hazards. Mainline and frontage road widening would increase surface areas subject to precipitation runoff.

The Recommended Build Alternative would construct several retention/detention basins to collect local runoff. These basins would accept the added runoff from pavement surfaces. Generally, those basins would be within the existing TI ROW. In a few instances, new ROW would be acquired to provide basins outside the TI at I-10/Craycroft Road, Alvernon Way/Ajo Way, and Alvernon Way/Irvington Road. No proposed roadway improvements would be expected to result in an increased flood hazard to adjacent properties.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no modifications or improvements would be made to drainage structures. No impact on floodplains would occur.

Environmental Commitments and/or Mitigation Measures

None.

Conclusion

The proposed roadway improvements would maintain current flow patterns and improve local drainage along Alvernon Way and I-10 in the study area. No impacts to floodplains or Special Flood Hazard Areas would be expected as a result of the Recommended Build Alternative.

L. Clean Water Act Sections 404 and 401 and the National Pollutant Discharge Elimination System

The Clean Water Act (CWA) is the primary federal statute governing discharge of pollutants into jurisdictional Waters of the United States (Waters), which, in Arizona, include perennial and ephemeral watercourses and their tributaries and adjacent wetlands. The principal goal of the CWA is to establish water quality standards to restore and maintain the chemical, physical, and biological integrity of the nation's Waters by preventing point (concentrated output) and nonpoint (widely scattered output) pollution sources.

Section 404 of the CWA is administered by the U.S. Army Corps of Engineers (Corps). Transportation improvements within ADOT ROW or easements are regulated under the *Department of the Army Regional General Permit No. 96, Routine Transportation Activities* guidance (Corps 2016) The CWA program regulates the placement of fill or dredged material into Waters and is in effect until February 2021. Section 401 of the CWA requires any applicant requesting a federal permit or license for activities that may result in discharge into Waters to first obtain a Section 401 certification from the state in which the discharge originates. The Section 401 certification verifies that the prospective permits comply with the state's applicable effluent limitations and water quality standards. Federal permits or licenses are not issued until the Section 401 certification is obtained. For this project, the ADEQ is the agency responsible for the Section 401 certification. If a project meets criteria for conditional Section 401 certification, notification to the ADEQ is not required. However, if a project does

not meet criteria for conditional certification, such as projects occurring within 0.25 mile of unique or impaired waters, an individual Section 401 certification application to the ADEQ is required.

Section 402 of the CWA formed the National Pollutant Discharge Elimination System (NPDES), which regulates pollutant discharges, including stormwater, into Waters. A NPDES permit sets specific discharge limits for point-source pollutants into Waters and outlines special conditions and requirements for a particular project to reduce impacts to water quality. In 2002, the EPA authorized the ADEQ to administer the NPDES program at the state level, called the Arizona Pollutant Discharge Elimination System (AZPDES). AZPDES permits require that the project be designed to protect Waters, erosion control best management practices (BMPs) be implemented, and a Stormwater Pollution Prevention Plan (SWPPP) be prepared for construction activities with one or more acres of ground disturbance. Municipal Separate Storm Sewer Systems (MS4s) convey stormwater runoff through drains, streets, and open channels, directly discharging untreated stormwater into retention basins, washes, rivers, or lakes. Municipalities operating MS4s within local urbanized areas designated by the EPA or the ADEQ are required to obtain individual discharge permits under NPDES or AZPDES authority. ADOT, the City of Tucson, and Pima County are MS4s and implement individual permits in the study area.

The ADOT MS4 permit authorizes discharges of stormwater and other discharges to Waters for three elements:

- Activities associated with the MS4 operated by ADOT; this includes Statewide Stormwater Management Programs, BMPs, and monitoring of outfalls following storm events
- Activities associated with construction, from start to final stabilization
- Facilities associated with industrial and maintenance activities owned/operated by ADOT

The City of Tucson and Pima County have similar MS4 permits specific to their facilities and operations.

Existing Conditions

Clean Water Act

Aerial photography, Pima Maps (Pima County 2019a), and field observations were used to determine potential presence of jurisdictional Waters in the study area. Two large drainage features (greater than 2,000 cubic feet per second), Tucson Diversion Channel and Julian Wash, cross I-10 in the study area. The Tucson Diversion Channel crosses under I-10 at MP 262.8. Julian Wash crosses I-10 east of Alvernon Way and then joins the Tucson Diversion Channel just south of I-10 at Kino Parkway. Julian Wash also crosses Country Club Road and Alvernon Way in the study area. Both large drainage features exhibit characteristics indicative of Waters. Other minor drainages (less than 2,000 cubic feet per second), including a tributary to Earp Wash, occur in the study area and may be jurisdictional.

Multiple storm sewer facilities occur throughout the study area. These facilities tie into the local street system and most eventually outfall to the Tucson Diversion Channel or Julian Wash.

Environmental Impacts—Recommended Build Alternative

Clean Water Act Section 404/401

The proposed modifications to the crossing structures (bridges or culverts) are generally minor in scope and involve widening or lengthening existing drainage structures. The modifications to Tucson Diversion Channel, Julian Wash, and the Earp Wash tributary are each expected to result in permanent impacts of

less than 0.5 acre at each site and would likely qualify under the current Regional General Permit No. 96. During final design, the drainage improvements would be evaluated for compliance with the regulations and guidance in effect at that time.

Clean Water Act Section 402

Construction activities such as clearing, grading, trenching, and excavating would disturb soils and sediment. If not managed properly, disturbed soils and sediments could be washed into nearby drainages and impact water quality. To control construction-related pollutant discharges into Waters, ADOT would prepare and implement erosion and sediment control plans, details, and specifications using *Best Management Practices from the ADOT Erosion and Pollutant Control Manual for Highway Design and Construction* (ADOT 2012). In addition, ADOT would follow the ADOT *Post-Construction Best Management Practices Manual for Water Quality* (ADOT 2016). A Notice of Intent would be filed with ADEQ and the MS4 jurisdictions (City of Tucson, Pima County) to request coverage under the AZPDES Construction General Permit. These design and construction activities would be documented in a SWPPP.

