

**ENVIRONMENTAL ASSESSMENT FOR
INTEGRATED FIXED TOWERS ON THE
TOHONO O'ODHAM NATION IN THE
AJO AND CASA GRANDE STATIONS'
AREAS OF RESPONSIBILITY
U.S. BORDER PATROL TUCSON SECTOR, ARIZONA
U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY
WASHINGTON, DC**



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1 **DRAFT**

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4 **FINDING OF NO SIGNIFICANT IMPACT**
5 **FOR**
6 **INTEGRATED FIXED TOWERS ON THE TOHONO O’ODHAM NATION**
7 **IN THE AJO AND CASA GRANDE STATIONS’**
8 **AREAS OF RESPONSIBILITY**
9 **U.S. BORDER PATROL TUCSON SECTOR, ARIZONA**
10 **U.S. CUSTOMS AND BORDER PROTECTION**
11 **DEPARTMENT OF HOMELAND SECURITY**
12 **WASHINGTON, D.C.**

13
14 **NAME OF PROPOSED ACTION**

15
16 Integrated Fixed Towers (IFT) on the Tohono O’odham Nation in the U.S. Border Patrol’s
17 (USBP) Ajo and Casa Grande Stations’ Areas of Responsibility (AOR), Tucson Sector, Arizona
18

19 **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

20
21 U.S. Customs and Border Protection (CBP) proposes to implement an IFT system in the USBP’s
22 Ajo and Casa Grande Stations’ AOR. This system provides long-range, persistent surveillance,
23 enabling USBP personnel to detect, track, identify, and classify illegal entries through a series of
24 integrated sensors and tower-based surveillance equipment. The IFT system would primarily be
25 deployed on lands within the Tohono O’odham Nation in order to provide long-term/permanent
26 surveillance in USBP’s Ajo and Casa Grande Stations’ AORs.
27

28 CBP analyzed the following three alternatives in the Environmental Assessment (EA):
29

30 **Alternative 1:** Alternative 1 is the No Action Alternative. Under the No Action Alternative, the
31 new IFTs would not be constructed and current border surveillance practices and procedures
32 would continue. USBP’s ability to detect and interdict cross-border violators would not be
33 enhanced; thus, operational effectiveness would not be improved in the project area. The No
34 Action Alternative does not meet the purpose and need for this project.
35

36 **Alternative 2:** Alternative 2 is the Proposed Action. The Proposed Action includes the
37 construction, operation and maintenance of 15 new IFTs at preferred sites and the retrofit of 2
38 existing communication towers to provide long-term, permanent surveillance in USBP’s Ajo and
39 Casa Grande Stations’ AORs. The IFT system transfers situational awareness data to the
40 command and control facilities at San Miguel Law Enforcement Center and USBP Ajo Station,
41 which integrate and display data from all IFTs deployed within these AORs. Each IFT consists
42 of a tower equipped with a suite of sensors and/or communications equipment. Tower retrofits
43 include installing or replacing sensor suites and/or communications equipment. The Proposed
44 Action also includes the construction of 14 new access roads (up to 0.24 miles total) and
45 improvement of existing approach roads (up to 70.90 miles total) as well as the future
46 maintenance and repair of these roads. Approach roads are existing private or public roads used

1 to travel to a tower site. Access roads are short road segments from an approach road into a
2 tower site. Roadwork may include reconstructing, widening, or straightening the existing road,
3 and installing drainage structures. Roadwork would also include performing road maintenance
4 and repair within 270 ephemeral washes. CBP estimates that approximately 195 of these washes
5 would need to be improved with either a new low water crossing or culvert. Staging of
6 equipment and materials would occur at two existing staging areas and within the temporary
7 construction areas for the tower sites and access roads. The Proposed Action also includes
8 obtaining rights-of-way from the Bureau of Indian Affairs (BIA) to perform these activities.
9 The Proposed Action meets the purpose and need for this project.

10
11 **Alternative 3:** Alternative 3 consists of the construction, operation, and maintenance of 14 new
12 IFTs at preferred sites and 1 IFT at an alternate site as well as the retrofit of 2 existing
13 communication towers. The new and existing towers are proposed with the same suite of sensor
14 and communications equipment as described in the Proposed Action. Alternative 3 also includes
15 the construction of access roads (up to 0.23 miles total) and improvement of approach roads (up
16 to 68.26 miles total) as well as the future maintenance and repair of these roads. Roadwork
17 would be similar to that of the Proposed Action and would include performing maintenance and
18 repair within 250 ephemeral washes, 187 of which would be improved with either a new low
19 water crossing or culvert. Alternative 3 meets the purpose and need for this project.

20 21 **PUBLIC INVOLVEMENT**

22
23 Consultation and coordination with Federal, state, and local agencies and Federally recognized
24 tribes began with site selection activities in July 2012. The Tohono O'odham Nation and the
25 BIA were invited and agreed to participate as cooperating agencies in the development of the EA
26 in May 2013.

27
28 A Draft EA will be available for public review for 30 days after the Notice of Availability is
29 published in the Tohono O'odham Nation's *The Runner*, *Ajo Copper News*, and *Arizona Daily*
30 *Star* newspapers. The Draft EA will also be available electronically at
31 <http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review> and
32 at the Tohono O'odham Community College Library in Sells, the Venito Garcia Library and
33 Archives in Sells, and the Pima County Public Library in Tucson, Arizona.

34 35 **ENVIRONMENTAL CONSEQUENCES**

36
37 Best Management Practices (BMPs) to reduce or minimize potential impacts on a particular
38 resource are described in Section 5.0 of the EA and are incorporated by reference to this Finding
39 of No Significant Impact.

40
41 **Physical Environment:** The Proposed Action would have a permanent, direct impact on up to
42 8.23 acres and a temporary impact on up to 6.06 acres of undisturbed land for new tower sites
43 and access roads. In addition, improvements to approach roads would permanently impact up to
44 214.20 acres of previously undisturbed land, assuming an existing road width of 20 feet.
45 Standard erosion control and soil stabilization BMPs would be implemented during and
46 following construction.

1 The Proposed Action would have a minor impact on air quality and a negligible impact on noise
2 levels. Temporary increases in air emissions, fugitive dust, and noise levels are anticipated
3 during the construction of the towers and related roadwork. However, air emissions associated
4 with the construction of the towers and associated roads and operation of the towers would not
5 exceed Federal and state criteria. Surface water quality could be temporarily impacted during
6 construction as a result of increased erosion and sedimentation; however, these impacts would be
7 minor. The Proposed Action would have no impact on floodplains or wetlands and a negligible
8 impact on waters of the United States. The withdrawal of water for construction purposes could
9 have a temporary, minor impact on groundwater resources.

10
11 **Natural Environment:** Construction activities for the proposed IFTs and roads would not
12 adversely impact wildlife nor would the loss of habitat adversely affect the population viability
13 of any plant or animal species in the region. Temporary, negligible increases in noise levels
14 would be expected during the construction of towers and access roads, as well as approach road
15 maintenance and repair. Permanent noise level increases associated with tower operations would
16 be negligible. Based on the current knowledge of microwave emissions and the type of system
17 deployed by CBP, impacts on wildlife are anticipated to be minor. There is a possibility that the
18 proposed IFTs could pose hazards to migratory birds and cause bird mortality; however, since
19 the towers would not use guy-wires and are less than 200 feet tall, the potential for adverse
20 impacts is greatly reduced.

21
22 CBP determined that the Proposed Action may affect, but is not likely to adversely affect, the
23 following Federally listed species: Sonoran pronghorn (*Antilocapra americana sonoriensis*),
24 jaguar (*Panthera onca*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*), and
25 yellow-billed cuckoo (*Coccyzus americanus*). CBP has also determined that the Proposed
26 Action would not adversely modify designated critical habitat for the jaguar or proposed critical
27 habitat for the yellow-billed cuckoo. Endangered Species Act Section 7 consultation with U.S.
28 Fish and Wildlife Service is currently ongoing for this project.

29
30 **Cultural Resources:** CBP determined that the Proposed Action would not adversely affect any
31 National Register of Historic Places (NRHP) eligible architectural or aboveground resource,
32 NRHP-eligible archaeological resource, traditional cultural property, or sacred site. National
33 Historic Preservation Act Section 106 consultation with the Tohono O’odham Nation Tribal
34 Historic Preservation Office is currently ongoing for this project.

35
36 In the event that unanticipated archaeological resources are discovered during construction or
37 any other project-related activities, or should known archaeological resources be inadvertently
38 affected in a manner that was not anticipated, CBP would implement the procedure detailed in
39 the BMPs located in Section 5.5 of the EA. This procedure was developed in coordination with
40 BIA and the Tohono O’odham Nation Tribal Historic Preservation Officer to handle sensitive
41 archaeological resources.

42
43 **Human Environment:** The Proposed Action would have a long-term, negligible impact on
44 utilities and the radio frequency environment. During construction, the Proposed Action would
45 have a temporary minor impact on roadways and traffic within the project area. Impacts
46 associated with tower maintenance would be long-term and negligible. Depending on the

1 location and elevation of an observer, most towers would be visible up to 5 miles away, and
2 some towers may be visible up to 15 miles; therefore, some towers would have a long-term,
3 moderate impact on the aesthetic qualities of the region. There would be no exposure of the
4 environment or public to any hazardous materials. Further, any adverse effects on human health
5 would be negligible due to the minimal exposure risk and the elevated locations in which the
6 communications equipment would be positioned on the towers.

7
8 **FINDING**
9

10 On the basis of the findings of the EA, which is incorporated by reference, and which has been
11 conducted in accordance with the National Environmental Policy Act, the Council on
12 Environmental Quality regulations, and Department of Homeland Security Directive 023-01, and
13 after careful review of the potential environmental impacts of implementing the proposal, we
14 find the Proposed Action would not have a significant impact on the quality of the human or
15 natural environment, either individually or cumulatively and an Environmental Impact Statement
16 is not required. Further, we commit to implementing the BMPs and environmental design
17 measures identified in the EA and supporting documents.
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23 _____
24 Ms. Sonia N. Padilla
25 Executive Director, Program Management Office
26 Office of Technology Innovation and Acquisition
27 U.S. Customs and Border Protection
28
29
30

_____ Date

31 _____
32 Mr. Woody A. Lee
33 Chief, Strategic Planning and Analysis Division
34 Headquarters, U.S. Border Patrol
35 U.S. Customs and Border Protection
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_____ Date

41 _____
42 Mr. Karl H. Calvo
43 Executive Director
44 Facilities Management and Engineering
U.S. Customs and Border Protection

_____ Date

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8 **ENVIRONMENTAL ASSESSMENT**
9 **FOR**
10 **INTEGRATED FIXED TOWERS ON THE TOHONO O'ODHAM NATION**
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14 **U.S. CUSTOMS AND BORDER PROTECTION**
15 **DEPARTMENT OF HOMELAND SECURITY**
16 **WASHINGTON, D.C.**
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21 **March 2016**
22

23
24
25 **Lead Agency:** Department of Homeland Security
26 U.S. Customs & Border Protection
27 Office of Technology Innovation and Acquisition
28 1901 S. Bell Street, Suite 600
29 Arlington, VA 20598
30
31 **Cooperating Agencies:** Bureau of Indian Affairs
32 Environmental Quality Services Branch
33 2600 N. Central Avenue, 4th Floor Mailroom
34 Phoenix, AZ 85004
35
36 Tohono O'odham Nation
37 Main Street, Building #49
38 Sells, AZ 85634
39
40 **Point of Contact:** Mr. Paul C. Schmidt
41 U.S. Customs and Border Protection
42 Office of Technology Innovation and Acquisition
43 1901 S. Bell Street, Suite 600
44 Arlington, VA 20598
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EXECUTIVE SUMMARY

1
2
3 INTRODUCTION: U.S. Customs and Border Protection (CBP) is the law enforcement
4 component of the Department of Homeland Security (DHS)
5 responsible for securing the border and facilitating lawful
6 international trade and travel. U.S. Border Patrol (USBP) is the
7 uniformed law enforcement component within CBP responsible for
8 securing the Nation's borders against the illegal entry of people and
9 goods between Ports of Entry.

10
11 USBP developed a detailed technology deployment plan for each
12 USBP Sector in Arizona based on current and anticipated operational
13 activity. One of the technology-based approaches in the plan is the
14 integrated fixed tower (IFT) system. The IFT system provides long-
15 range, persistent surveillance, enabling USBP personnel to detect,
16 track, identify, and classify illegal entries through a series of
17 integrated sensors and tower-based surveillance equipment. The
18 proposed IFT project represents a technology solution for the distinct
19 terrain within USBP Tucson Sector.

20
21 STUDY LOCATION: The Proposed Action would take place in Pima County, Arizona, in
22 the USBP Ajo and Casa Grande Station's Areas of Responsibility
23 (AORs), Tucson Sector. The Proposed Action would occur on the
24 Tohono O'odham Nation, within the Chukut Kuk and Gu-Vo
25 Districts, as well as at existing CBP facilities in USBP Tucson Sector.

26
27 PURPOSE AND The purpose of the Proposed Action is to provide improved
28 NEED: surveillance and detection capabilities that facilitate rapid responses
29 to areas of greatest risk for illegal cross-border threats along
30 approximately 63 miles of the U.S. border in the USBP Ajo and Casa
31 Grande Stations' AORs.

32
33 The project is needed to

- 34
35 1) provide more efficient and effective means of assessing cross-
36 border activities
37 2) provide rapid detection and accurate characterization of potential
38 threat
39 3) provide coordinated deployment of resources in the apprehension
40 of cross-border violators
41 4) increase surveillance and interdiction efficiency
42 5) enhance the deterrence of illegal cross-border activity
43 6) enhance agent safety
44 7) enhance safety to border communities

1 PROPOSED ACTION
2 AND ALTERNATIVES
3 CONSIDERED:

4 CBP analyzed three alternatives in this Environmental Assessment
5 (EA). **Alternative 1** is the No Action Alternative. The No
6 Action Alternative reflects conditions within the project area should
7 the Proposed Action not be implemented. Under this alternative,
8 CBP would not construct the proposed IFTs in USBP’s Ajo and Casa
9 Grande Stations’ AORs or improve existing approach roads to these
10 tower sites. USBP’s ability to detect and interdict cross-border
11 violators would not be enhanced; thus, operational efficiency and
12 effectiveness would not be improved within the area covered by the
13 proposed towers. USBP would continue to rely solely on traditional
14 detection methodology that includes traditional sign detection, which
15 requires both patrolling and dragging of roads. The No Action
16 Alternative does not meet the purpose and need for this project.

17 **Alternative 2** is the Proposed Action. The Proposed Action would
18 include the following activities:

- 19 • Construction, operation, and maintenance of 15 new IFT sites
20 (see Table ES-1);
- 21 • Collocation, operation, and maintenance of equipment on two
22 existing, CBP-operated communication towers;
- 23 • Installation of IFT workstations at command and control (C2)
24 facilities at San Miguel Law Enforcement Center (LEC) and
25 USBP Ajo Station;
- 26 • Construction of 14 new access roads, up to 0.24 miles totals,
27 and improvement of up to 70.90 miles of existing approach
28 roads, as well as maintenance and repair of these roads;
- 29 • Use of two existing staging areas for the temporary storage of
30 materials and equipment; and
- 31 • Obtaining rights-of-way (ROWs) from the Bureau of Indian
32 Affairs (BIA) to perform these activities.