Environmental Impacts—No-Build Alternative

Clean Water Act

Under the No-Build Alternative, no modifications to existing drainages would occur, and no impacts to CWA resources would occur.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT Clean Water Act Section 404/401 Guidance Manual, the ADOT *Erosion and Pollution Control Manual for Highway Design and Construction*, and the ADOT *Standard Specifications for Road and Bridge Construction.*

Arizona Department of Transportation Design Responsibility

- During final design, Arizona Department of Transportation Environmental Planning would determine Clean Water Act Section 404 and Section 401 permitting needs.

Conclusion

The proposed project is not expected to result in substantive impacts to CWA resources or result in degradation of water quality. The modifications to existing drainages are minor, regulatory requirements would be followed, and BMPs would be implemented to minimize any impacts due to storm-related runoff into the storm sewer system and receiving waters.

M. Biological Resources

Biological resources include native plants, habitat, and protected plant and animal species. These resources are regulated under various state and federal laws or regulations:

- Arizona Native Plant Act (Arizona Revised Statutes, Title 3, Chapter 7)
- Section 7(c) of the Endangered Species Act (ESA) of 1973
- Migratory Bird Treaty Act (50 CFR 10.13)
- Bald and Golden Eagle Protection Act

- Fish and Wildlife Coordination Act

A Biological Evaluation (BE) was prepared for the project and approved by ADOT on January 29, 2019 (see Biological Evaluation Final at www.azdot.gov/i10SR210study). The document evaluates the potential effects of the proposed transportation project on species that are federally listed under the ESA. Specific project design elements are identified that avoid or minimize adverse effects of the project on listed species and/or critical habitat.

Existing Conditions

Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system was accessed on November 8, 2018 (Consultation Code: 02EAAZ00-2017-SLI-0250) and the Arizona Game and Fish Department (AGFD) Arizona Environmental Online Review Tool (Online Review Tool) was accessed on November 8, 2018 (HGIS-04837); results of both are included in the BE. The ESA species list from the IPaC receipt was reviewed by a qualified biologist (Maria M. Altemus, EcoPlan Associates, Inc.) and the species are listed in the BE. The IPaC and the AGFD Online Review Tool results were reviewed for the presence of critical habitat within the action area; however, neither identified critical habitat within the search area for the project.

Though no critical habitat was identified for any of the listed species found in the IPaC official species list or AGFD Online Review Tool results, the Pima pineapple cactus, an endangered species, was evaluated in detail in the BE.

A portion of the study area overlaps the permit area for the Pima County Multi-Species Conservation Plan. In addition, the Tucson Habitat Conservation Plan identifies conservation goals and objectives for seven species. Three of those seven species—Western burrowing owl, Pima pineapple cactus, and yellow-billed cuckoo—were documented within 3 miles of the study area by the AGFD Online Review Tool.

Other Special Status Species

The AGFD Online Review Tool was accessed to determine other special status species known to occur within 3 miles of the study area. Cave myotis *(Myotis velifer)*, giant spotted whiptail *(Aspidoscelis stictogramma)*, Sonoran Desert tortoise *(Gopherus morafkai)*, and lowland leopard frog *(Lithobates yavapaiensis)* were identified; however, the BE determined that these species would not be affected by the project.

Species of Greatest Conservation Need

The AGFD Online Review Tool included a list of special status species known to occur within 3 miles of the project. The AGFD was sent a scoping letter regarding the project, and the agency returned a response letter that did not include any species-specific concerns related to this project. No protection of state sensitive species is necessary.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed therein. The statute does not discriminate between live or dead birds and grants full protection to feathers, eggs, and nests. A take does not include habitat destruction or alteration as long as there is not

a direct taking of birds, nests, eggs, or parts thereof. Birds protected under the act include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, and swallows. Feathers, plumes, nests, and eggs are also protected. A complete list of protected species is found in 50 CFR 10.13.

The AGFD Online Review Tool (see Biological Evaluation Final at www.azdot.gov/i10SR210study) provided a list of occurrence records of special status species, which included the American peregrine falcon *(Falco peregrinus anatum)* and Western burrowing owl *(Athene cunicularia hypugaea)* within 3 miles of the study area. Other non–special status bird species are likely found within the construction footprint, though no observations of nesting birds were made during the field visit.

Native Plants

The project limits and surrounding ROW were surveyed for the presence of protected native plants on April 19, 2017, and May 12, 2017, via a pedestrian and vehicular survey. The following plants were found: velvet mesquite *(Prosopis velutina)*, ocotillo *(Fouquieria splendens)*, soaptree yucca *(Yucca elata)*, jumping cholla *(Cylindropuntia fulgia var. fulgida)*, desert Christmas cactus *(Cylindropuntia leptocaulis)*, cane cholla *(Cylindropuntia spinosior)*, pink flower hedgehog cactus *(Echinocereus fasciculatus)*, candy barrelcactus *(Ferocactus qislizeni)*, and brown-sprine pricklypear *(Opuntia phaeacantha)*.

Invasive Species

Numerous noxious and invasive plant species have been identified within the construction footprint, including carelessweed *(Amaranthus palmeri)*, yellow star thistle *(Centaurea solstitialis)*, prickly Russian thistle *(Salsola tragus)*, and puncture vine *(Tribulus terrestris)*. Invasive grasses include Bermudagrass *(Cynodon dactylon)*, Johnsongrass *(Sorghum halepense)*, and buffelgrass *(Pennisetum ciliare)*.

Wildlife and Habitat Connectivity

The movement of wildlife depends on the availability of preferred habitat, foraging range, migration, and dispersal patterns. In the study area, I-10 and SR 210, with limited vegetative cover, altered habitat, and presence of structures and roads, act as barriers to movement and connectivity for wildlife species. Animals that attempt to cross I-10 may use areas where undisturbed desertscrub habitat abuts the roadway and where drainage crossing structures exist; however, there are a limited number of existing drainage crossings throughout the study area. No wildlife crossings along SR 210 are known; the roadway is fenced and has substantial development barriers on both sides.

The Arizona Wildlife Linkages Workgroup is a cooperative effort among ADOT, the USFWS, the Bureau of Land Management, the AGFD, and several other federal and state agencies, academic institutions, and conservation organizations. This group has identified known and potential wildlife corridors and developed Arizona's Wildlife Linkages Assessment. No recognized wildlife corridors or connections occur in the study area (ALRIS 2014).

Similar to wildlife corridors identified in Arizona's Wildlife Linkages Assessment, Pima County has identified Critical Landscape Connections (CLCs) (Arizona Wildlife Linkages Workgroup 2006) that outline general areas where wildlife moves between large habitat blocks of intact, protected natural landscapes in Pima County. CLCs are defined as "areas where biological connectivity is significantly compromised, but where opportunity to preserve or otherwise improve the movement of wildlife between major conservation areas and/or mountain ranges still persists" (Pima County 2014a, 2014b). There are no CLCs in the study area (Pima County 2014a).

Riparian Areas and Wetlands

There are no riparian areas or wetlands in the study area.

Environmental Impacts—Recommended Build Alternative

Threatened and Endangered Species

The BE determined that the Recommended Build Alternative would have no effect on the Pima pineapple cactus or its habitat.

Other Special Status Species

The BE determined that special status species would not be affected by the Recommended Build Alternative.

Species of Greatest Conservation Need

The BE determined and the AGFD letter concluded that there are no species-specific concerns and that no protection of state sensitive species is necessary with the Recommended Build Alternative (see Biological Evaluation Final at www.azdot.gov/i10SR210study).

Migratory Bird Treaty Act

There is the potential for nesting birds to be present, though limited, within the project footprint. Removal of vegetation would occur at the reconstructed TIs, in the median of I-10, and in the vicinity of existing frontage roads. The extent of vegetation removal would be determined during final design.

Native Plants

The type and number of native plants that would be impacted or removed by the project has not been determined at this preliminary design stage. Much of the plant material that might need to be removed falls within current I-10 medians and undeveloped TI quadrants.

Invasive Species

During final design, additional surveys for the presence of invasive species would occur. Construction practices would be developed to minimize the potential to disperse plant seeds.

Wildlife and Habitat Connectivity

No recognized wildlife corridors or connections occur in the study area. Terrestrial wildlife crossings would be expected to continue to some extent within the project limits; however, with the proposed widening of the I-10 corridor, wildlife crossings would be more difficult after project implementation. Due to the limited number drainages crossing I-10, there is limited opportunity to provide improved crossing locations.

Riparian Areas and Wetlands

There are no riparian areas or wetlands in the study area.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no impacts to vegetation, habitat, or wildlife would occur.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the ADOT *Roadside Vegetation Management Guidelines,* the ADOT *Standard Specifications for Road and Bridge Construction,* and other applicable laws, regulations, and guidelines.

ADOT Roadside Development Section Responsibilities

- Protected native plants within the project limits would be impacted by this project; therefore, the Arizona Department of Transportation Roadside Development Section would determine whether Arizona Department of Agriculture notification is needed. If notification is needed, the Arizona Department of Transportation Roadside Development Section would send the notification at least 60 (sixty) calendar days prior to the start of construction.
- The Arizona Department of Transportation Roadside Development Section would provide special provisions for the control of noxious and invasive plant species during construction that may require treatment and control within the project limits.

Arizona Department of Transportation Southcentral District Responsibility

- If any active bird nests cannot be avoided by vegetation clearing or construction activities, the Engineer would contact the Arizona Department of Transportation Environmental Planning biologist (602.399.3233 or 602.712.7767) to evaluate the situation.

Contractor Responsibilities

- If vegetation clearing would occur during the migratory bird breeding season (March 1 to August 31), the contractor would avoid any active bird nests. If active nests cannot be avoided, the contractor would notify the Engineer to evaluate the situation. During the nonbreeding season (September 1 to February 28), vegetation removal is not subject to this restriction.
- Prior to construction, all personnel who would be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors, would review the attached Arizona Department of Transportation Environmental Planning "Western Burrowing Owl Awareness" flier.
- If any burrowing owls or active burrows are identified, the contractor would notify the Engineer immediately. No construction activities would take place within 100 feet of any active burrow.
- If the Engineer, in cooperation with the Arizona Department of Transportation Environmental Planning biologist (602.399.3233 or 602.712.7767), determines that burrowing owls cannot be avoided, the contractor would employ a qualified biologist holding a permit from the United States Fish and Wildlife Service to relocate burrowing owls from the study area, as appropriate.
- The contractor would develop a Noxious and Invasive Plant Species Treatment and Control Plan in accordance with the requirements in the contract documents. Plants to be controlled would include those listed in the state and federal noxious weed and the state invasive species lists in accordance with state and federal laws and executive orders. The plan and associated treatments would include all areas within the project right-of-way and easements as shown on the project plans. The treatment and control plan would be submitted to the Engineer for the Arizona Department of Transportation Construction Professional Landscape Architect for review and approval prior to implementation by the contractor.

Contractor Responsibilities (continued)

- Prior to the start of ground-disturbing activities and throughout the duration of construction and any landscape establishment period, the contractor would arrange for and perform the control of noxious and invasive species in the study area.
- To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment would be washed prior to entering the construction site and the contractor would inspect all construction equipment and remove all attached debris, including plant parts, soil, and mud, prior to the equipment entering the construction site.
- To prevent invasive species seeds from leaving the site, the contractor would inspect all construction and hauling equipment and remove all debris, including plant parts, soil, and mud, prior to leaving the construction site.

Conclusion

In general, the expected impacts are minor because no threatened or endangered species, critical habitat, or designated wildlife corridors are present in the study area. Native trees and shrubs would be removed with the Recommended Build Alternative. At this preliminary stage of design, the numbers of trees and shrubs and the acreages are undetermined. During final design, more detailed information would be developed.

N. Hazardous Materials

Hazardous materials and hazardous waste sites pose a threat to any infrastructure project and can range from ownership liability concerns to construction safety concerns. The EPA's 2002 Brownfields Act identified the appropriate steps of all appropriate inquiry for investigating hazardous materials sites, and the American Society for Testing and Materials (ASTM) International E1527-13 (implemented in 2013) standard was written to provide a set of guidelines for the assessment of properties and the qualifications of environmental professionals engaged to perform the analysis (ASTM International 2013). The FHWA has adopted a step-wise approach to hazardous materials site analysis that conforms to the ASTM series of standards governing Phase I Environmental Site Assessments, which are used to research the current and historical uses of a property to assess whether those uses have impacted the soil or groundwater beneath the property and could pose a threat to the environment or human health. ADOT employs a Preliminary Initial Site Assessment (PISA) scope of work as an early comparative tool for projects with multiple possible alternatives. It includes a review of the regulatory history of sites in the study area and a limited field review by the environmental professional (as defined in ASTM). The PISA is not fully ASTM-compliant but provides elements of the ASTM scope that give the study team adequate information to compare potential alternatives for fatal flaws or hazardous materials issues.