33 Each IFT site consists of a tower equipped with a suite of sensors
34 and/or communications equipment. The IFT system would provide
35 radar and video data feeds to the C2 modular facilities at USBP Ajo
36 Station and at the San Miguel LEC, which would be retrofitted to
37 integrate and display data from the IFT units. Approach roads are
38 existing private or public roads used to travel to a tower site. Access
39 roads are short road segments from an approach road into a tower
40 site. Approach road improvements would include reconstructing,
41 widening, or straightening of existing roads, and installing drainage
42 structures. Roadwork also includes performing maintenance and
43 repair within approximately 270 ephemeral washes and installing
44 either a low water crossing or culvert at approximately 195 of these
45 washes.
46

1

Table ES-1. Proposed Tower Sites

Tower ID	Alternative 1 No Action Alternative	Alternative 2 Proposed Action	Alternative 3
TCA-AJO-0216	--	Existing	Existing
TCA-AJO-0305	--	Existing	Existing
TCA-AJO-0446	--	New	New
TCA-AJO-0448	--	New	New
TCA-AJO-0450	--	New	New
TCA-AJO-0452	--	New	New
TCA-AJO-0454	--	New	New
TCA-AJO-0458	--	New	New
TCA-AJO-0460	--	New	New
TCA-AJO-0462	--	New	New
TCA-CAG-0430	--	New	New
TCA-CAG-0432	--	New	New
TCA-CAG-0434	--	New	New
TCA-CAG-0436	--	New	--
TCA-CAG-0438	--	New	New
TCA-CAG-0440	--	New	New
TCA-CAG-0442	--	New	New
TCA-CAG-0444	--	--	New

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Alternative 3 is similar to Alternative 2 except that Alternative 3 includes alternate IFT site TCA-CAG-0444 instead of TCA-CAG-0436 (see Table ES-1). Alternative 3 has the same number of tower sites and similar miles of access roads as the Proposed Action; however, Alternative 3 would include improving up to 68.26 miles of approach roads, which is approximately 2.64 miles less than the Proposed Action. The towers and C2 facilities would be equipped with the same suite of sensor and communications equipment as the Proposed Action. Roadwork would be similar to that of the Proposed Action and would include performing maintenance and repair within approximately 250 ephemeral washes and installing either a low water crossing or culvert within approximately 187 of these washes. Alternative 3 would also include obtaining ROWs from BIA.

Alternatives considered but eliminated from consideration included unmanned aircraft systems, remote sensing satellites, unattended ground sensors, increased CBP workforce, and increased aerial reconnaissance/operations. Although these alternatives or a combination of these alternatives could be valuable tools that CBP may employ in other areas or circumstances of border incursion, they

were eliminated because of logistical restrictions, environmental considerations, or functional deficiencies that fail to meet the purpose for this project.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES:

The Proposed Action would have permanent, negligible impacts on land use. Up to 8.23 acres of the 2.7 million acres that encompass the Tohono O’odham Nation would be converted from undeveloped rangeland to law enforcement facilities. In addition, up to 0.57 acres would be permanently converted for the construction of access roads and up to 214.20 acres would be permanently converted for improving existing approach roads.

CBP is committed to implementing best management practices (BMPs) in Section 5.0 that would avoid or minimize adverse environmental effects on the environment. Temporary, minor impacts would be expected on surface water quality during construction. No impacts on floodplains or wetlands are anticipated. Although there would be minor impacts to potential waters of the United States, BMPs and standard construction procedures would be implemented to minimize the potential for erosion and sedimentation during construction. The impact area for any one of the ephemeral washes would be less than 0.5 acres and would be authorized under Nationwide Permit 14 for Linear Transportation Crossings. The withdrawal of water for construction purposes could have a temporary, minor impact on groundwater resources.

The Proposed Action would have minor impacts on soils, vegetative habitat, and wildlife. Areas with highly erodible soils would be given special consideration when designing the Proposed Action to ensure incorporation of various BMPs, such as straw bales, aggregate materials, and wetting compounds to decrease erosion. Site-specific Stormwater Pollution Prevention Plans would be prepared prior to construction activities and would include pre- and post-construction measures.

The Proposed Action may affect, but is not likely to adversely affect, the Sonoran pronghorn (*Antilocapra americana sonoriensis*), jaguar (*Panthera onca*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*), and yellow-billed cuckoo (*Coccyzus americanus*). The Proposed Action would not adversely affect any designated or proposed critical habitat. Endangered Species Act Section 7 consultation with U.S. Fish and Wildlife Service is ongoing for this project.

1 Based on the archaeological surveys, archival research results, Native
2 American Tribal consultation to date, and the implementation of
3 BMPs, CBP has determined that there would be no adverse effect on
4 any National Register of Historic Places (NRHP) eligible
5 architectural or aboveground resources, NRHP-eligible
6 archaeological resources, traditional cultural properties, or sacred
7 sites. CBP is developing standard operating procedures for this
8 undertaking and National Historic Preservation Act Section 106
9 consultation is ongoing.

10
11 Temporary and minor increases in air emissions would occur during
12 construction of the IFTs, access road construction, and approach road
13 improvement and maintenance and repair. In addition, there would
14 be long-term air emissions during maintenance and operation of the
15 tower sites. Air emissions are estimated to be below the Federal *de*
16 *minimis* thresholds.

17
18 Noise level increases associated with construction would result in
19 temporary, negligible impacts on wildlife. Noise levels associated
20 with the operation and maintenance of the towers would have a
21 permanent, negligible impact on wildlife species.

22
23 Negligible demands on utilities would be required. Communications
24 equipment on the proposed towers would emit electromagnetic
25 radiation (i.e., radio waves and microwaves), and a potential for
26 impacts could occur depending on the location. Any adverse effects
27 on human health would be negligible due to the minimal exposure
28 risk and the elevated locations in which the communications
29 equipment would be positioned. CBP would obtain authorization to
30 use specific frequencies and power levels from the National
31 Telecommunications and Information Administration.

32
33 Construction and staging for towers, access roads, and approach roads
34 would create a temporary, minor impact on roadways and traffic
35 within the region for the purposes of transporting materials and work
36 crews. Tower maintenance would also require that vehicles travel to
37 each IFT site for fuel delivery and maintenance and operation of the
38 proposed towers. Approximately 416 vehicle trips per year are
39 anticipated for tower maintenance and refueling, and these trips
40 would have a long-term, negligible impact on roadways and traffic.
41 Construction vehicles and equipment would use established roads with
42 proper flagging and safety precautions.

43
44 Depending on the location and elevation of an observer, most towers
45 could be visible up to 5 miles away, and some towers may be visible
46 up to 15 miles; therefore, the Proposed Action would have a long-

1 term, moderate impact on the aesthetic and visual qualities of the
2 region. The Proposed Action would not result in exposure of the
3 environment or public to any hazardous materials.
4

5 FINDINGS AND
6 CONCLUSIONS:

7 Based upon the analyses of the Environmental Assessment and the
8 BMPs to be implemented, the Proposed Action would not have a
9 significant adverse effect on the environment. Therefore, no further
10 analysis or documentation (i.e., Environmental Impact Statement) is
11 required under the National Environmental Policy Act (42 U.S.C. §§
12 4321-4347) and its implementing regulations (40 C.F.R. Parts 1550-
13 1508). CBP, in implementing this decision, would employ all
14 practical means to minimize the potential for adverse impacts on the
human and natural environment.

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SECTION 1.0
INTRODUCTION



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1.0 INTRODUCTION

1.1 BACKGROUND

The Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is preparing this Environmental Assessment (EA) to document the analysis of the proposed construction of Integrated Fixed Towers (IFTs) within U.S. Border Patrol (USBP) Ajo and Casa Grande Stations' Areas of Responsibility (AORs).

CBP is the law enforcement component of the DHS responsible for securing the border and facilitating lawful international trade and travel. USBP is the uniformed law enforcement subcomponent of CBP responsible for patrolling and securing the border between the land ports of entry. USBP has developed a detailed technology deployment plan for each USBP sector in Arizona based on current and anticipated operational activity (DHS 2011). CBP's Arizona Border Surveillance Technology Plan (ABSTP) for Tucson Sector includes the utilization of IFTs to provide long-range, persistent surveillance, enabling USBP personnel to detect, track, identify, and classify illegal entries through a series of integrated sensors and tower-based surveillance equipment.

CBP Office of Technology Innovation and Acquisition (OTIA) was established in 2010. OTIA's responsibilities include two primary functions. First, OTIA is charged with ensuring that CBP's technology efforts are properly focused on the mission and integrated across CBP (CBP 2015). Second, OTIA is responsible for strengthening CBP's expertise and effectiveness in acquisition and program management of contract-delivered products and services. USBP and OTIA are the proponents of the IFT project on the Tohono O'odham Nation.

1.2 PROJECT LOCATION

The project is located in USBP Tucson Sector's Ajo and Casa Grande Stations' AORs within Pima County, Arizona (Figure 1-1). The proposed new IFT sites and roadwork would be located within the Chukut Kuk and Gu-Vo Districts of the Tohono O'odham Nation. Activities would also occur at the San Miguel Law Enforcement Center (LEC), at USBP Ajo Station, and at an existing tower site on Bureau of Land Management (BLM) land off State Route (SR) 85.

1.3 PURPOSE AND NEED

The purpose of the Proposed Action is to provide persistent surveillance capability, command and control (C2); and sustainment of support capabilities along approximately 63 miles of the U.S./Mexico border within the Tohono O'odham Nation, in USBP Ajo and Casa Grande Stations' AORs.

This proposal is consistent with the 2012-2016 Border Patrol Strategic Plan, which is a risk-based approach to countering threats through information, integration, and rapid response (CBP 2012a). The Border Patrol Strategic Plan is intended to advance mission functions such as predicting illicit activity, detecting and tracking border crossings, identifying and classifying

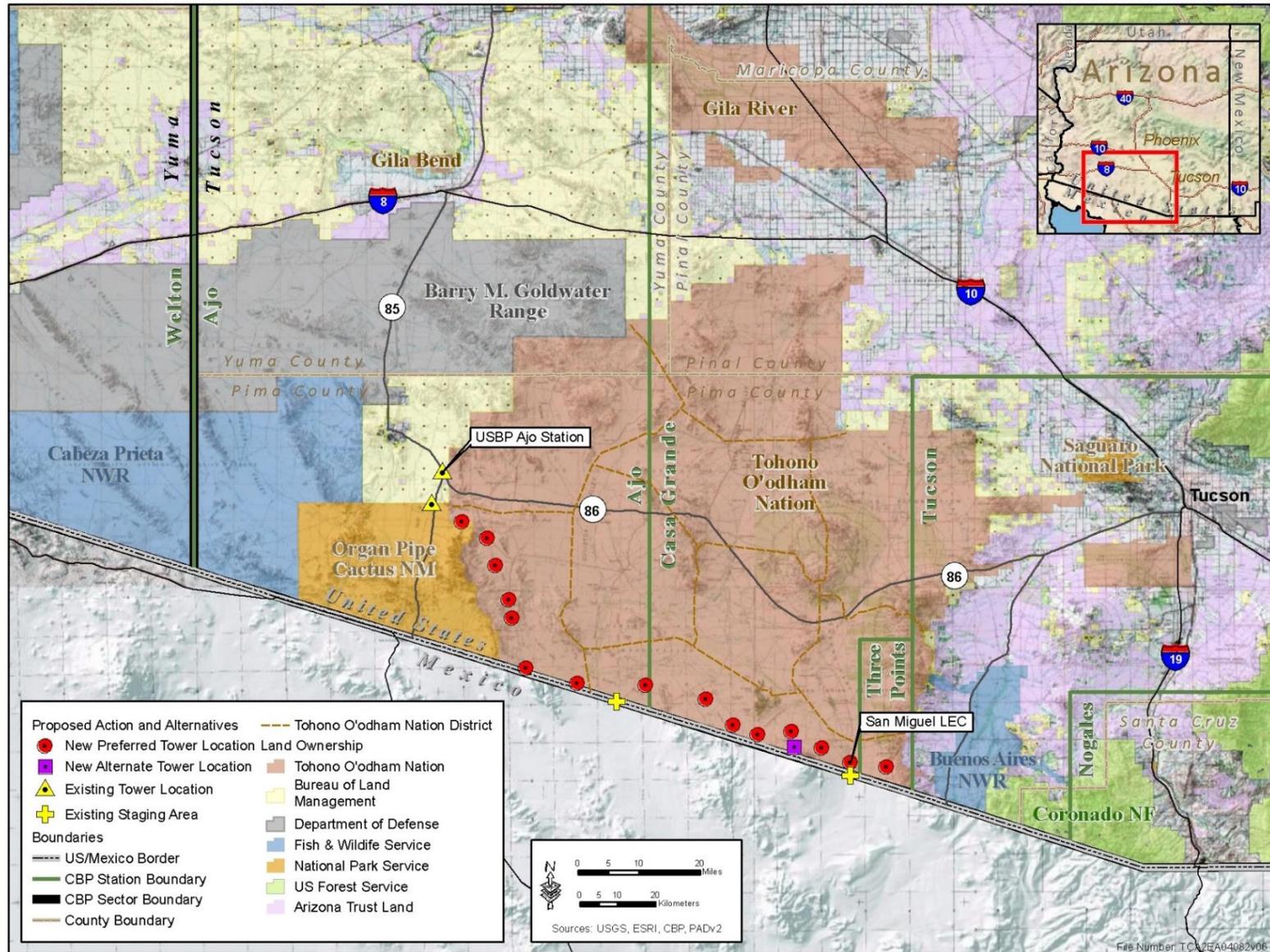


Figure 1-1. Project Vicinity Map

March 2016

1 detections, and responding to and resolving suspect border crossings as threats through
 2 intelligence efforts and prioritized responses and targeted enforcement.

3
 4 The Proposed Action is needed to improve response time and enforcement operations within the
 5 Tohono O’odham Nation. The difficult terrain and a lack of infrastructure within the Tohono
 6 O’odham Nation create a need for a year-round, persistent, technology-based surveillance
 7 capability that would effectively collect, process, and distribute information among USBP
 8 agents. A surveillance system is needed that would allow USBP agents to maintain surveillance
 9 over large areas, contributing to agent safety and increasing operational effectiveness as they
 10 detect, identify, and classify incursions/illegal entry at the border and resolve the incursions with
 11 the appropriate level of response.

12
 13 Specifically, the Proposed Action is needed to

- 14
- 15 1) provide more efficient and effective means of assessing cross-border activities
- 16 2) provide rapid detection and accurate characterization of potential threats
- 17 3) provide coordinated deployment of resources in the apprehension of cross-border
- 18 violators
- 19 4) increase surveillance and interdiction efficiency
- 20 5) enhance the deterrence of illegal cross-border activity
- 21 6) enhance agent safety
- 22 7) enhance safety to border communities

23 24 **1.4 PUBLIC INVOLVEMENT AND AGENCY COORDINATION**

25
 26 In accordance with 40 C.F.R. Parts 1501.7, 1503, and 1506.6, OTIA has initiated public
 27 involvement and agency scoping to identify significant issues related to the Proposed Action.
 28 CBP invited the Tohono O’odham Nation and the Bureau of Indian Affairs (BIA) to participate
 29 as cooperating agencies in the development of the EA to ensure that the analysis meets their
 30 needs. Under the Proposed Action, BIA would issue rights-of-way (ROWs) to CBP for proposed
 31 activities on Tohono O’odham Nation land after the Tohono O’odham Nation has consented to
 32 the ROWs.

33
 34 OTIA is consulting and will continue to consult with appropriate Federal, state, and local
 35 government agencies and the Tohono O’odham Nation throughout the EA process. OTIA is
 36 coordinating this activity with the following agencies:

- 37
- 38 • U.S. Department of the Interior (DOI)
 - 39 ➤ U.S. Fish and Wildlife Service (USFWS)
 - 40 ➤ BIA
 - 41 ➤ BLM
- 42 • U.S. Environmental Protection Agency (EPA)
- 43 • U.S. Section, International Boundary and Water Commission (USIBWC)
- 44 • U.S. Army Corps of Engineers (USACE)
- 45 • Federal Aviation Administration (FAA)
- 46 • National Telecommunications and Information Administration (NTIA)
- 47 • State of Arizona

- 1 ➤ Arizona Game and Fish Department (AGFD)
- 2 ➤ Arizona State Historic Preservation Officer (SHPO)
- 3 ➤ Arizona Department of Environmental Quality (ADEQ)
- 4 • Tohono O’odham Nation
- 5 ➤ Tohono O’odham Nation Department of Natural Resources
- 6 ➤ Tohono O’odham Nation Tribal Historic Preservation Office (THPO)
- 7 • Pima County

8
9 The Draft EA and Draft Finding of No Significant Impact (FONSI) will be available for review
10 for 30 days at the Tohono O’odham Community College Library and the Venito Garcia Library
11 and Archives in Sells, and the Pima County Public Library in Tucson, and will be available
12 electronically at [http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-](http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review)
13 [documents/docs-review](http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review). Appendix A includes correspondence sent or received during the
14 preparation of this document. CBP will provide copies of the Draft EA to all coordinating
15 Federal and state agencies for review and comment.

16
17 This EA is being prepared as follows:

- 18
19 1. Conduct Interagency and Intergovernmental Coordination for Environmental Planning.
20 The first step in this National Environmental Policy Act (NEPA) process was to solicit
21 comments about the Proposed Action from Federal, state, and local agencies and
22 Federally recognized tribes to ensure that their concerns are included in the analysis.
23
- 24 2. Prepare a Preliminary Draft EA. CBP examined the environmental impacts of the three
25 alternatives and prepared a Preliminary Draft EA in 2014, which was available for the
26 Tohono O’odham Nation and BIA to review for 30 days, and a revised Preliminary Draft
27 EA in 2015, which was available for the Tohono O’odham Nation and BIA to review for
28 45 days.
29
- 30 3. Prepare a Draft EA. CBP has incorporated relevant comments and concerns received
31 from the Tohono O’odham Nation and BIA and prepared a Draft EA (this document) for
32 public review.
33
- 34 4. Announce that the Draft EA has been prepared. A Notice of Availability (NOA) will be
35 published in the Tohono O’odham Nation’s *The Runner*, *Ajo Copper News*, and *Arizona*
36 *Daily Star* newspapers to announce the public comment period and the availability of the
37 Draft EA and Draft FONSI. Exhibit 1 presents the NOA that will be published.
38
- 39 5. Provide a public comment period. A public comment period allows interested parties to
40 review the analysis presented in the Draft EA and provide feedback. The Draft EA will
41 be available to the public for a 30-day review at the Tohono O’odham Community
42 College Library in Sells, the Venito Garcia Library and Archives in Sells, and the Pima
43 County Public Library in Tucson as well as electronically at
44 [http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-](http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review)
45 [review](http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review).
46
47

- 1 6. Prepare a Final EA. A Final EA will be prepared following the public comment period.
- 2 The Final EA will incorporate relevant comments and concerns received from all
- 3 interested parties during the public comment period.
- 4
- 5 7. Issue a FONSI (if appropriate). The final step in the NEPA process is the signature of a
- 6 FONSI, if the environmental analysis supports the conclusion that impacts on the quality
- 7 of the human and natural environments from implementing the Proposed Action will not
- 8 be significant. If the environmental impacts of the Proposed Action could be considered
- 9 significant, a Notice of Intent for the preparation of an Environmental Impact Statement
- 10 (EIS) would be published.

11

12 **1.5 FRAMEWORK FOR ANALYSIS**

13

14 The scope of this EA includes the direct, indirect, and cumulative effects on the natural, social,

15 economic, and physical environments resulting from the assessed alternatives. The EA analysis

16 includes the deployment of technology but does not include an assessment of normal, day-to-day

17 operations conducted in the field by CBP agents. The information provided in this EA will assist

18 CBP in determining if the Proposed Action has a significant impact and achieves the objectives

19 of the purpose and need. The process for developing this EA also allows for input and comments

20 on the Proposed Action from the concerned public and interested government agencies, which

21 informs agency decision making.

22

23 CBP will follow applicable Federal, state, local, and tribal laws and regulations. This EA is

24 being developed in accordance with the requirements of the NEPA of 1969 (42 U.S.C. §§ 4321-

25 4347); regulations issued by the Council on Environmental Quality (CEQ) (40 C.F.R. Parts

26 1500-1508); DHS Directive 023-01, *Environmental Planning Program*; DHS Instruction 023-01-

27 001-01, Revision 01; and other pertinent environmental statutes, regulations, and compliance

28 requirements. The EA provides the status of compliance with all applicable environmental

29 statutes, such as the Endangered Species Act (ESA) of 1973, 16 U.S.C. § 1531 et seq., as

30 amended, and the National Historic Preservation Act (NHPA) of 1966, 54 U.S.C. § 300101 et

31 seq., as amended.

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Exhibit 1

NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT FOR
INTEGRATED FIXED TOWERS ON THE TOHONO O’ODHAM NATION
IN THE AJO AND CASA GRANDE STATIONS’
AREAS OF RESPONSIBILITY
U.S. BORDER PATROL TUCSON SECTOR, ARIZONA
U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY
WASHINGTON, DC

The public is hereby notified of the availability of U.S. Custom and Border Protection’s (CBP) Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the construction, operation, and maintenance of 15 new integrated fixed tower sites on the Tohono O’odham Nation, within the Chukut Kuk and Gu-Vo Districts, in Pima County, Arizona. The Proposed Action includes collocating equipment on two existing communication towers and within two command and control facilities in U.S. Border Patrol Tucson Sector. The Proposed Action also includes the construction of 14 new access roads (up to 0.24 miles total) and improvement of approach roads (up to 70.90 miles total) on the Tohono O’odham Nation, as well as maintenance and repair of these roads. Approach roads are existing private or public roads used to travel to a tower site. Access roads are short road segments from an approach road into a tower site. The Proposed Action represents CBP’s plan to develop technology and supporting infrastructure to provide a persistent surveillance capability along approximately 63 miles of the U.S. border in U.S. Border Patrol Tucson Sector. Comments concerning the Draft EA and Draft FONSI will be accepted for a period of 30 days from April 15, 2016, to May 16, 2016. Copies of the Draft EA and Draft FONSI will be available during this period at the Tohono O’odham Community College Library, Highway 86, Milepost 125.5 North, Sells, Arizona; the Venito Garcia Library and Archives, Main Street-Tribal Building, Sells, Arizona; and the Pima County Library, 101 N. Stone Avenue, Tucson, Arizona, as well as electronically at the following URL address: <http://www.cbp.gov/about/environmental-cultural-stewardship/nepa-documents/docs-review>. Comments should be postmarked prior to May 16, 2016, and sent to Mr. Paul C. Schmidt, U.S. Customs and Border Protection, Office of Technology Innovation and Acquisition, 1901 S. Bell Street, Suite 600, Arlington, VA 20598; by facsimile to (571) 468-7391; or by e-mail to OTIAENVIRONMENTAL@cbp.dhs.gov.

SECTION 2.0
PROPOSED ACTION AND ALTERNATIVES



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2.0 PROPOSED ACTION AND ALTERNATIVES

Three alternatives were identified and considered during the planning stages of the proposed project. Alternative 1 is the No Action Alternative. Under this alternative, no IFTs would be constructed or roads would be improved. Alternative 2 is the Proposed Action. The Proposed Action includes the construction of 15 new IFTs, collocation of equipment on 2 existing communication towers, construction of up to 0.24 miles of new access roads, and improvement of up to 70.90 miles of existing approach roads. Similar to the Proposed Action, Alternative 3 consists of the construction of 15 new IFTs, collocation of equipment on 2 existing communication towers, construction of approximately 0.23 miles of new access roads, and improvement of up to 68.26 miles of existing approach roads. The primary difference between the Proposed Action and Alternative 3 is Alternative 3 includes alternate tower site TCA-CAG-0444 instead of preferred tower site TCA-CAG-0436.

USBP agents from Ajo and Casa Grande Stations identified proposed IFT site locations based on operational requirements. Operationally preferred site locations were then further selected based on knowledge of the terrain, environment, land ownership, and operational requirements. This review process resulted in multiple conceptual field laydowns. Mapping programs and modeling and analysis processes were also utilized to develop a laydown that achieved both optimal surveillance and communications capabilities with the minimum number of IFT sites. Over time, operational requirements change in order to mitigate emerging threats or strengthen areas of vulnerabilities. To adapt to changes in operational requirements, the site selection process was repeated in December 2009, January and February 2010, June 2011, and finally in July 2012. A list of IFT sites considered during the conceptual field laydowns is provided in Appendix B. This list was narrowed down to 16 sites that were visited as part of the conceptual field laydown in July 2012.

During the site visits, CBP project team personnel and representatives from the Tohono O'odham Nation's Cultural Affairs Office and Department of Natural Resources evaluated each of the locations based on accessibility, constructability, operability, and environmental considerations. Evaluation considerations included, but were not limited to the following:

- Proximity to existing roads and the potential need for new access roads or improving existing roads, as well as proximity to a power source;
- Basic site conditions such as the terrain, soil type, drainage, available space and slope of the site;
- IFT viewsheds and line of sight available at varying IFT heights;
- Proximity to sensitive biological and cultural resources, waters of the United States, floodplains, wetlands, or wilderness areas; and
- Impacts on the surrounding viewshed or visual resources.

Sixteen sites were evaluated for sensor and communications efficiencies and overall compatibility with IFT network design and connectivity. Eleven sites were relocated or shifted slightly during the site visit due to terrain or access considerations or the presence of cultural and/or sensitive resources or technical requirements. Some sites were shifted multiple times in

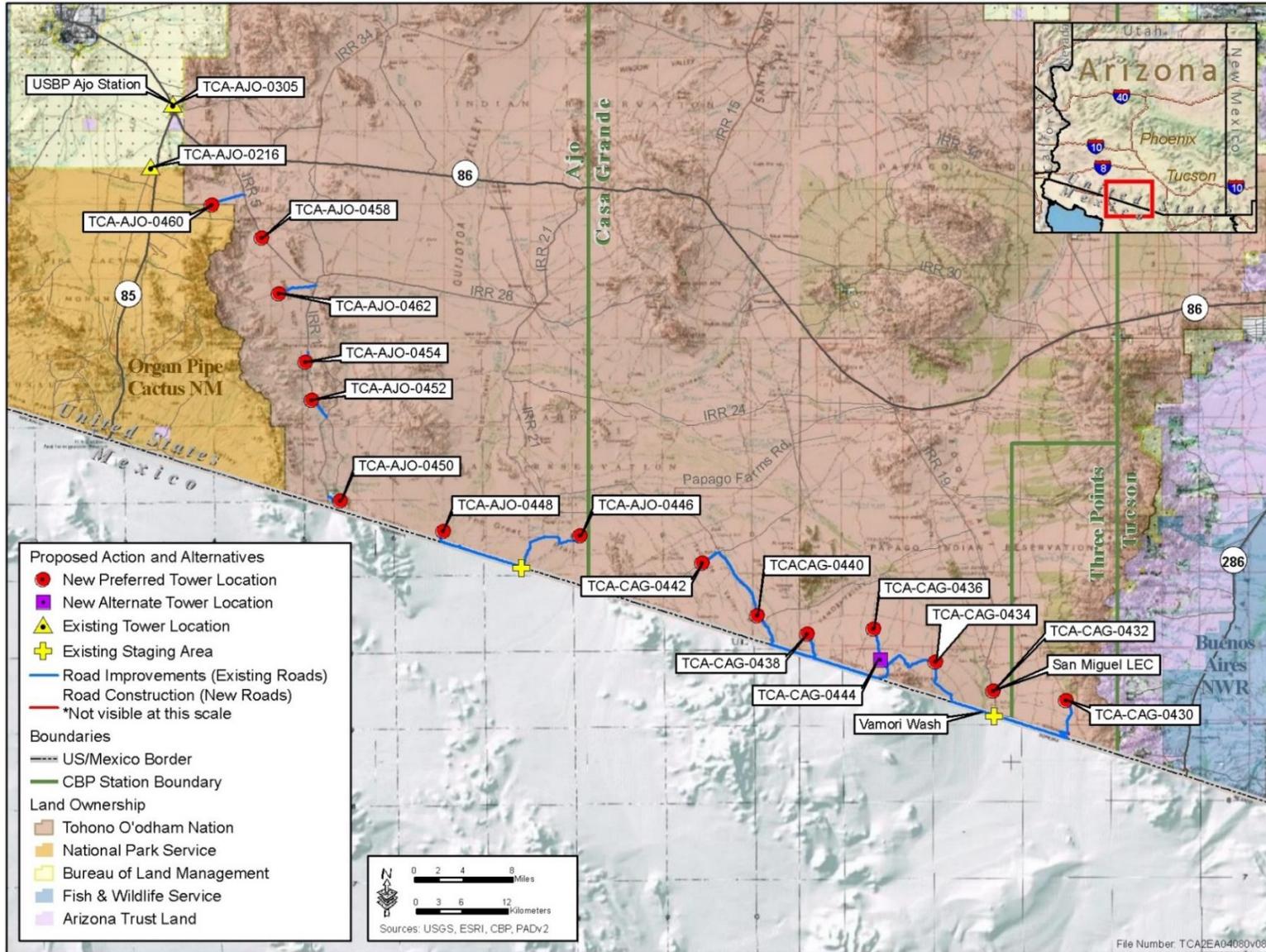


Figure 2-1. IFT Locations

March 2016

1 order to maximize the surveillance and communications capabilities while limiting IFTs to the
2 lowest practical height.

3
4 CBP invited the Tohono O’odham Nation Gu-Vo and Chukut Kuk Districts to visit the proposed
5 sites within those Districts and to solicit feedback on the proposed locations. In September 2012,
6 council members representing the Gu-Vo District visited the proposed site locations with CBP.
7 The Gu-Vo council members requested the relocation of TCA-AJO-0456 due to its proximity to
8 a culturally sensitive area. A new location was selected during the visit (TCA-AJO-0462), and
9 TCA-AJO-0456 was removed from consideration. Council members representing the Chukut
10 Kuk District visited the proposed IFT sites with CBP in October 2012. The Chukut Kuk council
11 members did not object to the proposed site locations. TCA-CAG-0436 was shifted slightly and
12 the proposed route to TCA-CAG-0442 was altered due to sensitive resources identified during
13 the biological and cultural resources surveys.

14
15 Ultimately, 15 new IFT sites and 1 alternate IFT site were selected for further assessment (Figure
16 2-1). Table 2-1 summarizes the permanent and temporary (construction) impacts acreage for the
17 three assessed alternatives.

18
19 **Table 2-1. Temporary and Permanent Impacts Resulting from the Assessed Alternatives***

Alternatives	Permanent Impact (NTE Acres)				Temporary/Construction Impact (NTE Acres)			
	Tower Sites	New Access Roads	Existing Approach Roads	Total	Tower Sites	New Access Roads	Existing Approach Roads	Total
Alternative 1 (No Action)	0	0	0	0	0	0	0	0
Alternative 2 (Proposed Action)	8.23	0.57	214.20	223.00	4.63	1.43	0	6.06
Alternative 3	8.23	0.57	204.36	213.15	4.63	1.41	0	6.04

20 * Actual impacts are not to exceed (NTE) those described here. Temporary/construction impact acres do not include permanent
21 impact areas. For approach roads, estimates assume an existing road width of 20 feet that is previously disturbed.

22 23 **2.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE**

24
25 Alternative 1 is the No Action Alternative. The No Action Alternative serves as a basis of
26 comparison to the anticipated effects of the other action alternatives, and its inclusion in the EA
27 is required by NEPA and CEQ regulations (40 C.F.R. § 1502.14(d)). Under the No Action
28 Alternative, the installation of proposed communications and sensor towers would not take place
29 and improvements to existing approach roads would not be performed. In the absence of the
30 proposed IFTs and their technological capabilities, USBP agents would continue to rely solely on
31 traditional detection methodology that includes traditional sign detection, which requires both
32 patrolling and dragging of roads. Road dragging involves pulling tires or other implements
33 behind a patrol vehicle to smooth the soil surface. The smoothed soil surface enhances USBP
34 agents’ ability to detect tracks (i.e., footprints). Currently, identification, classification, response,
35 and resolution actions require that USBP agents respond to evidence of illegal entry gained

1 through the previously mentioned tools and techniques, as well as through direct observation.
 2 USBP agents, in most cases, follow physical evidence and indicators of the presence of items of
 3 interest (IoIs). Under the No Action Alternative, USBP's ability to detect and interdict cross-
 4 border violators would not be enhanced; thus, operational efficiency and effectiveness would not
 5 be improved within the Ajo or Casa Grande AORs.