Existing Conditions

A PISA was prepared to evaluate the potential presence of hazardous incidents and materials within or adjacent to the I-10/SR 210 study area. An environmental database report was obtained from Allands on June 4, 2019, and was reviewed for information relevant to the study area. Site visits were conducted by Jacobs staff in August 2017 and June 2019, and historical aerial photographs and topographic maps were obtained (see Preliminary Initial Site Assessment Executive Summary at www.azdot.gov/i10SR210study). The PISA was approved by ADOT on June 26, 2019.

Land uses in the study area include industrial and commercial businesses typically subject to federal and state hazardous materials regulations, including the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act, among others.

The SR 210/Golf Links Road connection is primarily industrial and includes a high density of regulatory database sites, as identified in the Allands (2019) report. The SR 210/Golf Links Road connection is primarily industrial and includes a high density of regulatory database sites. The entire industrial area within the triangle formed by 38th Street, Technical Drive (see Figure 2a: Detail 1), and Alvernon Way was determined to be a concern to the project due to the high density of regulatory database sites (5), and the large amount of observed industrial activity, auto repair, fuel tanks, and chemical storage. This industrial area is approximately 15 acres and is within the project limits. Some sites in this area are regulated sites, but not all properties within the area are listed in the regulatory database.

In addition to the 15-acre area of concern, four additional non-regulated (treatment, storage and disposal not regulated under RCRA) sites were observed and determined a high risk, and eight low-risk sites were also observed. Three of these four additional high risk sites were operational automotive repair and/or service facilities, and one is a large construction business. These sites were determined high risk due to observed petroleum product usage and/or active automotive service activities occurring in the study area (ADOT 2019e).

The PISA, approved on June 26, 2019, recommended:

- Twenty-two locations (17 regulated, 5 non-regulated) that are deemed “high environmental risk” be subject to future Phase I Environmental Site Assessments
- Avoidance or proper regulatory closure of wells located within project limits that may be impacted by construction
- Asbestos assessments be completed per ADOT SAF 6.01 Asbestos Management Policy and applicable National Emissions Standards for Hazardous Air Pollutants regulations at any buildings or structures subject to renovation or demolition
- Lead-based paint inspections be performed at buildings or structures upon or within which painted surfaces would be disturbed or demolished

The majority of the study area was determined to be of no environmental risk or low environmental risk to the proposed project. No further environmental investigations are recommended for those areas determined to pose no or low environmental risk.

Environmental Impacts—Recommended Build Alternative

Acquisition of properties that involve regulated hazardous materials may affect project cost due to potential remediation requirements. This would not be determined until final design, when more definitive ROW needs are developed. Acquisition of properties subject to remediation may also affect the property value and would be addressed during the acquisition process.

Environmental Impacts—No-Build Alternative

Under the No-Build Alternative, no involvement with potential “high environmental risk” locations would occur.

Environmental Commitments and/or Mitigation Measures

ADOT and the contractor would follow the SAF-6.01 Asbestos Management Policy and the ADOT *Standard Specifications for Road and Bridge Construction.*

Arizona Department of Transportation Design Responsibility

- Site-specific environmental site assessments would be conducted prior to property acquisition, as recommended in the June 2019 Preliminary Initial Site Assessment.

Contractor Responsibilities

- The contractor shall complete a National Emissions Standards for Hazardous Air Pollutants (NESHAP) notification for the work associated with demolition and submit it to the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for a five (5) working day review and approval. Upon approval, the contractor shall file the notification with the Pima County Department of Environmental Quality prior to commencement of work associated with demolition.
- The contractor cannot start work associated with the demolition of structures until 10 (ten) working days have passed since the submittal of the notification to the regulatory agencies.

Conclusion

Acquisition of properties listed as having the potential for presence of regulated materials is highly probable with the Recommended Build Alternative. The extent of impact on project cost or schedule due to remediation needs cannot be determined until final design and the completion of subsequent Phase I Environmental Site Assessments.

O. Material Sources and Waste Materials

Roadway construction projects typically require additional fill material ("borrow") or generate excavated earth or pavement/structures that require disposal ("waste").

Existing Conditions

Most of existing I-10 in the study area is constructed on earthwork embankments, and SR 210 is a combination of an at-grade and elevated roadway. The I-10 TIs are elevated over the cross streets and include substantial earthen fill material and bridge structures. Similarly, the SR 210/Golf Links Road connection includes elevated structures on earth work and bridge piers. There are 33 ADOT-approved materials source facilities in Pima County (ADOT 2018). Six of the facilities are within 5 miles of the study area.

Environmental Impacts—Recommended Build Alternative

Initial roadway modeling for the Recommended System I Alternative identified the need for borrow to construct roadway embankments. The Recommended Build Alternative would require about 3.4 million cubic yards of borrow (ADOT 2019b). This need would be spread out over more than 20-years as individual projects are developed. The construction contractors would seek either existing commercial sources or would develop nearby sources, if required.

Environmental Impacts—No-Build Alternative

The No-Build Alternative would not borrow material or generate waste material. Therefore, the No-Build Alternative would have no impact related to the use of materials sources or waste sites.

Environmental Commitments and/or Mitigation Measures

None.

Conclusion

It would be the responsibility of the contractor to identify any needed material sources or waste disposal sites and to provide the environmental documentation regarding the potential use of these sites, as specified in the ADOT *Standard Specifications for Road and Bridge Construction* (ADOT 2008).

P. Secondary Impacts

In the context of NEPA, secondary impacts, or indirect effects, are defined by the CEQ as impacts that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Actions that may induce secondary (or indirect) impacts can be less obvious than those identified as direct impacts. They are more difficult to quantify, additive in nature, or long-term in occurrence and effect. This section identifies the likely, foreseeable secondary impacts that would result from the construction of the proposed roadway (cumulative impacts are addressed in a subsequent section).

The FHWA is required to implement NEPA and the CEQ guidelines under 23 CFR 771. The FHWA has developed interim guidance on the analysis of indirect and cumulative impacts, which supplements the CEQ guidance. Combined, these documents provide the primary basis for analysis. The classification of secondary and cumulative impacts, in accordance with FHWA guidance, is presented in Table 13.