7 **2.2 ALTERNATIVE 2: PROPOSED ACTION**

8
 9 Alternative 2 is the Proposed Action. This alternative would include the following activities:

- 11 • Construction, operation, and maintenance of 15 new IFT sites;
- 12 • Collocation (sometimes spelled colocation or co-location), operation, and maintenance of
- 13 equipment on two existing, CBP-operated communication towers;
- 14 • Installation of IFT workstations at C2 facilities at San Miguel LEC and USBP Ajo
- 15 Station;
- 16 • Construction of 14 new access roads, up to 0.24 miles totals, and improvement of up to
- 17 70.90 miles of existing approach roads, as well as maintenance and repair of these roads;
- 18 • Use of two existing staging areas for the temporary storage of materials and equipment;
- 19 and
- 20 • Obtaining ROWs from BIA to perform these activities.

21
 22 The IFT system would provide radar and video data feeds to the IFT workstations at the
 23 respective C2 facility from all IFT units deployed within USBP Ajo or Casa Grande Stations'
 24 AORs. Each IFT would be equipped with a suite of sensors, communications equipment, or a
 25 combination of both sensor and communications equipment. Collocation, installation, or
 26 replacement of sensor suites, communications equipment, or both sensor suites and
 27 communications equipment may occur at the existing towers. This may require structural
 28 upgrades to the existing towers, which include but are not limited to cutting, grinding, welding,
 29 and bolting of metal reinforcements.

30
 31 The two staging areas are located in disturbed areas previously used as staging areas for other
 32 projects, including the U.S./Mexico border fence construction project. The eastern staging area
 33 is located along the Traditional Northern Road, adjacent to the San Miguel Gate. The western
 34 staging area is located at the junction of Papago Farms Road and the Traditional Northern Road.
 35 The Traditional Northern Road is the existing border road on the Tohono O'odham Nation,
 36 which USBP uses and maintains for routine patrolling and operations. For more information, see
 37 Figure 2-1 (page 2-2) and Table 2-3 (pages 2-16 to 2-19). Appendix C includes maps for each
 38 tower site.

39 **2.2.1 Tower Characteristics**

40
 41 The tower structure is a self-standing tower (SST) that would not require guy wires. An SST is a
 42 steel, lattice-style structure, with a base of three circular concrete piers, each approximately 4 to
 43 6 feet in diameter (Figures 2-2 and 2-5). Other foundation types may be used depending on the
 44 site-specific geotechnical characteristics. Depth of the foundations is dependent on tower height
 45 and geotechnical characteristics at each tower site, but would be expected to be less than 60 feet

1 below ground surface (bgs). SSTs would not extend greater than 180 feet above ground level
2 and would be silver colored and galvanized.

3
4 Each tower would have the subsequent design, power requirements, and site and fence enclosure
5 footprint described below, unless otherwise noted in the detailed proposed tower site discussions
6

7 Tower Footprint

8 Tower site dimensions would be subject to some adjustment to address site-specific constraints,
9 such as topographical conditions, drainage/run-off issues, and environmental or cultural resource
10 constraints. The typical permanent tower site is anticipated to be 50 feet wide by 50 feet long,
11 but would not exceed 160 feet wide by 160 feet long. Each permanent tower site footprint would
12 include a permanent parking area for vehicles and may include a fire buffer beyond the perimeter
13 fence (Figure 2-3). The fire buffer would not exceed 30 feet wide on any perimeter side and
14 would depend on topographic, environmental, and operational conditions. Temporary
15 construction areas for the tower sites would be typically 100 feet wide by 100 feet long,
16 surrounding the permanent tower site, but would not exceed 200 feet wide by 200 feet long.
17 Staging of construction equipment and materials, as necessary, would occur within the temporary
18 construction area. Both permanent impact areas and temporary construction areas may be the
19 shape of a square or some other polygon depending on site-specific conditions. Tower footprints
20 would be confined to the dimensions mentioned above.
21

22 Regardless of each tower site's configuration, the total area of permanent disturbance for each
23 tower site would not exceed 0.59 acres or 25,600 square feet (100'x100' plus a 30' fire buffer);
24 and the temporary construction disturbance for each site would not exceed 0.33 acres or 14,400
25 square feet (40,000 square feet minus 25,600 square feet). The total permanent and temporary
26 disturbance areas for all tower sites are estimated to be up to 8.23 acres and 4.63 acres
27 respectively. TCA-AJO-216, TCA-AJO-305, and TCA-CAG-0432 are not included in this
28 estimate because their disturbance areas would be confined to the footprint of existing CBP-
29 operated facilities.
30

31 Tower Perimeter Fence Enclosure

32 Each tower site would meet the minimum-security requirements for CBP tower sites, including
33 the installation of a perimeter fence. The perimeter fence footprint would encompass an area up
34 to 10,000 square feet at each tower site, depending on tower site configuration. Typically, an
35 8-foot-high perimeter fence, consisting of a 7-foot-high chain-link fence and a 1-foot barbed wire
36 outrigger, would be erected around the site perimeter to prevent unauthorized access. It is
37 anticipated that the fence would be galvanized and silver colored. A temporary fence may also
38 be erected around the tower site's temporary construction area during construction of the tower
39 sites.
40

41 Tower Equipment Shelter

42 An equipment shelter would be located within the perimeter fencing of each proposed tower site.
43 The shelters may be air conditioned to maintain proper equipment operating temperatures. The
44 equipment shelters may also be equipped with an air blower that forces filtered ambient air
45 through the shelter to cool electronics during normal tower operations.
46

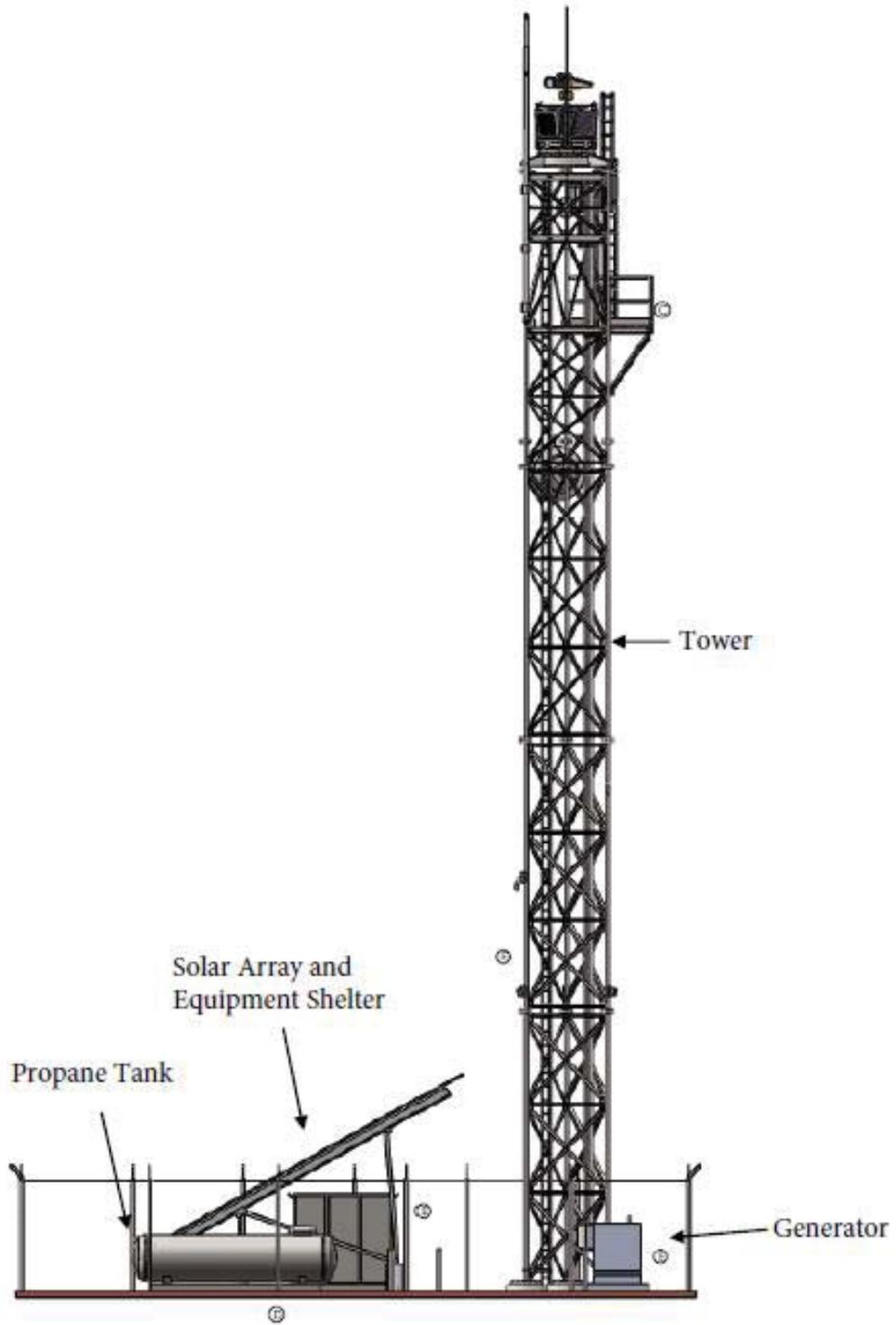
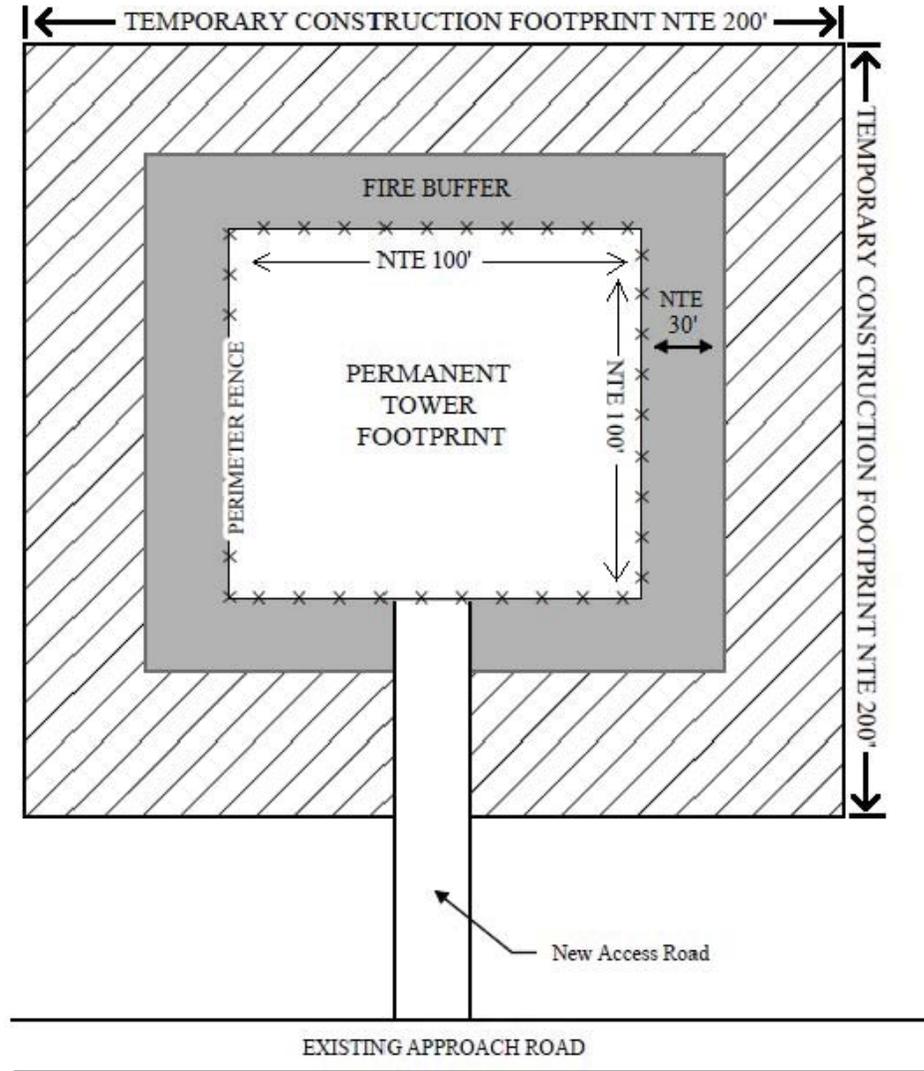


Figure 2-2. Typical IFT Site Portfolio. Actual tower structure and configuration may vary.

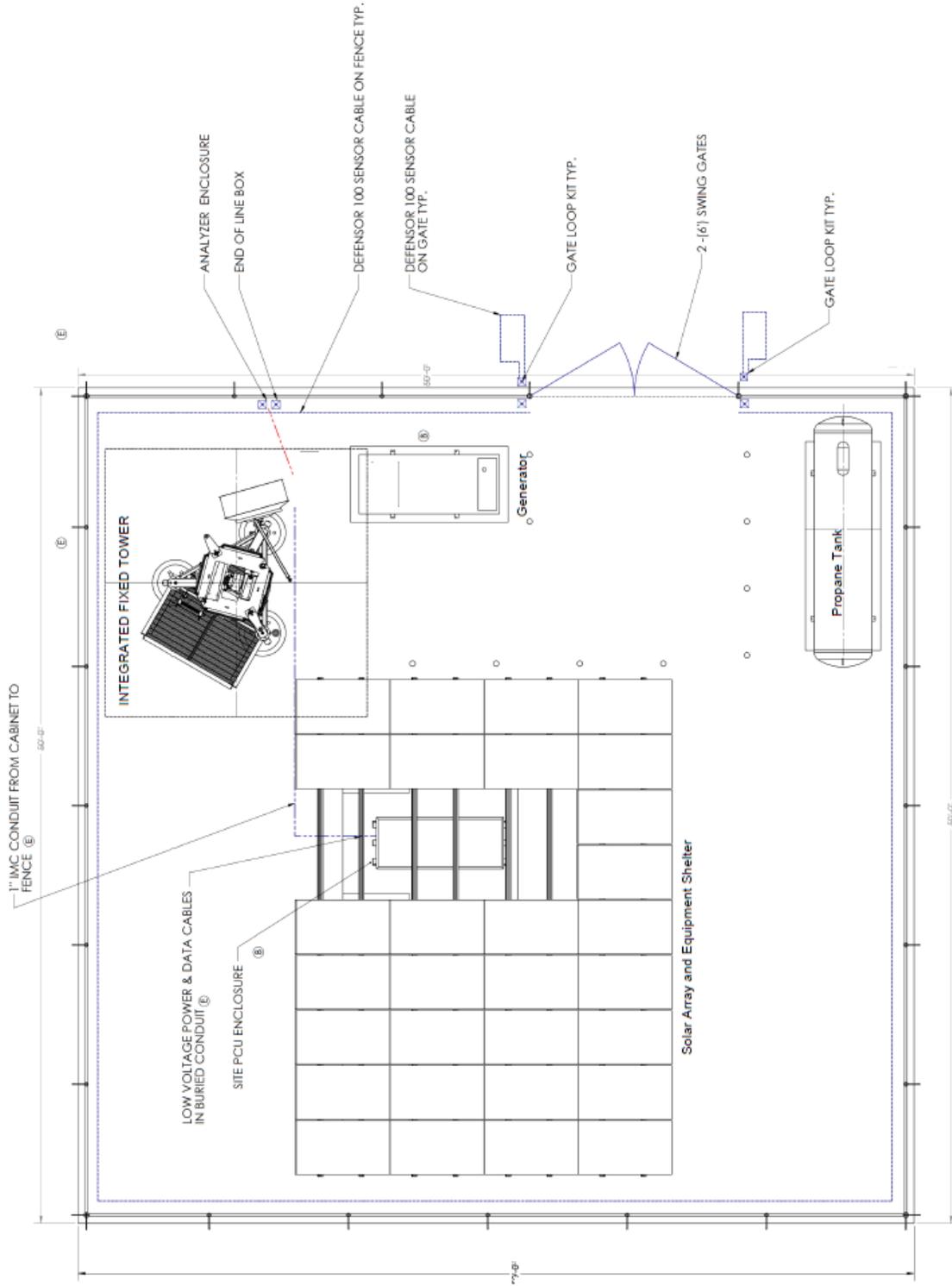
December 2015



NOT TO SCALE

Figure 2-3. Tower Construction Footprint Schematic

March 2016



March 2016

Figure 2-4. Typical Tower Site Laydown. Actual tower site configuration may vary.