Table 13. Secondary and cumulative impacts classifications

Impact Category	Impact Classification	Description
Type	Neutral, positive, or negative	Compares the final condition of a given resource with its existing condition (assumes that the expected impact occurs); impacts on personal property are considered negative
Severity	Minor, moderate, or substantial	Considers the relative contribution of the proposed project to a given impact
Duration	Temporary or permanent	Assumes "permanent" unless otherwise specified

Land Use and Social and Economic Conditions

The build alternatives are expected to result in minimal conversion or changes in land use and no changes in zoning. A moderate negative secondary impact would be expected due to the acquisition/relocation of 25 business properties at SR 210/Golf Links Road and the Alvernon Way corridor. Some of the 25 businesses may choose not to relocate in the immediate area, resulting in job losses in the study area. The construction of a new connector roadway through the Triple T Truck Stop property may cause a secondary impact on future development of the remainder of the property.

A moderate positive secondary impact is expected to occur with the improvement of traffic operations regionally, meeting future growth demand. With the Recommended Build Alternative, local traffic operation and access may result in a minor improvement in the commercial development appeal of

vacant parcels. Some of the acquired land not needed for actual improvements may become surplus property, made available for purchase and thus redeveloped in a similar land use. The improved traffic operations would also result in a reduction in vehicle crashes and provide a positive public safety benefit.

The potential for the project to induce changes in land use, land development, or population growth are expected to be minor because:

- The project would improve existing transportation facilities and would not involve the development of a new alignment or the establishment of vehicular access to new areas.
- The project would not add new TIs or increase interstate access.
- The project would not affect the availability of housing, public services, or vacant land within adjacent communities.

Secondary impacts on land use and social and economic conditions with the Recommended Build Alternative would be a moderate positive impact due to improved traffic operations, improved safety, and enhanced development appeal. A moderate negative economic impact could be expected if acquired businesses do not relocate within the project vicinity, resulting in a reduction in local employment opportunities and tax base losses.

Title VI and Environmental Justice

Though the four residential relocations required would have a direct impact on individuals who own or occupy these homes, there would be no secondary impacts on neighborhood continuity or community cohesion because it would not cut off residents from jobs, schools, medical care, grocery stores, public transit, and other essential resources and services, or divide residential communities or diminish them.

With the presence of minority and low-income populations throughout much of the study area, the secondary impacts related to social and economic conditions described in the previous section could be experienced by minorities and persons of low income. The relocation of 25 businesses could result in job losses to individuals (it is assumed that some percentage of job losses would affect minorities or persons of low income), and a potential reduction in local employment opportunities for minority and low-income populations in the study area. With a reduction in local employment opportunities, some may need to find employment farther from home, increasing the time and expense of commuting to and from work. A moderate negative secondary economic impact could be expected to minority and low-income populations if acquired businesses do not relocate within the project vicinity.

Minority and low-income populations would experience a moderate positive secondary impact with the improvement of traffic operations and public safety.

Water Resources

The project would not be expected to result in secondary impacts to water resources. Existing watercourses would be maintained in their current locations, and modifications would not be expected to result in a degradation of water quality or volume.

Biological Resources

No secondary biological impacts are expected. Due to the lack of critical habitat, wildlife corridors, and protected species, current populations and species diversity would remain consistent with current conditions.

Cultural Resources

The construction of new roads can open up access to previously undisturbed areas, which can hold intact cultural resources. New access can lead to intentional or inadvertent damage to cultural resources, a potential secondary effect. The Recommended Build Alternative would not establish new access to previously undisturbed areas and would not be expected to cause a secondary impact on cultural resources.

Conclusion

Under the Recommended Build Alternative, a moderate negative secondary impact on job opportunities could be expected due to business acquisition/relocation associated with the project and due to the construction of a new connector roadway through the Triple T Truck Stop property. Overall, the improved traffic operations would be expected to benefit future development and economic vitality and result in a moderate positive impact to the region. The improved traffic operations would also result in reduced vehicle crashes and provide a positive public safety benefit.

Q. Cumulative Impacts

Within the context of NEPA, cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7). Cumulative impacts include the direct and indirect impacts of a project together with the impacts of all other past, present, and reasonably foreseeable future actions in the area, including those of others. This analysis of cumulative impacts concentrates on current and future actions that could contribute to cumulative impacts on key social, economic, and environmental resources.

Past, present, and reasonably foreseeable future actions considered in this analysis include projects/development by the City of Tucson, the City of South Tucson, Pima County, PAG, and private developers. For this cumulative impacts assessment, past, present, and reasonably foreseeable future transportation projects and non-transportation-related projects are considered. This EA assumes that the local municipalities and county comprehensive and general plans direct the type of development in the study area. This development would likely occur eventually regardless of whether the SR 210 and I-10 project is implemented.

Past Actions/Completed Projects

Several recently completed projects (within the past 5 years) were identified in the study area:

- ADOT—Signal project upgrade at I-10/Craycroft Road TI, completed 2016 (ADOT 2019b)
- ADOT—I-10 Sign Rehabilitation from MP 268.0 to MP 350.0, completed in 2016 (ADOT 2019b)
- Pima County Natural Resources Parks and Recreation Department—Julian Wash Greenway (Rita Road to Santa Cruz River) completed in 2014

Ongoing/Present Actions

- ADOT—I-10 Bridge Deck rehabilitation, Wilmot Road and Earp Wash under construction with completion in early 2019 (ADOT 2019b)
- ADOT—Signal project upgrade at the Wilmot Road and Kolb Road TIs under construction with completion in spring 2019; work includes new signal system, pavement/median adjustments, Americans with Disabilities Act modifications and updated lighting (ADOT 2019b)
- City of Tucson—Valencia Road (Wilmot Road to Kolb Road), roadway widening and reconstruction underway with completion expected summer 2019 (City of Tucson 2019)
- Pima County Natural Resources Parks and Recreation Department—Kino Sports Complex South, construction underway with completion expected in spring 2020 (Pima County 2018)
- Tucson Marketplace—Regional and Community Retail Center located at I-10 and Kino Parkway; the 100-acre shopping area is 60% developed, with ongoing establishment of retail businesses (Optimus 2019)
- Amazon Fulfillment Center—Major fulfillment center on Kolb Road outside the study area; hiring 1,500 people for the facility, which will become a major truck traffic origin/destination center (*Arizona Daily Star* 2019)