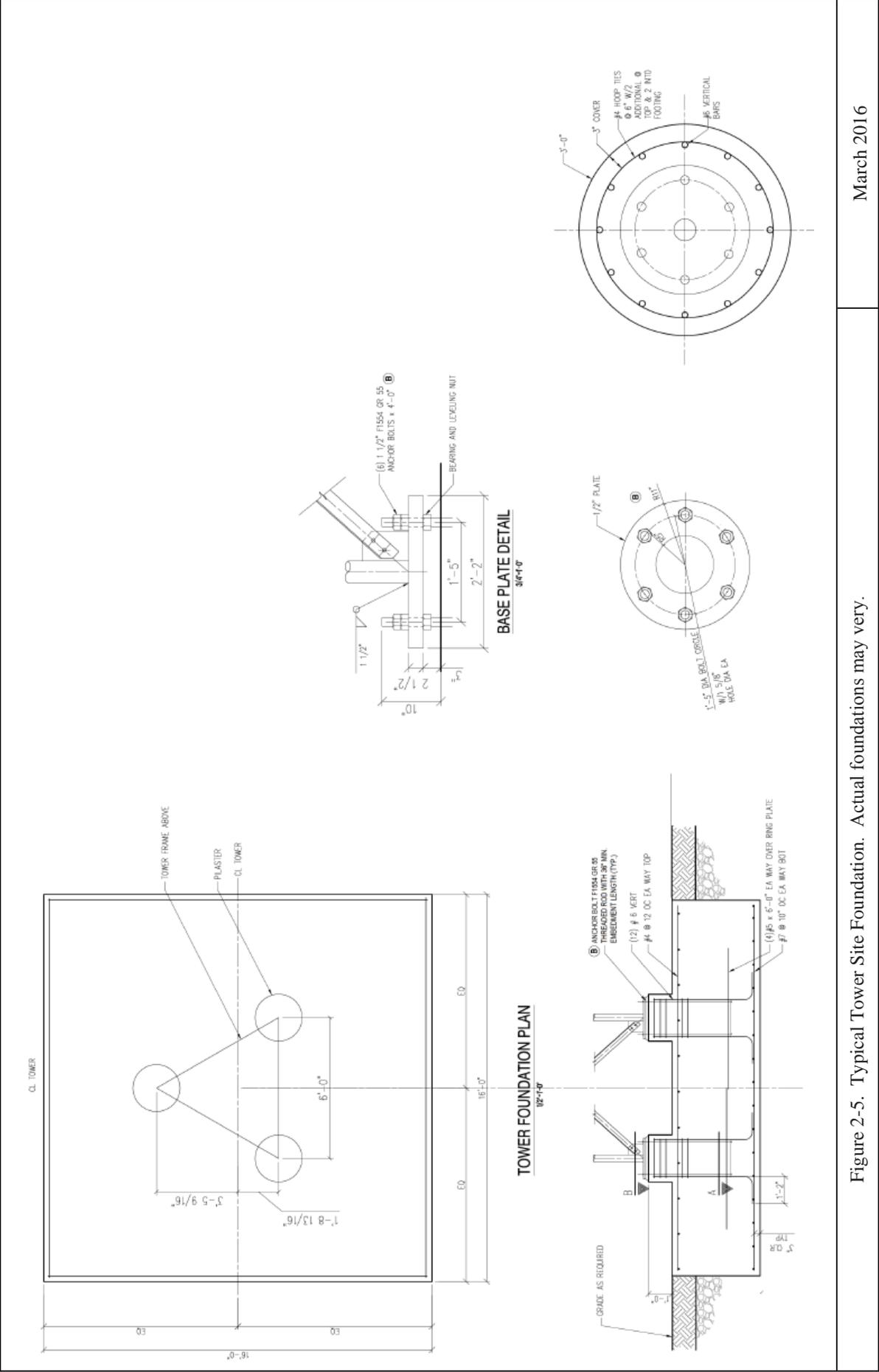


Figure 2-5. Typical Tower Site Foundation. Actual foundations may vary.

March 2016

1 Tower Power Sources

2 Each IFT would be powered by either commercial grid power (where available) with a backup
 3 propane generator or a dual power system consisting of a propane generator and alternate power
 4 source with charged batteries. Alternate power sources could include solar panels or hydrogen
 5 fuel cells. A 1,000-gallon propane fuel tank would be installed at each tower site to serve the
 6 generators. For towers not powered by commercial grid power, mission equipment loads would
 7 be serviced directly from a combination of solar panel and battery during daylight hours. During
 8 periods without available alternate power generation, equipment loads would be serviced by the
 9 generator alone. The generator would support high-rate battery charging when charging is
 10 required.

11
 12 The following new towers may utilize grid power: TCA-CAG-0432, TCA-CAG-0442, TCA-
 13 AJO-0452, TCA-AJO-0454, and TCA-AJO-0458. All power lines would be installed either
 14 overhead or in buried cables from the main trunk line to the tower site shelter. Where
 15 commercial power is utilized, the installation of overhead or buried lines would be placed within
 16 surveyed road construction buffer areas, all of which would be field verified to identify potential
 17 impacts on biological and cultural resources along approach and access roads prior to
 18 construction. For more information, see Table 2-3.

19 20 Fiber Optics

21 Fiber-optic communication services may be installed within the C2 facilities and at IFTs TCA-
 22 CAG-0432, TCA-AJO-0452, and TCA-AJO-0454. Fiber-optic cables would be buried from the
 23 main line to the tower site shelter. The fiber-optic cables would be placed within surveyed road
 24 construction buffer areas, all of which would be field verified to identify potential impacts on
 25 biological and cultural resources prior to construction.

26 27 Sensor and Communications Equipment

28 Combination sensor and communication towers include equipment associated with both sensor
 29 and communication towers. The exact number and type of equipment depends on the number
 30 and types of cameras used, the area to be monitored, and other design variables. Typical designs
 31 for the sensor and communication towers consist of the following components:

32
 33 Communication Towers:

- 34 • Parabolic dishes
- 35 • Microwave relays; and/or
- 36 • Data-receiving communications equipment

37
 38 Sensor and Communication Towers would also include:

- 39 • Multiple cameras (electro-optical/infrared sensors, video cameras)
- 40 • Radio-frequency radar
- 41 • Data-receiving communications equipment
- 42 • Spotlights
- 43 • Laser illuminators/range finders

44
 45 Towers generally require line-of-sight to ensure unobstructed microwave transmission signals
 46 from tower to tower. Components would be mounted on each tower between 20 and 180 feet

1 above ground level, depending on the local terrain. Cameras and communications equipment
2 would be installed at heights that would ensure satisfactory line-of-sight and provide clear
3 pathways for transmission of information to communication towers at USBP Ajo or Casa Grande
4 Stations. Camera systems on the IFT towers may be equipped with an eye-safe laser illuminator.
5 The eye-safe laser illuminator would be used to direct agents in the field and in the air to IoIs
6 being viewed by the sensor operator. Agents equipped with night vision goggles (NVG) are able
7 to readily locate the beam and locate IoIs without alerting them. The laser is eye-safe at any
8 distance and is an agent safety device that enhances the ability to locate IoIs, by illuminating
9 them with a beam only visible with NVGs.

10
11 As part of the overall spectrum management process, the National Telecommunications and
12 Information Administration (NTIA) and the Federal Communications Commission (FCC) have
13 developed radio regulations to help ensure that the various radio services operate compatibly in
14 the same environment without unacceptable levels of radio frequency interference and emissions.
15 While the communications systems and the frequencies in which they are operated are
16 considered law enforcement sensitive and cannot be provided to the public, compliance with
17 FCC and NTIA regulations is required and ensures that recognized safety guidelines are not
18 compromised. All transmit frequencies used as part of the Proposed Action would be
19 coordinated with the NTIA.

20
21 USFWS's *Service Guidance on the Siting, Construction, Operation and Decommissioning of*
22 *Communications Towers and Recommendations for Design and Construction of Cell Phone and*
23 *Other Towers* would be implemented to include actions to reduce nighttime atmospheric lighting
24 and the potential adverse effects of nighttime lighting on migratory bird and nocturnal flying
25 species (USFWS 2000, 2015b). The proposed tower sites may be lighted for security purposes.
26 Security lighting may consist of a "porch light" on the tower shelter controlled by a motion
27 detector. When so equipped, the light would be shielded to avoid illumination outside the
28 footprint of the tower site. The proposed IFTs may have infrared lighting installed for aviation
29 safety; and, if installed, any such lighting would be compatible with NVG usage.

30 31 **2.2.2 Construction of Communications and Sensor Towers**

32 The permanent tower site would be mechanically cleared of vegetation and graded for the
33 construction of IFT sites. Precast concrete pads would be installed as foundations for the
34 equipment shelter/solar array, generator, and generator fuel tank (see Figure 2-4). The shape of
35 the permanent tower site footprint may vary depending on terrain and sensitive resources within
36 the area. The temporary construction area, which would be around the permanent tower site
37 footprint, may be cleared but would not be graded. The temporary construction area would be
38 used for parking construction vehicles and staging construction equipment and materials during
39 construction activities. Following construction activities, temporary impact areas would be
40 revegetated with a mixture of native plant seeds, nursery plantings, and/or allowed to revegetate
41 naturally according to the site-specific plans. Two main staging areas, located in previously
42 disturbed areas, would also be utilized for the storage of equipment and materials. The following
43 is a list of heavy equipment and vehicles that may be used during each phase of IFT site
44 construction:

- 1 • Front-end loader or equivalent
- 2 • Drill rig
- 3 • Excavator
- 4 • Post hole digger
- 5 • Water truck
- 6 • Crane
- 7 • Bulldozer
- 8 • Concrete trucks (up to two)
- 9 • Dump trucks (up to two)
- 10 • Flatbed delivery truck
- 11 • Crew trucks (up to six)

12
 13 Activities are anticipated to begin on or about the summer of 2016. Preparation of the tower
 14 sites and roads is anticipated to be completed within 60 to 180 days after the start of
 15 construction; however, it may take up to 2 years to improve certain approach road segments.
 16 After the tower sites and roads are prepared, the tower construction would begin within 30 to 180
 17 days. Tower construction, including technology installation and checkout procedures, would be
 18 completed within 10 to 16 months from the initiation of tower construction activities. The
 19 installation of the sensor payload would require approximately 2 days per tower site and includes
 20 up to 12 people, including delivery trucks and personnel vehicles. Following the completion of
 21 the sensor payload installation, equipment testing and system acceptance testing is conducted to
 22 check the operability of the systems. The exact details of this testing are not currently known.
 23 Based on past experience, it is anticipated that testing may require personnel to drive vehicles,
 24 ride horses, fly ultralight aircraft, and/or walk multiple routes near different IFTs for a 2- to 3-
 25 hour period either individually or as a group. CBP would identify these routes and coordinate
 26 with the Tohono O’odham Nation and other affected landowners and stakeholders as required
 27 prior to conducting these tests. All testing vehicles would travel on existing roads and testing
 28 personnel would travel by vehicles on existing roads to the walk routes. Testing would occur
 29 during an approximately 28-day period for all tower sites. Based on past tower construction
 30 experience, the total time for construction, including inspections and operational testing of
 31 equipment, for each proposed tower site is expected to be less than 24 months.

32 33 **2.2.3 Operation and Maintenance of Communications and Sensor Towers**

34 The generator may be expected to operate a total of 4 to 8 hours per day to bulk-charge system
 35 batteries. Run times are expected to be shorter on sunny days, when the solar array provides
 36 more of the system’s operating power. Generator run times for systems connected to the
 37 commercial power grid are limited to 1 to 5 hours twice per month for maintenance purposes.
 38 System checking would occur during off-grid operational schedules or if grid power is
 39 interrupted, and the generator would be operated temporarily, as needed, until grid power is
 40 again available.

41
 42 Tower site maintenance includes scheduled and unscheduled maintenance. Scheduled
 43 maintenance would include any planned preventive maintenance, including refueling generator
 44 tanks, as well as changing oil, other required lubricants, filters, and any shelf-life item of the
 45 system. Tower maintenance would also include clearing vegetation within the permanent tower
 46 site footprint and clearing combustibles within the fire buffer. Unscheduled maintenance would

1 include removing and replacing failed tower sensor systems or shelter components. Both
 2 scheduled and unscheduled tower maintenance would require maintenance vehicles to travel to
 3 and from the IFT sites. The Chukut Kuk and Gu-Vo Districts of the Tohono O’odham Nation
 4 would be given a 2-week advance notice of the non-emergency maintenance trips within their
 5 respective districts; however, the entire process for obtaining permission to access the tower sites
 6 may take approximately 60 days.

7
 8 **Table 2-2. Summary of Annual Vehicle Trips Required for Tower Maintenance and**
 9 **Refueling for the Proposed Action**

Tower	Power Source/Fiber	Maintenance Trips	Refueling Trips	Total
TCA-AJO-0446	Dual Power System	24	12	36
TCA-AJO-0448	Dual Power System	24	12	36
TCA-AJO-0450	Dual Power System	24	12	36
TCA-AJO-0452	Grid Power and Fiber Optics	13	1	14
TCA-AJO-0454	Grid Power and Fiber Optics	13	1	14
TCA-AJO-0458	Grid Power	13	1	14
TCA-AJO-0460	Dual Power System	24	12	36
TCA-AJO-0462	Dual Power System	24	12	36
TCA-CAG-0430	Dual Power System	24	12	36
TCA-CAG-0434	Dual Power System	24	12	36
TCA-CAG-0436	Dual Power System	24	12	36
TCA-CAG-0438	Dual Power System	24	12	36
TCA-CAG-0440	Dual Power System	24	12	36
TCA-CAG-0442	Grid Power	13	1	14

10
 11 The number of maintenance trips and refueling trips would vary depending on tower function
 12 (i.e., sensor) and power type (i.e., commercial grid power) (Table 2-2). Generally, sensor towers
 13 require more maintenance and fuel than communication towers. Towers that are not serviced by
 14 grid power also require more maintenance and fuel. Based on past tower operation and
 15 maintenance experience, it is anticipated that one vehicle trip to and from each of the proposed
 16 tower sites is required per maintenance visit. The estimates provided in Table 2-2 are the
 17 maximum number of annual maintenance and refueling trips required per tower. It is anticipated
 18 that tower sites connected to commercial grid or fiber optic would require maintenance 6 to 13
 19 times a year depending on tower function. A total of approximately 416 vehicle trips per year
 20 would be anticipated for tower maintenance and refueling. Tanker trucks with dual rear tires
 21 and/or rear dual axles with a gross vehicle weight of up to 30,000 pounds are anticipated to be
 22 used to deliver fuel to each applicable tower.

23 **2.2.4 Roadwork**

24 CBP would need to construct access roads and improve approach roads to move equipment,
 25 materials, and personnel to and from the tower sites during construction, maintenance, and
 26 operation of the tower sites. Approach roads are existing private or public roads used to travel to
 27 a tower site. Access roads are short road segments from an approach road into a tower site. All
 28 approach and access roads requiring roadwork for this project are located on the Tohono
 29 O’odham Nation.
 30
 31

1 CBP Border Patrol Facilities and Tactical Infrastructure guidelines, standards, and details for
2 road construction would be adhered to for all proposed roadwork in coordination with the
3 Tohono O’odham Nation. The Proposed Action would not include any roadwork on public
4 roads. Should the contractor damage any public road during the course of this action, Arizona
5 Department of Transportation (ADOT) guidelines, standards, and details for road construction
6 would be followed for any required repairs.

7 8 Access Road Construction

9 Fourteen new access roads would be constructed prior to and during tower construction to
10 provide access to IFT sites from approach roads. The average length for an access road would be
11 approximately 0.02 miles (84 feet). The total length of all access roads combined would be less
12 than 1 mile, currently estimated at up to 0.24 miles. The access roads would be constructed to
13 provide a minimum for safe vehicle passage. Each access road would have a 12- to 20-foot-wide
14 driving surface depending on terrain. Construction equipment would stay within the temporary
15 construction areas for the access roads and tower sites. CBP and CBP contractors would assess
16 the need for road surfacing, including the need for aggregate or surface stabilizer and drainage
17 structures, which could prevent adverse impacts on roads, drainages, and adjacent areas.
18 Drainage structures include, but are not limited to, ditches, culverts, and low-water crossings.
19 Construction areas that are currently being worked would be flagged in coordination with the
20 Tohono O’odham Nation. Access roads would be constructed by mechanically removing
21 vegetation and grading native soils. Construction of access roads would result in up to 0.57 acres
22 of permanent impacts and up to 1.43 acres of temporary impacts total. In order to minimize
23 potential erosion, temporary impact areas would be revegetated with a mixture of native plant
24 seeds, nursery plantings, and/or allowed to revegetate naturally.