Reasonably Foreseeable Future Actions

- ADOT—Sonoran Corridor (I-19 to I-10) study includes recommendations for a new freeway/expressway connection between I-19 and I-10, with potential connection points on I-10 at Rita Road or Houghton Road; both locations are outside the study area; however future traffic projections include the impact from this future transportation feature (ADOT 2019b)
- Private development—Further development of the Triple T Truck Stop property at the I-10/Craycroft Road TI is expected; the development type/use is undetermined at this time
- UA—Expansion/development of the UA Tech Park is expected to continue; the location adjacent to I-10 between Kolb Road and Rita Road is composed of about 1,345 acres, with about 205 developed to date (UA 2019)

Cumulative Impacts

Land Ownership, Jurisdiction and Land Use

Conversion of land ownership and land use would directly result from property acquisitions for ROW purposes. The conversion of the business properties, vacant lands, or partial property acquisition is not expected to result in any ownership or use changes outside the ROW. No zoning change is anticipated due to the project and ongoing or future development. The build alternatives complement or support the region's growth and provide improved traffic operations. These factors typically encourage community growth, and the study area has capacity in terms of undeveloped lands and infrastructure in place. Local jurisdiction planning and zoning requirements include elements for development to consider environmental resources and mitigation as needed. Cumulative impacts on land ownership, jurisdiction, and land use would continue to be neutral to positive.

Social and Economic Considerations

Cumulative impacts on social and economic considerations would continue to be positive and moderate. The business acquisitions in the SR 210/Golf Links Road area and along Alvernon Way would be a permanent negative impact. However, it could be expected that acquired business would relocate in the region, if not in the general study area. The major development in the study area related to Tucson Marketplace, Amazon Fulfillment Center, and Kino Sports Complex would be expected to continue with or without the project. The build project would however complement those facilities with improved traffic operations.

Cultural Resources

Minimal to minor cumulative impacts on cultural resources would be expected due to the project and past, ongoing, and reasonably foreseeable future actions. The study area and vicinity is lacking in cultural resource sites that have not already been evaluated or documented. Local jurisdictions' development guidelines include consideration of archaeological and historic properties.

Air Quality

Cumulative air quality impacts would be expected to continue to be minor and positive, with improvements in traffic operations and reductions in traffic congestion. The planned project and ongoing and future transportation projects are all accounted for in the PAG regional air quality conformity in the 2018–2022 PAG TIP (PAG 2018).

Traffic Noise

Cumulative noise impacts related to traffic would continue to be a moderate negative impact. With added capacity, projected noise increases from traffic are expected.

Water Resources

Because the improved transportation system would be expected to result in some new growth, demand for water would increase. This would be a cumulative impact in consideration of past, present, and other reasonably foreseeable future actions that consume water resources for construction and long-term development activities. Cumulative impacts on water resources would be expected to be moderate and negative. Water quality impacts are not anticipated. All work at regulated water courses would be subject to Corps and ADEQ requirements. Standard construction mitigation measures would protect water quality. Future projects would be subject to similar permitting and mitigation requirements.

Biological Resources

Cumulative biological resource impacts are expected to be negative but minor. The Recommended Build Alternative and other past, present, and reasonably foreseeable projects are generally in an area of limited biological resources or are subject to City of Tucson or Pima County requirements, which consider impacts to biological resources.

Conclusion

The Recommended Build Alternative would likely contribute to minimal to minor negative cumulative effects on cultural resources and biological resources, and a moderate negative cumulative impact on water resources. Cumulative impacts on noise levels would be moderate and negative. Cumulative

impacts associated with social and economic conditions and land use would be mostly neutral or positive. Cumulative impacts on air quality would be minor and positive.

As part of the NEPA process, agency and public scoping meetings were held early in the Phase 2 DCR/EA stage to discuss and evaluate potential modifications to improve capacity and traffic flow on the proposed project in Tucson, Arizona.

The purpose of the scoping process is to identify potential issues, concerns, and opportunities that should be considered in the development of alternatives and environmental studies for the proposed project. Information on potential issues, concerns, and opportunities was obtained from area residents, business and property owners, stakeholders, and government agency representatives through these agency and public meetings. A website was developed to provide an overview of the study, public meeting information, and technical reports (www.azdot.gov/i10SR210study). Agency scoping was conducted through letters to affected jurisdictions, agencies, organizations, and interest groups, and through an agency scoping meeting.

A. Agency Scoping

An agency stakeholder meeting was held December 1, 2016, to kick off the DCR/EA process. The meeting was held at the ADOT Southcentral District office, 1221 S. 22nd St., Tucson, Arizona, with 31 attendees representing the FHWA, ADOT, the cities of Tucson and South Tucson, Pima County, the Tucson Airport Authority, the Tucson Fire Department, Sun Tran, the Department of Public Safety, and the AGFD. The meeting introduced the study team, provided a history of previous actions related to the Phase I FS, and provided a plan and schedule for the Phase 2 activities. A summary of that meeting is included in Appendix H.

Letters were mailed to 51 entities representing city, county, state, and federal agencies, jurisdictions, emergency services, schools, and interest groups in February 2017. The agency mailing list and an example letter is included in Appendix H. The letters sought specific input from these entities on their interests, concerns, or potential opportunities to be considered during the alternatives development and design. Nine written responses were received, including a joint letter on behalf of the City of Tucson, Pima County, and the UA (see Appendix H). The joint letter by these organizations provided support for the continued development of the DCR/EA and offered a preference of Alternative I over IV. The rationale was due to the higher cost of Alternative IV and potential limitations on the future expansion of I-10 with Alternative IV. The letter offered comments and recommendations on broad general items, such as the need for temporary improvements, traffic analysis relative to interchange cross streets, and the Sonoran Corridor connection. Several site-specific comments and recommendations were provided, such as improvements related to Kino Sports Park South, Kolb Road TI, Alvernon Way impacts, and Valencia Road TI turn lanes, as well as others. The response from ADOT/FHWA to this joint letter is included in Appendix H.

B. Public Involvement

ADOT and the FHWA held two public meetings in November 2018 to discuss the overall project status and unique design challenges at the I-10/Craycroft Road TI. The Tucson public meeting was community-wide and advertised to the general public. The Craycroft public meeting dealt with unique commercial and residential access issues related to proposed reconstruction of the I-10/Craycroft Road TI and Craycroft Road north of the TI. The neighborhood of Littletown, a CDP that meets the criteria of a Title VI and EJ protected population, is adjacent to this segment of Craycroft Road. Due to potential impacts by the proposed I-10/Craycroft Road TI improvements, a targeted outreach strategy was developed with

the intent to increase Littletown's involvement in the study and to receive its input regarding issues the community felt should be evaluated.