25 26 Approach Road Improvements

27 The Proposed Action requires improving up to 70.90 miles of existing approach roads prior to
28 and during tower construction (Appendix C). All approach roads would be improved to have a
29 driving surface of up to 12- to 16-foot wide with a 2-foot shoulder on each side of the road.
30 Approach roads would be improved to the design standard for an all-weather road, a graded-
31 earth road, or a hybrid of the two. Road resurfacing, including aggregate or surface stabilizers,
32 may be required to prevent adverse impacts on roads, drainages, and adjacent areas or resources.

33
34 Improvements may include reconstructing, widening, realigning, or straightening the existing
35 road and/or installing ditches, turnouts, guardrails, or erosion protection, such as riprap and
36 gabion headwalls. In addition, approach roadwork would include installing a low water crossing
37 or culvert within approximately 195 ephemeral washes. Road improvements would require a
38 permanent 30-, 50-, 70-, or 100-foot wide disturbance area depending on design and safety
39 requirements. Assuming an existing road width of 20 feet wide, up to 178.33 acres of existing
40 approach roads would be improved and up to 214.20 acres of previously undisturbed land
41 outside the current width of the existing approach roads would be permanently disturbed for
42 approach road improvements.

43 44 Road Maintenance and Repair

45 Road maintenance and repair would include minor grading, leveling, re-sheeting, or rebuilding
46 of approach and access roads and installing drainage structures. Road maintenance and repair

1 would occur within approximately 270 ephemeral washes subject to environmental and cultural
2 resource constraints. At the request of the Tohono O’odham Nation, CBP would install flood
3 gauges and signs warning vehicle traffic of floodwaters along existing approach roads at
4 approximately 61 identified washes. It is anticipated that road maintenance and repair may occur
5 up to six times per year, as necessary. In order to minimize potential erosion, any temporary
6 impact areas would be revegetated with a mixture of native plant seeds, nursery plantings, and/or
7 allowed to revegetate naturally.

8 9 **2.2.5 Real Estate**

10 CBP would seek long-term and temporary ROWs from BIA after the Tohono O’odham Nation
11 has consented to the issuance of the ROWs. CBP would acquire long-term ROWs for all new
12 IFT sites and access roads, except for TCA-CAG-0432, which would be within an existing CBP-
13 operated facility that has an active lease. CBP would also be acquiring temporary ROWs for all
14 staging areas and temporary construction areas around the new tower sites and access roads. In
15 addition, CBP would acquire long-term ROWs for all access and approach roads. This would
16 include ROWs for the low water crossings along the Traditional Northern Road but would not
17 include roads for which CBP already possesses a real estate interest or roads that are part of the
18 Indian Reservation Road (IRR) System. The dimensions of both the long-term and temporary
19 ROWs would be subject to some adjustment to address site-specific constraints. See Tables 2-1
20 and 2-3 for more information.

21
22 TCA-AJO-0216 and TCA-AJO-305 are existing communication towers. TCA-AJO-216 is
23 located on land managed by CBP. TCA-AJO-305 is located on BLM land. All proposed
24 activities at these facilities would occur within the current footprints of the facilities and no
25 additional real estate agreements would be required to perform the proposed activities at these
26 facilities.

Table 2-3. Summary of the Proposed Action Tower Sites*

Tower ID	TCA-AJO-0216**	TCA-AJO-0305**	TCA-AJO-0446	TCA-AJO-0448	TCA-AJO-0450
Common Name	Existing Block 1	Ajo Station Tower	Secret Hill	San Simon Thicket	Managers
Status	Existing	Existing	New	New	New
Function	Communications	Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	100 feet	140 feet	120 feet	120 feet	160 feet
New Tower Site Permanent Area	N/A	N/A	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	N/A	N/A	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	No roadwork	No roadwork	<10 feet (20 feet wide)	25 feet (20 feet wide)	180 feet (20 feet wide)
Existing Approach Road Improvements	No roadwork	No roadwork	3.7 miles (50 feet wide for 3.6 miles and 70 feet wide for 0.1 mile)	10.8 miles (30 feet wide for 9.1 miles, 50 feet wide for 1.4 miles, and 100 feet wide for 0.3 miles)	1.2 miles (50 feet wide for 1.2 miles and 70 feet wide for 0.04 miles)
Power System	Existing Grid	Existing Grid	Dual Power System	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Existing Propane 1,000 gallons	N/A	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	BLM	CBP	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)

* All dimensions are not to exceed the dimensions stated; actual dimensions may be less but would not be greater.

** CBP assessed the construction of these towers in an EA for the Proposed Secured Border Initiative-Network (SBInet) Tower Project Ajo Station's AOR USBP Tucson Sector (CBP 2009). These towers are currently operational.

Table 2-3 (cont.)

Tower ID	TCA-AJO-0452	TCA-AJO-0454	TCA-AJO-0458	TCA-AJO-0460	TCA-AJO-0462
Common Name	7/13 South	7/13 North	Kuakatch	Gunsight	Dirt Tank
Status	New	New	New	New	New
Function	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	140 feet	140 feet	120 feet	180 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	270 feet (20 feet wide)	310 feet (20 feet wide)	110 feet (20 feet wide)	< 10 feet (20 feet wide)	65 feet (20 feet wide)
Existing Approach Road Improvements	1.8 miles (50 feet wide for 1.7 miles and 70 feet wide for 0.05 miles)	0.9 miles (50 feet wide for 0.8 miles and 70 feet wide for 0.08 miles)	0.03 miles (up to 70 feet wide)	2.6 miles (50 feet wide for 2.3 miles and 70 feet wide for 0.3 miles)	2.7 miles (50 feet wide for 2.6 miles, and 70 feet wide for 0.03 miles)
Power System	Grid Power/Generator	Grid Power/Generator	Grid Power/Generator	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)

Table 2-3 (cont.)

Tower ID	TCA-CAG-0430	TCA-CAG-0432*	TCA-CAG-0434	TCA-CAG-0436	TCA-CAG-0438
Common Name	Trading Post and 2 Mile Drag	San Miguel LEC	Ice Cream Truck	Dead Cow	Vamori and Itak Road
Status	New	New	New	New	New
Function	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	120 feet	120 feet	120 feet	160 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	N/A*	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	70 feet long (20 feet wide)	No roadwork	85 feet long (20 feet wide)	35 feet (20 feet wide)	50 feet (20 feet wide)
Existing Approach Road Improvements	9.9 miles (30 feet wide for 5.2 miles, 50 feet wide for 4.4 miles, 70 feet wide for 0.1 miles, 100 feet wide for 0.3 miles, and 0.7 acres for two intersection realignments)	No roadwork	7.6 miles (30 feet wide for 3.3 miles, 50 feet wide for 4.1 miles, 100 feet wide for 0.2 miles, and 0.25 acres for installing slope stability structures)	2.6 miles (50 feet wide)	8.3 miles (30 feet wide for 3.3 miles, 50 feet wide for 3.7 miles, 70 feet wide for 0.02 mile, and 100 feet wide for 1.3 miles)
Power System	Dual Power System	Grid Power/Generator	Dual Power System	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)

* The tower site would be located within an existing facility. CBP previously discussed the possible construction of a 100-foot IFT at San Miguel LEC in a Categorical Exclusion Determination for the expansion of San Miguel LEC and Papago Farms Forward Operating Base (CBP 2013b).

Table 2-3 (cont.)

Tower ID	TCA-CAG-0440	TCA-CAG-0442
Common Name	Tecolote to Toro's Ranch Road	Serapo Road to Onion Stand
Status	New	New
Function	Sensor and Communications	Sensor and Communications
Type	SST	SST
Height	120 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	15 feet (20 feet wide)	< 10 feet (20 feet wide)
Existing Approach Road Improvements	6.2 miles (30 feet wide for 2.6 miles, 50 feet wide for 2.8 miles, and 100 feet wide for 0.07 miles)	7.4 miles (50 feet wide)
Power System	Dual Power System	Grid Power/Generator
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)

2.3 ALTERNATIVE 3

Alternative 3 is similar to the Proposed Action. Alternative 3 would include the following activities:

- Construction, operation, and maintenance of 15 new IFT sites;
- Collocation, operation, and maintenance of equipment on two existing, CBP-operated communication towers;
- Installation of IFT workstations at C2 facilities at San Miguel LEC and USBP Ajo Station;
- Construction of 14 new access roads, up to 0.23 miles totals, and improvement of up to 68.26 miles of existing approach roads, as well as maintenance and repair of these roads;
- Use of two existing staging areas for the temporary storage of materials and equipment; and
- Obtaining ROWs from BIA to perform these activities.

The primary difference between the Proposed Action and Alternative 3 is that Alternative 3 would include alternate tower site TCA-CAG-0444 instead of preferred tower site TCA-CAG-0436. The same suite of sensor and communications equipment as described in the Proposed Action would be mounted on these IFTs. Approach road improvement would be similar to those of the Proposed Action and would include performing maintenance and repair of roads within 250 ephemeral washes and installing either a low water crossing or culvert in approximately 187 of these washes. Assuming an existing road width of 20 feet wide, up to 171.91 acres of existing approach roads would be improved and up to 204.36 acres of previously undisturbed land outside the current width of the existing approach roads would be permanently disturbed for approach road improvements. See Figure 2-1 (page 2-2) and Table 2-4 for more information. Maps for each of the proposed IFT sites are provided in Appendix C.

Table 2-4. Summary of the Alternate 3 Tower Sites*

Tower ID	TCA-AJO-0216**	TCA-AJO-0305**	TCA-AJO-0446	TCA-AJO-0448	TCA-AJO-0450
Common Name	Existing Block 1	Ajo Station Tower	Secret Hill	San Simon Thicket	Managers
Status	Existing	Existing	New	New	New
Function	Communications	Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	100 feet	140 feet	120 feet	120 feet	160 feet
New Tower Site Permanent Area	N/A	N/A	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	N/A	N/A	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	No roadwork	No roadwork	<10 feet (20 feet wide)	25 feet (20 feet wide)	180 feet (20 feet wide)
Existing Approach Road Improvements	No roadwork	No roadwork	3.7 miles (50 feet wide for 3.6 miles and 70 feet wide for 0.1 mile)	10.8 miles (30 feet wide for 9.1 miles, 50 feet wide for 1.4 miles, and 100 feet for 0.3 miles)	1.2 miles (50 feet wide for 1.2 miles and 70 feet wide for 0.04 miles)
Power System	Existing Grid	Existing Grid	Dual Power System	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Existing Propane 1,000 gallons	N/A	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	BLM	CBP	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)

* All dimensions are not to exceed the dimensions stated; actual dimensions may be less but would not be greater.

** CBP assessed the construction of these towers in an EA for the Proposed SBInet Tower Project Ajo Station's AOR USBP Tucson Sector (CBP 2009). These towers are currently operational.

Table 2-4 (cont.)

Tower ID	TCA-AJO-0452	TCA-AJO-0454	TCA-AJO-0458	TCA-AJO-0460	TCA-AJO-0462
Common Name	7/13 South	7/13 North	Kuakatch	Gunsight	Dirt Tank
Status	New	New	New	New	New
Function	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	140 feet	140 feet	120 feet	180 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	270 feet (20 feet wide)	310 feet (20 feet wide)	110 feet (20 feet wide)	< 10 feet (20 feet wide)	65 feet (20 feet wide)
Existing Approach Road Improvements	1.8 miles (50 feet wide for 1.7 miles and 70 feet wide for 0.05 miles)	0.9 miles (50 feet wide for 0.8 miles and 70 feet wide for 0.08 miles)	0.03 miles (70 feet wide)	2.6 miles (50 feet wide for 2.3 miles and 70 feet wide for 0.3 miles)	2.7 miles (50 feet wide for 2.6 miles, and 70 feet wide for 0.03 miles)
Power System	Grid Power/Generator	Grid Power/Generator	Grid Power/Generator	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)	Tohono O'odham Nation (Gu-Vo District)

Table 2-4 (cont.)

Tower ID	TCA-CAG-0430	TCA-CAG-0432	TCA-CAG-0434	TCA-CAG-0444	TCA-CAG-0438
Common Name	Trading Post and 2 Mile Drag	San Miguel LEC	Ice Cream Truck	Wamul, North of Wraparound	Vamori and Irak Road
Status	New	Proposed	New	New	New
Function	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications	Sensor and Communications
Type	SST	SST	SST	SST	SST
Height	120 feet	120 feet	120 feet	120 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	N/A*	160 feet x 160 feet	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	70 feet long (20 feet wide)	No roadwork	85 feet long (20 feet wide)	35 feet (20 feet wide)	50 feet (20 feet wide)
Existing Approach Road Improvements	9.9 miles (30 feet wide for 5.2 miles, 50 feet wide for 4.4 miles, 70 feet wide for 0.1 miles, 100 feet wide for 0.3 miles, and 0.7 acres for two intersection realignments)	No roadwork	7.6 miles (30 feet wide for 3.3 miles, 50 feet wide for 4.1 miles, 100 feet wide for 0.2 miles, and 0.25 acres for installing slope stability structures)	5.4 miles (50 feet wide for 5.4 miles and 70 feet wide for 0.05 mile)	8.3 miles (30 feet wide for 3.3 miles, 50 feet wide for 3.7 miles, 70 feet wide for 0.02 mile, and 100 feet wide for 1.3 miles)
Power System	Dual Power System	Grid Power/Generator	Dual Power System	Dual Power System	Dual Power System
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)

* The tower site is located at an existing facility. CBP previously discussed the possible construction of an IFT at San Miguel LEC in a Categorical Exclusion Determination for the expansion of San Miguel LEC and Papago Farms Forward Operating Base (CBP 2013b).

Table 2-4 (cont.)

Tower ID	TCA-CAG-0440	TCA-CAG-0442
Common Name	Tecolote to Toro's Ranch Road	Serapo Road to Onion Stand
Status	New	New
Function	Sensor and Communications	Sensor and Communications
Type	SST	SST
Height	120 feet	120 feet
New Tower Site Permanent Area	160 feet x 160 feet	160 feet x 160 feet
New Tower Site Construction Area	200 feet x 200 feet	200 feet x 200 feet
New Access Road Construction	15 feet (20 feet wide)	< 10 feet (20 feet wide)
Existing Approach Road Improvements	6.2 miles (30 feet wide for 2.6 miles, 50 feet wide for 2.8 miles, and 100 feet wide for 0.07 miles)	7.4 miles (50 feet wide)
Power System	Dual Power System	Grid Power/Generator
Fuel Type and tank capacity, if required	Propane 1,000 gallons	Propane 1,000 gallons
Land Owner/Land Manager	Tohono O'odham Nation (Chukut Kuk District)	Tohono O'odham Nation (Chukut Kuk District)

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Other border surveillance approaches, strategies and technologies, were considered as alternatives. These alternatives included unmanned aircraft systems, remote sensing satellites, additional unattended ground sensors, increased CBP workforce, and increased aerial reconnaissance/operations. Although these alternatives or a combination of these alternatives can be valuable tools that CBP may employ in other areas or circumstances of border incursion, they were eliminated because of logistical restrictions, environmental considerations, and/or functional deficiencies that fail to meet the purpose for this project (Table 2-5).