A summary of the meetings, responses, and public notification materials is included in Appendix I.

I-10/Craycroft Road TI Meeting

The purpose of the I-10/Craycroft Road TI public meeting was to provide information about the ongoing DCR/EA and the proposed improvements at the I-10/Craycroft Road TI and along Craycroft Road east of I-10, and to give the community an opportunity to meet the project team, ask questions, and provide input. The meeting was held from 5:30 to 7:30 p.m. on November 28, 2018, at the Billy Lane Lauffer Middle School gymnasium, 5385 E. Littletown Road, Tucson, Arizona. A total of 31 people attended the public meeting.

The proposed improvements at the I-10/Craycroft Road TI included options to manage truck traffic at the Triple T Truck Stop, Pilot Travel Center, and Freightliner while minimizing impacts to the neighboring Littletown community.

Tucson Meeting

The purpose of Tucson public meeting was to provide information about the ongoing DCR/EA and to give the community an opportunity to meet the project team, ask questions, and provide input. The meeting was held from 5:30 to 7:30 p.m. November 29, 2018, at Apollo Middle School Multi-Purpose Room/Cafeteria, 265 W. Nebraska St., Tucson, Arizona. This meeting focused on the entirety of the project. A total of 42 people attended the public meeting.

C. Draft EA Comment Period and Public Hearing

Agencies and members of the public are invited to review and comment on the Draft EA and Initial DCR. The 45-calendar-day comment period begins on October 29, 2019 (the anticipated date of publication) and ends on December 12, 2019. The Draft EA and Initial DCR can be reviewed during business hours at the following repositories or on the study website at www.azdot.gov/i10SR210study:

Littletown Community Center
6465 S. Craycroft Road
Tucson, AZ 85756

Joel D. Valdez Main Library
101 N. Stone Avenue
Tucson, AZ 85701

Sam Lena-South Tucson Public Library
1607 S. 6th Avenue
Tucson, AZ 85713

A public hearing will be held during the comment review period on Wednesday, November 20, 2019, from 5:30 p.m. to 7:30 p.m. at the Billy L. Lauffer Middle School, 5385 E. Littletown Road, Tucson, Arizona, to provide opportunity for review and comment. The study team will be available to share information and answer questions during the open house portion of the meeting (5:30 p.m. to 7:30 p.m.). A presentation will be made from 6:00 p.m. to 6:20 p.m. The formal public hearing will begin at 6:30 p.m. The public hearing provides attendees the opportunity to submit comments verbally in front

of a listening panel. Comments can also be made at the public hearing in writing or by speaking to a court reporter one-on-one.

Comments can also be submitted any time during the comment period using any of the following methods:

- Mail to:
  ADOT Community Relations
  1221 S. Second Ave., Tucson, AZ 85713
- Telephone: 1-888-692-2678
- Email to: i10SR210Study@hdrinc.com
- Online via: www.azdot.gov/i10SR210study

All comments received by ADOT during the public comment period will be incorporated and considered in the Final EA and Final DCR and, if applicable, the Finding of No Significant Impact. ADOT responses to each comment will be included.

Pursuant to Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act and other nondiscrimination laws and authorities, ADOT does not discriminate on the basis of race, color, national origin, sex, age, or disability. Persons that require a reasonable accommodation based on language or disability should contact Jerimiah Moerke at 520-237-7605, or JMoerke@azdot.gov. Requests should be made as early as possible to ensure the State has an opportunity to address the accommodation.

De acuerdo con el título VI de la Ley de Derechos Civiles de 1964 y la Ley de Estadounidenses con Discapacidades, el Departamento de Transporte de Arizona (ADOT por sus siglas en inglés) no discrimina por raza, color, nacionalidad, edad, género o discapacidad. Personas que requieren asistencia (dentro de lo razonable) ya sea por el idioma o por discapacidad deben ponerse en contacto con Jerimiah Moerke al JMoerke@azdot.gov (520-237-7605). Las solicitudes deben hacerse lo más pronto posible para asegurar que el equipo encargado del proyecto tenga la oportunidad de hacer los arreglos necesarios.

ACHP. 2002. Projects Involving Historic Natural Gas Pipelines; exemption, *Federal Register* 67(66).

_____. 2005. Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System. *Federal Register* 7(46).

ADOT. 2008. *Standard Specifications for Road and Bridge Construction.*

_____. 2011. *What Moves You Arizona: Long Range Transportation Plan 2010–2035.*

_____. 2012. *Erosion and Pollutant Control Manual for Highway Design and Construction.*

_____. 2014. *Arizona Department of Transportation Roadway Design Guidelines.* Revisions to the 2012 Edition. April.

_____. 2015. *I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10 Feasibility Report Update.* February.

_____. 2016. *Post-Construction Best Management Practices Manual for Water Quality.* January 2016.

_____. 2017. *Noise Abatement Requirements.* May.

_____. 2018. Materials Sources Which Have Previously Completed ADOT Environmental Analysis Process. https://www.azdot.gov/docs/default-source/planning/list-of-contractor-furnished-material-sources-that-have-completed-the-environmental-analysis-and-cultural-consultation-process.pdf?sfvrsn=14. Accessed February 2019.

_____. 2019a. NEPA EA and EIS Guidance. ADOT. April.

_____. 2019b. *Initial Design Concept Report: I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10.* February.

_____. 2019c. *I-11 and Intermountain West Corridor Study*. http://i11study.com. Accessed October 21, 2019.

_____. 2019d. *Sonoran Corridor Study.* https://www.azdot.gov/planning/transportation-studies/sonoran-corridor-tier-1-environmental-impact-statement/sonoran-corridor-alternatives. Accessed July 18, 2019.

_____. 2019e. *Preliminary Initial Site Assessment: I-10: Jct. I-19 to Kolb Road and SR 210: Golf Links Road to I-10.* Jacobs Engineering Group, Phoenix, Arizona. June.

ADWR. 2019. Arizona Department of Water Resources Well Registry. http://gisweb.azwater.gov. waterresourcedata/wellrigistry.aspx. Accessed June 2019.