Table 2-5. Other Alternatives Considered But Eliminated

Other Alternatives Considered	Rationale for elimination
Unmanned aircraft systems	Not operable in some weather conditions and not likely to provide persistent surveillance capability.
Remote sensing satellites	Cannot provide real-time data delivery and are unreliable in certain weather conditions. Does not provide rapid detection and accurate characterization of potential threats.
Unattended ground sensors	The expanse of area required for additional unattended ground sensor fields to effectively cover an area similar to that of a single tower surveillance system is too vast. It would generate an unacceptably large number of used batteries that would require an extensive number of man-hours to maintain, and it would require the deployment of an agent whenever a sensor is activated which may result in undue environmental disturbances.
Increased CBP workforce	Due to the remoteness, local topography, and vegetative cover individually located agents at discrete border locations would require an unacceptably large deployment of agents in the field at all times and require a significant increase in agents to obtain a level of effective border surveillance coverage to match a single tower's persistent surveillance capabilities.
Increased aerial reconnaissance/operations	Cannot be used on a 24-hours-per-day basis and cannot operate under all weather conditions. Has limited capabilities during nighttime and in areas such as deep ravines and dense vegetation. Does not provide a more efficient and effective means of assessing cross-border activities.

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2.5 ALTERNATIVES SUMMARY

The three alternatives selected for further analysis are Alternative 1 (No Action Alternative), Alternative 2 (Proposed Action), and Alternative 3. The Proposed Action is CBP's preferred alternative. This alternative fully meets the purpose and need of the project, and the sites selected offer the best combination of towers based on the four criteria used to assess tower site suitability (accessibility, operability, constructability, and environmental constraints). The IFT system would provide long-range, persistent surveillance capability. It was identified in the ABSTP as the most effective technology-based solution for the USBP Ajo and Casa Grande Stations' AORs (DHS 2011). The IFT system is expected to allow USBP agents to spend less time locating cross-border violators and focus efforts on interdiction of those involved in illegal cross-border activities, thereby enhancing rapid response capability through a dynamic enforcement posture. Ultimately, the Proposed Action would provide more efficient and effective interdiction while reducing the potential for adverse impacts of illegal cross-border activities on the natural and cultural environments in the USBP Ajo and Casa Grande Stations' AORs.

The tower site configuration in Alternative 3 could be constructed, but it would provide less surveillance coverage compared to the Proposed Action. An evaluation of whether the alternatives meet the project's purpose and need is provided in Table 2-6.

Table 2-6. Alternatives Matrix of Purpose and Need for Alternatives

Purpose and Need	Alternative 1 (No Action Alternative)	Alternative 2 (Proposed Action)	Alternative 3
Provide improved surveillance and detection capabilities that facilitate rapid response in USBP Ajo and CAG AORs	No	Yes	Yes
Provide more efficient and effective means of assessing cross-border activities	No	Yes	Yes
Provide rapid detection and accurate characterization of potential threats	No	Yes	Yes
Provide coordinated deployment of resources in the apprehension of cross-border violators	No	Yes	Yes
Increase surveillance and interdiction efficiency	No	Yes	Yes
Enhance the deterrence of illegal cross-border activity	No	Yes	Yes
Enhance agent safety	No	Yes	Yes
Enhance safety to border communities	No	Yes	Yes

SECTION 3.0
AFFECTED ENVIRONMENT AND CONSEQUENCES



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3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PRELIMINARY IMPACT SCOPING

This section of the EA describes the natural and human environments that exist within the region of influence (ROI) and the potential impacts of the alternatives outlined in Section 2.0. The ROI for the new IFT sites is the Chukut Kuk and Gu-Vo Districts of the Tohono O’odham Nation, including the existing San Miguel LEC. C2 facilities and existing towers that would be affected are also located at the USBP Ajo Station and on BLM land.

Only those issues that have the potential to be affected by any of the alternatives are described, per CEQ guidance (40 C.F.R. § 1501.7). Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource or because that particular resource is not located within the project corridor (Table 3-1).

Table 3-1. Resources Analyzed in the Environmental Impact Analysis Process

Resource	Potential Adverse Effect by Implementation of Proposed Action	Analyzed in This EA	Rationale for Elimination of Resource from Further Analysis
Wild and Scenic Rivers	No	No	No rivers designated as Wild and Scenic Rivers (16 U.S.C. §§ 551, 1278[c], 1281[d]) are located within or near the project corridor.
Land Use	Yes	Yes	Not Applicable
Geology	No	No	The Proposed Action would not disturb the regional geologic resources of the area, since only near-surface modifications would be implemented; and the geotechnical setting would support the Proposed Action.
Soils	Yes	Yes	Not Applicable
Prime and Unique Farmlands	No	No	No soils designated as prime or unique farmlands (7 U.S.C. § 4201 et seq.) occur within or near the project corridor.
Water Resources	Yes	Yes	Not Applicable
Floodplains	No	Yes	Not Applicable
Vegetative Habitat	Yes	Yes	Not Applicable
Wildlife Resources	Yes	Yes	Not Applicable
Protected Species and Critical Habitat	Yes	Yes	Not Applicable
Cultural Resources	Yes	Yes	Not Applicable
Air Quality	Yes	Yes	Not Applicable
Noise	Yes	Yes	Not Applicable
Utilities and Infrastructure	Yes	Yes	Not Applicable
Radio Frequency Environment	Yes	Yes	Not Applicable
Roadways and Traffic	Yes	Yes	Not Applicable
Aesthetic and Visual Resources	Yes	Yes	Not Applicable

Table 3-1, continued

Resource	Potential Adverse Effect by Implementation of Proposed Action	Analyzed in This EA	Rationale for Elimination of Resource from Further Analysis
Hazardous Materials	Yes	Yes	Not Applicable
Unique and Sensitive Areas	No	No	No lands classified as unique or sensitive (i.e., Wilderness Area [16 U.S.C. §§ 1131-1136, 78 Stat. 890]) are located within the project area.
Socioeconomics	No	No	The Proposed Action would have no adverse effect on socioeconomic conditions in the region, as the project area is remotely located. A previous analysis of impacts on socioeconomic conditions on the Tohono O'odham Nation supports the no adverse effect determination (CBP 2012b). Minor beneficial impacts may occur through the use of tribal monitors.
Environmental Justice and Protection of Children	No	No	The Proposed Action would have no adverse effects on minority or low-income population or children. The project area is remote and would not otherwise impact valued resources used by such communities or individuals.

1
2 Impacts (consequence or effect) can be either beneficial or adverse and can be either directly
3 related to the action or indirectly caused by the action. Direct effects are caused by the action
4 and occur at the same time and place (40 C.F.R. § 1508.8[a]). Indirect effects are caused by the
5 action and are later in time or further removed in distance but that are still reasonably foreseeable
6 (40 C.F.R. § 1508.8[b]). As discussed in this section, the alternatives may create temporary
7 (lasting the duration of the project), short-term (up to 3 years), long-term (3 to 10 years following
8 construction), or permanent effects.

9
10 Whether an impact is significant depends on the context in which the impact occurs and the
11 intensity of the impact (40 C.F.R. § 1508.27). The context refers to the setting in which the
12 impact occurs and may include society as a whole, the affected region, the affected interests, and
13 the locality. Impacts on each resource can vary in degree or magnitude from a slightly
14 noticeable change to a total change in the environment. For the purpose of this analysis, the
15 intensity of impacts are classified as negligible, minor, moderate, or major. The intensity
16 thresholds are defined as follows:

- 17
- 18 • Negligible: A resource would not be affected or the effects would be at or below the
19 level of detection, and changes would not be of any measurable or perceptible
20 consequence.
 - 21 • Minor: Effects on a resource would be detectable, although the effects would be
22 localized, small, and of little consequence to the sustainability of the resource. Mitigation
23 measures, if needed to offset adverse effects, would be simple and achievable.

- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- Major: Effects on a resource would be obvious and long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required and extensive, and success of the mitigation measures would not be guaranteed.

The following discussions describe and, where possible, quantify the potential effects of each alternative on the resources within or near the project area. All impacts described below are considered to be adverse unless stated otherwise. Table 3-2 presents a summary of the permanent and temporary (construction) impacts for the three assessed alternatives.

Table 3-2. Temporary and Permanent Impacts Resulting from the Assessed Alternatives

Alternatives	Permanent Impact (NTE Acres)				Temporary/Construction Impact (NTE Acres)			
	Tower Sites	New Access Roads	Existing Approach Roads	Total	Tower Sites	New Access Roads	Existing Approach Roads	Total
Alternative 1 (No Action)	0	0	0	0	0	0	0	0
Alternative 2 (Proposed Action)	8.23	0.57	214.20	223.00	4.63	1.43	0	6.06
Alternative 3	8.23	0.57	204.36	213.15	4.63	1.41	0	6.04

* Actual impacts are not to exceed (NTE) those described here. Temporary/construction impact acres do not include permanent impact areas. For approach roads, estimates assume an existing road width of 20 feet that is previously disturbed.

3.2 LAND USE

Historically, the O'odham inhabited a large area of land in the southwestern United States, extending south to Sonora, Mexico, north to central Arizona, west to the Gulf of California, and east to the San Pedro River (Tohono O'odham Nation 2014b). In 1853, through the Gadsden Purchase or Treaty of La Mesilla, O'odham land was divided almost in half, between the United States and Mexico. According to the terms of the Gadsden Purchase, the United States agreed to honor all land rights of the area held by the O'odham. However, the demand for land for settlement escalated with the development of mining and the transcontinental railroad, and the demand resulted in the loss of O'odham land on both sides of the U.S./Mexico border. On the United States side of the border, the Gadsden Purchase had little effect on the O'odham initially because they were not informed that a purchase of their land had been made, and the new border between the United States and Mexico was not strictly enforced (Tohono O'odham Nation 2014b).

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Table 3-3. Tower Site Land Ownership

Tower ID	Landowner	Land Use
TCA-AJO-0216*	BLM	Existing Communication Tower
TCA-AJO-0305*	CBP	Law Enforcement Facility
TCA-AJO-0446	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-AJO-0448	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0450	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0452	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0454	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0458	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0460	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-AJO-0462	Tohono O'odham Nation, Gu-Vo District	Undeveloped Range
TCA-CAG-0430	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0432	Tohono O'odham Nation, Chukut Kuk District	Law Enforcement Facility
TCA-CAG-0434	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0436	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0438	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0440	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0442	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range
TCA-CAG-0444	Tohono O'odham Nation, Chukut Kuk District	Undeveloped Range

* Collocation of equipment; no new construction

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Today, O'odham who reside on reservation land live on one of the four separate pieces of land that comprise the Tohono O'odham Nation. These pieces of land are the "main" reservation, Florence Village, San Xavier, and San Lucy. The Tohono O'odham Nation is the second largest reservation in Arizona in both population and geographical size, with a land area of 2.8 million acres (Tohono O'odham Nation 2014a). The Tohono O'odham Nation is a Federally-recognized tribe and includes approximately 28,000 members occupying tribal land in Arizona.

The 15 preferred IFT sites and 1 alternate IFT site would all be located on the main reservation of the Tohono O'odham Nation within the Chukut Kuk and Gu-Vo Districts (see Figure 1-1 and Table 3-3). All 15 locations were visited and approved for use as an IFT site by the respective Districts in 2012. General land uses in the vicinity of the proposed new IFT sites include domestic (residences and ranches), grazing, farming, and ceremonial purposes. Equipment would also be collocated, maintained, and operated at two existing communication towers (TCA-AJO-0216 and TCA-AJO-0305). Land use surrounding these two existing communication towers is also open undeveloped rangeland. All proposed roadwork would occur on the main reservation of the Tohono O'odham Nation, including within the Roosevelt Reservation.*

* In 1907, President Roosevelt reserved from entry and set aside a public reservation of all public lands within 60 feet of the U.S./Mexico border. Known as the "Roosevelt Reservation," this land withdrawal was found "necessary for the public welfare ... as a protection against the smuggling of goods." 35 Stat. 2136. This reservation includes all public lands under Federal ownership in California, Arizona, and New Mexico at the time of the proclamation.

1 **3.2.1 Alternative 1: No Action Alternative**

2 Under the No Action Alternative, no direct impacts on land use would occur. However, land
3 uses within the vicinity of the proposed IFT sites are directly and indirectly affected by cross-
4 border violator pedestrian and vehicle traffic and consequent law enforcement activities. Natural
5 desert areas experience damage to native vegetation and soil compaction as a result of these
6 activities. Under the No Action Alternative, USBP's detection and threat classification
7 capabilities would not be enhanced and operational efficiency would not be improved within the
8 area of tower coverage, so cross-border violator activities would continue to impact land use in
9 the project area unmitigated.

11 **3.2.2 Alternative 2: Proposed Action**

12 The Proposed Action would have a permanent, negligible, direct impact on land use. There
13 would be no change to the current land uses at TCA-AJO-216, TCA-AJO-305, and TCA-CAG-
14 0432. Up to 223.00 acres of undeveloped land on the Tohono O'odham Nation would be
15 permanently converted to a developed land use to support tower construction for the remaining
16 towers (up to 8.23 acres for towers sites; 0.57 acres for access roads; and 214.20 acres for
17 approach roads, assuming a 20-foot wide driving surface). In addition, up to 6.06 acres of
18 undeveloped land would be temporarily converted to support tower construction (up to 4.63
19 acres for tower sites and 1.43 acres for access roads). The direct impact from the conversion of
20 undeveloped land to law enforcement infrastructure would be negligible due to the small size of
21 the project footprint relative to the size of the ROI. In addition, the Proposed Action could result
22 in indirect and long-term beneficial impacts on land use by reducing the adverse impacts of
23 cross-border violator activities in the project area.

25 **3.2.3 Alternative 3**

26 Under Alternative 3, impacts on land use would be similar to those described for the Proposed
27 Action.

29 **3.3 SOILS**

31 There are 14 soil complexes associated with the proposed IFT sites (NRCS 1993; NRCS 1999).
32 A description of each soil type is presented in Table 3-4, and soil maps depicting the soil
33 association at the proposed IFT locations are provided in Appendix D. Erosion hazards for each
34 soil complex estimate the potential for soil loss or erosion due to water or wind and the
35 limitations for development summarize potential issues with developing within a particular soil
36 type (Table 3-4). These hazards and limitations are based on undisturbed soils.

38 **3.3.1 Alternative 1: No Action Alternative**

39 Under the No Action Alternative, there would be no modification of soils from construction
40 activities because the proposed IFTs would not be constructed. However, soils within the
41 vicinity of the IFT sites are directly and indirectly affected by cross-border violator pedestrian
42 and vehicle traffic and consequent law enforcement activities. Natural desert areas experience
43 soil disturbance and compaction because of these activities. Under the No Action Alternative,
44 USBP's detection and threat classification capabilities would not be enhanced and operational
45 efficiency would not be improved within the area of tower coverage, so cross-border violator

1 activities would continue to impact soils in the project area. Potential indirect benefits associated
2 with the Proposed Action would not be realized under the No Action Alternative.
3

4 **3.3.2 Alternative 2: Proposed Action**

5 The Proposed Action would have a direct, minor impact on soils. The Proposed Action would
6 permanently disturb up to 223.00 acres and temporarily disturb up to 6.06 acres of previously
7 undisturbed soil. The Proposed Action would also disturb soil within the existing footprint of
8 approach roads and at TCA-AJO-216, TCA-AJO-305, and TCA-CAG-0432. All impacted soils
9 are locally and regionally common. The Proposed Action would not result in the loss of any
10 soils classified as unique.

11
12 Several of the tower sites include soil types that may cause difficulties during excavation of the
13 tower foundation due to shallow hardpans over bedrock or large rocks (TCA-AJO-0446, -0450,
14 and -0454). To prevent soil loss, especially at those IFT sites with high erosion hazards, BMPs
15 would be implemented during construction activities to avoid significant soil loss, and would be
16 described in site-specific Stormwater Pollution Prevention Plans (SWPPPs) for construction
17 activities. The BMPs are summarized in Section 5.0 of this document. In order to minimize
18 potential erosion, temporary impact areas would be revegetated with a mixture of native plant
19 seeds, nursery plantings, and/or allowed to revegetate naturally.
20

21 Indirect beneficial impacts on soils could occur as a result of implementing the Proposed Action.
22 The Proposed Action would enhance USBP's detection and threat classification capabilities and,
23 thus, improve operational efficiency within the area of tower coverage. Over time, it is
24 anticipated that these enhanced capabilities would increase the deterrence of cross-border
25 violator activity within the area of tower coverage and reduce soil disturbance and erosion.
26

27 **3.3.3 Alternative 3**

28 Alternative 3 would have similar impacts as the Proposed Action. The primary difference
29 between the Proposed Action and Alternative 3 is that Alternative 3 would disturb approximately
30 10 less acres of previously undisturbed soil than the Proposed Action. All impacted soils would
31 not be characterized as unique and are considered common in the ROI.