Allands. 2019. Corridor Database. I-10, Junction I-19 to SR 83 and SR 210, Golf Links Road to Interstate 10. June.

ALRIS. 2014. Arizona Wildlife Linkages Mapping. https://www.azdot.gov/docs/default-source/planning/awlw-section-iv-arizonas-wildlife-linkages-mapping.pdf?sfvrsn=2. Accessed June 2019.

Arizona Daily Star. 2019. Amazon Hiring 1,500 for New Fulfillment Center in Tucson. https://tucson.com/business/amazon-hiring-for-new-fulfillment-center-in-tucson/article_2e8adcf3-2975-5ead-83d3-f8b347bdd139.html. September 3.

Arizona Wildlife Linkages Workgroup. 2006. Arizona's Wildlife Linkages Assessment. https://www.azdot.gov/business/environmental-planning/programs/wildlife-linkages. Accessed December 28, 2018.

ASTM International. 2006. Standard Practice for Environmental Site Assessments and Phase 1 Environmental site Assessment Process (ASTM 1527-05).

CityFeet. 2019 Tucson Property Types for Sale. https://www.cityfeet.com/cont/tucson-az/commercial-property-for-sale?llz=32.07729,-110.90365,12z&l=3-56586. Accessed July 2019.

City of South Tucson. 1999. *City of South Tucson, Arizona, Comprehensive Plan.*

City of Tucson. 2005. *Rincon/Southeast Subregional Plan 1995.* Revised 2005.

_____. 2013. *Plan Tucson: City of Tucson General and Sustainability Plan 2013.*

_____. 2018. *100-Acre Wood Community Bicycle Park Master Plan.* May.

_____. 2019. Valencia Road (Wilmot Road to Kolb Road) Project Status. www.tucsonaz.gov/tdot/transportation-projects.

Corps. 2016. *Department of the Army Regional General Permit No. 96, Routine Transportation Activities.* February 23.

EPA. 2011. *National Air Toxics Assessment.* https://www.epa.gov/national-air-toxicsassessment. Accessed June 11, 2019.

_____. 2019. Integrated Risk Information System. https://www.epa/iris. Accessed April 2019.

FEMA. 2019. Federal Emergency Management Agency Flood Map Service Center. http://msc.fema.gov. Accessed June–July 2019.

FHWA. 1987. FHWA Technical Advisory T 6640.8A. *Guidance for Preparing and Processing Environmental and Section 4(f) Documents.*

_____. 2010. Title 23, Highways—Part 772 Procedure for Abatement of Highway Traffic Noise and Construction Noise. July 13.

_____. 2018. Environmental Review Toolkit: Elements of Purpose and Need. https://www.environment.fhwa.dot.gov/nepa/trans_decisionmaking.aspx. Accessed October 21, 2019.

FHWA, ADOT, and SHPO. 2002. *Interim Procedures for the Treatment of Historic Roads.* November 15, 2002.

Ingwersen, Anna, Oslynn Benjamin, and Glennda Gene Luhnow. 2019. *A Historic Building Inventory for the I-10; Jct. I-19 to Kolb Road and SR 210, Golf Links to I-10 Project, Tucson, Pima County, Arizona.* Report No. 2018-11. Jacobs Engineering Group, Inc., Phoenix, Arizona.

MLS. 2019. Commercial Properties Sale/Lease. www.mlssaz.com. Accessed July 2019.

Optimus. 2019. Tucson Marketplace Regional and Community Retail Center. www.optimuscdg.com/projects/tucson-marketplace. Accessed October 21, 2019.

PAG. 2015. *Report on the Sub-Area Allocation Model Land Use Model and Scenario Results.*

_____. 2016. *2045 Regional Mobility and Accessibility Plan.* May.

_____. 2018. Pima Association of Governments Transportation Improvement Program, 2018–2022. www.pagregion.com. Accessed September/October 2019.

_____. 2019a. *Report on Sub-Area Allocation Model Land Use Model and Scenario Results.* http://www.pagregion.com/documents/committees/poptac/2015/POPTAC-2015-01-12-RTP2045-LandUseModelingReportRevised.pdf. Accessed February 2019.

_____. 2019b. Employment Density Map. www.pagregion.com/document/rdc/gis/mapempdens2005.pdf. Accessed February 2019.

Pima County. 2015a. *Comprehensive Plan Update, Pima Prospers.*

_____. 2015b. *Pima County Streets and Routes Plan.* August.

_____. 2015c. *Pima Regional Trail System Master Plan.* Revised February 2015.

_____. 2018. Board of Supervisors Memorandum dated November 15, 2018: Kino Veterans Memorial Sports Complex Phase 1 Update.

_____. 2019a. Pima County–Pima Maps. https://pimamaps.pima.gov/Html5Viewer/index.html?configBase=https://pimamaps.pima.gov/Geocortex/Essentials/REST/sites/mainsite/viewers/mainmap/virtualdirectory/Resources/Config/Default. Accessed May–August 2019.

_____. 2019b. The Loop and Construction Updates. webcms.pima.gov. Accessed February 2019.

Sun Tran. 2019. Sun Tran Route Schedule Effective August 11, 2019. https://www.suntran.com/routes.php. Accessed October 21, 2019.

Touchin, Jewel, Stephanie Whittlesey, and Mark Chenault. 2011a. *A Class I Cultural Resources Inventory for Interstate 10, from Interstate 19 to State Route 83, Pima County, Arizona.* Report No. 2010-17. Jacobs Engineering Group, Inc., Phoenix, Arizona.

_____. 2011b. *A Cultural Resources Class I Inventory for the State Route 210 (Barranza-Aviation Parkway) Extension, Pima County, Arizona.* Report No. 2010-013. Jacobs Engineering Group, Inc., Phoenix, Arizona.

Transportation Research Board. 2016. *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis.* October.

UA. 2019. University of Arizona Science and Technology Park Planning and Development. www.techparks.arizona.edu/parks/ua-techpark. Accessed July 18, 2019.

U.S. Census Bureau. 2015. *2011–2015 American Community Survey, Five-Year Estimates.*

_____. 2016. *2012–2016 American Community Survey, Five-Year Estimates.*

_____. 2017. *Annual Estimates of the Resident Population: April 1, 2010, to July 1, 2016.* U.S. Census Bureau Population Division.