Table 3-4. Characteristics of Soils at the Tower Sites

Soils	Tower ID	Slope (percent)	Permeability	Runoff Rate	Erosion Hazard Wind/Water for Undisturbed Soils	Limitations for Development
Bucklebar-Hayhook-Tubac Complex	TCA-CAG-0432 TCA-CAG-0438	0-3	Slow to moderate	Slow to medium	Slight by water and moderately high by wind	Care should be taken to prevent excessive dust and soil loss due to erosion; shrinking and swelling of the soils has potential to damage roads and foundations
Casa Grande-Kamato Complex	TCA-AJO-0448	0-1	Slow	Slow	Slight to moderate by water and moderate hazard by wind	Care should be taken to prevent excessive soil loss and dust generation due to erosion; potential for flooding
Dateland-Denure Association	TCA-CAG-0442	1-3	Moderate to moderately rapid	Slow	Slight by water and moderately high by wind	Care should be taken to prevent excessive dust and soil loss due to erosion
Denure-Momoli Complex	TCA-AJO-0454	1-5	Moderately rapid	Slow to medium	Slight by water and very slight by wind	Shrinking and swelling of the soils has potential to damage roads and foundations
Gilman Very Fine Sandy Loam	TCA-AJO-0452	0-1	Moderate	Slow	Moderate by water and wind	Flooding hazard
Gunsight-Rillito Complex	TCA-AJO-0460	1-8	Moderate to moderately rapid	Slow to medium	Slight by water and very slight by wind	No limitations
Hyder-Rock Outcrop-Guvo Complex	TCA-AJO-0446	10-45	Moderate	Medium to very rapid	Slight to severe by water and very slight by wind	Difficulties due to steep slopes and depth to rock with cemented pan
Lajitas-Bosa-Rock Outcrop Complex	TCA-AJO-0450	15-50	Moderate to moderately rapid	Very rapid	Moderate to severe by water and very slight to slight by wind	Difficult excavation due to rock outcrops and shallow hardpans over bedrock
Mohall-Pahaka Complex	TCA-AJO-0452	1-3	Moderately slow to moderately rapid	Slow	Slight by water and moderately high by wind	Shrinking and swelling of the soils has potential to damage roads and foundations

Table 3-4 (cont.)

Soils	Tower ID	Slope (percent)	Permeability	Runoff Rate	Erosion Hazard Wind/Water for Undisturbed Soils	Limitations for Development
Nahada-Stagecoach Complex	TCA-AJO-0458 TCA-AJO-0462 TCA-CAG-0440	1-15	Slow to moderately rapid	Slow to medium	Slight by water and very slight by wind	Difficult excavation due to restrictive lime-cemented hardpan; shrinking and swelling of the soils has potential to damage roads and foundations
Pajarita-Sahuarita Complex	TCA-CAG-0436	1-3	Moderately slow to moderately rapid	Slow	Slight by water and moderately high by wind	Care should be taken to prevent excessive dust and soil loss due to erosion
Pinamt-Momoli Complex	TCA-AJO-0454	1-10	Moderately slow to moderately rapid	Slow to medium	Slight by water and very slight by wind	Difficult excavation due to large rocks
Soledad-Topawa Complex	TCA-CAG-0430	1-5	Moderately slow to moderately rapid	Slow to medium	Slight by water and very slight by wind	Shrinking and swelling of the soils has potential to damage roads and foundations
Vado-Agustin Complex	TCA-CAG-0434 TCA-CAG-0444	1-8	Moderately rapid	Slow to medium	Slight by water and slight to very slight by wind	No limitations

Source: NRCS 1993 and NRCS 1999

3.4 VEGETATIVE HABITAT

All of the proposed IFT sites would be located in either the Arizona Upland or the Lower Colorado River subdivision of the Sonoran Desertscrub biotic community (Brown et al. 2007) (Table 3-5). The Lower Colorado River is considered larger and more arid than the Arizona Upland subdivision and is often characterized as having a somewhat reduced diversity of plant species at lower densities because of extreme arid conditions. In contrast, although still relatively arid, the Arizona Upland subdivision receives on average more annual precipitation and is capable of supporting a landscape with greater plant densities and increased species diversity (Brown and Lowe 1994). The proposed IFT sites would be distributed at elevations ranging between approximately 1,680 and 2,900 feet above mean sea level (amsl). The project area is within the Basin and Range Physiographic Province covering southern Arizona (Hendricks 1985), a region characterized by isolated mountain ranges (Photograph 3-1) separated by broad alluvial valleys (Photograph 3-2). A description of the vegetative habitat at each of the proposed IFT sites is provided in Table 3-5.

CBP contractors completed a biological resources survey of each proposed IFT site, proposed access roads, and existing approach roads, during daylight hours, on June 3 through 14, 2013, and on June 24 and 25, 2013 (CBP 2013a). CBP contractors conducted supplemental biological resource surveys in the Vamori Wash on April 29, 2014, and July 16, 2014 (Kramer 2014) and for several approach road segments and proposed low-water crossings along the Traditional Northern Road from June 18 through 23, 2015 and on October 14, 2015 (HDR 2015a).

Table 3-5. Vegetative Habitat at Each Proposed IFT Sites

Tower ID	Proposed Action (Alternative 2)	Alternative 3	Vegetative Habitat Type
TCA-AJO-0216*	X	X	None
TCA-AJO-0305*	X	X	None
TCA-AJO-0446	X	X	Lower Colorado River Valley Subdivision
TCA-AJO-0448	X	X	Lower Colorado River Valley Subdivision
TCA-AJO-0450	X	X	Arizona Upland Subdivision
TCA-AJO-0452	X	X	Lower Colorado River Valley Subdivision
TCA-AJO-0454	X	X	Arizona Upland Subdivision
TCA-AJO-0458	X	X	Lower Colorado River Valley Subdivision
TCA-AJO-0460	X	X	Arizona Upland Subdivision
TCA-AJO-0462	X	X	Lower Colorado River Valley Subdivision
TCA-CAG-0430	X	X	Arizona Upland Subdivision
TCA-CAG-0432	X	X	Arizona Upland Subdivision
TCA-CAG-0434	X	X	Arizona Upland Subdivision
TCA-CAG-0436	X		Arizona Upland Subdivision
TCA-CAG-0438	X	X	Arizona Upland Subdivision
TCA-CAG-0440	X	X	Arizona Upland Subdivision
TCA-CAG-0442	X	X	Arizona Upland Subdivision
TCA-CAG-0444		X	Arizona Upland Subdivision

* No new construction



Photograph 3-1. View of Isolated Mountain Ranges within the Project Area



Photograph 3-2. Example of Broad Alluvial Valley within the Project Area

1
 2 Pedestrian surveys consisted of a series of parallel transects that provided 100 percent visual
 3 coverage within a 250-foot radius at each IFT site and along the widths of the approach roads
 4 and access roads designated for construction, maintenance, or repair. The biologists searched for
 5 listed and sensitive species, signs of their presence, and unique biological features (e.g., rocky
 6 outcrops, burrows, rock shelters, bird nests) at and within the vicinity of each of the proposed
 7 IFT sites. Observations of vegetative habitat and floral communities were recorded, along with
 8 species diversity and any wildlife species or signs of wildlife observed. Locations of sensitive
 9 natural resources were recorded using a Trimble Geo XT Global Positioning System unit with
 10 sub-meter accuracy.

11
 12 Proposed IFT sites found at lower elevations in the western portion of the project area reflect the
 13 characteristic lower diversity and lower density spacing of woody plants typical of the Lower
 14 Colorado River Valley biotic community. This community type is completely dominated with
 15 stands of creosote bush (*Larrea tridentata*), four-wing saltbush (*Atriplex canescens*), littleleaf
 16 paloverde (*Parkinsonia microphylla*), and triangle-leaf bursage (*Ambrosia deltoidea*). At higher
 17 elevations in the western and eastern portions of the project area, the vegetation within the
 18 proposed IFT sites tended to display a somewhat greater diversity and increased density
 19 characteristic of the wetter Arizona Upland subdivision. The dominant species observed within
 20 the project area included brittlebush (*Encelia farinosa*), creosote bush, littleleaf paloverde,
 21 triangle-leaf bursage, and velvet mesquite (*Prosopis velutina*). Some of the proposed IFT sites
 22 are located in poorly demarcated transitional zones between these two Sonoran Desert
 23 subdivisions resulting in significant integration of defining characteristics. A variety of other
 24 cacti species, perennials, and grasses were also observed in relatively low densities (Table 3-6).

25
 26 **Table 3-6. Plant Species Observed During the Biological Surveys**

Species Common Name	Species Scientific Name	Species Common Name	Species Scientific Name
Perennials		Cacti	
Apricot globemallow	<i>Sphaeralcea ambigua</i> <i>ssp. ambigua</i>	Arizona fishhook cactus	<i>Mammillaria grahamii</i> <i>var. grahamii</i>
Arizona jumping bean	<i>Pleradenophora bilocularis</i>	Arizona pencil cholla	<i>Cylindropuntia arbuscula</i> ^b

Table 3-6 (cont.)

Species Common Name	Species Scientific Name	Species Common Name	Species Scientific Name
Blue Palo Verde	<i>Parkinsonia florida</i>	Buckhorn cholla	<i>Cylindropuntia acanthocarpa</i>
Brittlebush	<i>Encelia farinosa</i>	Cane cholla	<i>Cylindropuntia spinosior</i>
Broom snakeweed	<i>Gutierrezia sarothrae</i>	Chain-fruit cholla	<i>Cylindropuntia fulgida</i>
Burroweed	<i>Isocoma tenuisecta</i>	Christmas cholla	<i>Cylindropuntia leptocaulis</i>
Catclaw acacia	<i>Acacia greggii</i>	Club cholla	<i>Grusonia kunzei</i>
Cattle saltbush	<i>Atriplex polycarpa</i>	Counterclockwise nipple cactus	<i>Mammillaria mainiae</i>
Coulter's globe mallow	<i>Sphaeralcea coulteri</i>	Dahlia-rooted cereus	<i>Peniocereus striatus</i>
Creosote bush	<i>Larrea tridentata</i>	Emory barrel cactus	<i>Ferocactus emoryi</i>
Crucifixion thorn	<i>Castela emoryi</i>	Engelmann's hedgehog cactus	<i>Echinocereus engelmannii</i>
Desert hackberry	<i>Celtis pallida</i>	Golden hedgehog cactus	<i>Echinocereus nicholii</i>
Desert limberbush	<i>Jatropha cuneata</i>	Graham's nipple cactus	<i>Mammillaria grahamii</i>
Desert marigold	<i>Baileya multiradiata</i>	Nichol's hedgehog cactus	<i>Echinocereus nicholii</i>
Desert mistletoe	<i>Phoradendron californicum</i>	Night-blooming cereus	<i>Peniocereus greggii</i>
Desert seepweed	<i>Suaeda nigra</i>	Organ pipe cactus	<i>Stenocereus thurberi</i>
Desert senna	<i>Senna covesii</i>	Pencil cholla	<i>Cylindropuntia arbula</i>
Desert tobacco	<i>Nicotiana obtusifolia</i>	Prickly pear cactus	<i>Opuntia spp.</i>
Desert zinnia	<i>Zinnia acerosa</i>	Saguaro	<i>Carnegiea gigantea</i>
Devil cholla	<i>Grusonia kunzei</i>	Scarlet hedgehog cactus	<i>Echinocereus coccineus</i>
Devil's claw	<i>Proboscidea parviflora</i>	Teddy bear cholla	<i>Cylindropuntia bigelovii</i>
Emory indigo-bush	<i>Psoralea emoryi</i> var. <i>emoryi</i>	Thornber's fishhook cactus	<i>Mammillaria thornberi</i>
Fairyduster	<i>Calliandra eriophylla</i>	Grasses	
Fourwing saltbush	<i>Atriplex canescens</i>	Alkali sacaton	<i>Sporobolus airoides</i>
Graythorn	<i>Ziziphus obtusifolia</i> var. <i>canescens</i>	Arizona cottontop	<i>Digitaria californica</i>
Horseweed	<i>Conyza Canadensis</i>	Arizona fluffweed	<i>Logfia arizonica</i>
Ironwood	<i>Olney tesota</i>	Bearded cryptantha	<i>Cryptantha barbiger</i>
Jojoba	<i>Simmondsia chinensis</i>	Bermudagrass	<i>Cynodon dactylon</i>
Jumping bean	<i>Sapium biloculare</i>	Black grama	<i>Bouteloua eriopoda</i>
Limberbush	<i>Jatropha cardiophylla</i>	Buffelgrass	<i>Pennisetum ciliare</i>
Littleleaf Palo Verde	<i>Parkinsonia microphylla</i>	Bush muhly	<i>Muhlenbergia porteri</i>
Mexican Palo Verde	<i>Parkinsonia aculeata</i>	Cane bluestem	<i>Bothriochloa barbinodis</i>

Table 3-6 (cont.)

Species Common Name	Species Scientific Name
Mormon tea	<i>Ephedra aspera</i>
Netleaf hackberry	<i>Celtis laevigata</i> var. <i>reticulate</i>
Ocotillo	<i>Fouquieria splendens</i>
Paper-flower	<i>Psilostrophe cooperi</i>
Plantain	<i>Plantago patagonica</i>
Ratany	<i>Krameria erecta</i>
Rock hibiscus	<i>Hibiscus denudatus</i>
Rough menodora	<i>Menodora scabra</i>
Russian thistle	<i>Salsola tragus</i>
Sacred datura	<i>Datura wrightii</i>
Sand dock	<i>Rumex hymenosepalus</i>
Sand sagebrush	<i>Artemisia filifolia</i>
Saltbush	<i>Atriplex</i> sp.
Soaptree yucca	<i>Yucca elata</i>
Spreading fanpetals	<i>Sida abutilifolia</i>
Spreading fleabane	<i>Erigeron divergens</i>
Staghorn cholla	<i>Cylindropuntia versicolor</i>
Sweetbush	<i>Bebbia juncea</i>
Thurber's desert honeysuckle	<i>Anisacanthus thurberi</i>
Trailing windmills	<i>Allionia incarnate</i>
Triangleleaf bursage	<i>Ambrosia deltoidea</i>
Tumamoc globeberry	<i>Tumamoca macdouglia</i>
Velvet mesquite	<i>Prosopis velutina</i>
Weakleaf bur ragweed	<i>Ambrosia confertiflora</i>
White bursage	<i>Ambrosia dumosa</i>
Whitethorn acacia	<i>Acacia constricta</i>
Wolfberry	<i>Lycium</i> sp.
White bursage	<i>Ambrosia dumosa</i>
White-thorn acacia	<i>Acacia constricta</i>
Wolfberry	<i>Lycium berlandieri</i> var. <i>longistylum</i>
Woolly plantain	<i>Plantago ovata</i>

Species Common Name	Species Scientific Name
Desert broom	<i>Baccharis sarothroides</i>
Fluff grass	<i>Erioneuron pulchellum</i>
Gramma grass	<i>Bouteloua</i> spp.
Johnson grass	<i>Sorghum halepense</i>
Lehmann's lovegrass	<i>Eragrostis lehmanniana</i>
Low woollygrass	<i>Dasyochloa pulchella</i>
Needle grama	<i>Bouteloua aristidoides</i>
Poverty three-awn	<i>Aristida ternipes</i> var. <i>gentilis</i>
Purple three-awn	<i>Aristida purpurea</i>
Rabbitfoot grass	<i>Polypogon monspeliensis</i>
Shepard's purse	<i>Capsella bursa-pastoris</i>
Sideoats grama	<i>Bouteloua curtipendula</i>
Sixweeks fescue	<i>Vulpia macrostachys</i>
Sixweeks grama	<i>Bouteloua barbata</i>
Skeletonweed	<i>Eriogonum deflexum</i> var. <i>deflexum</i>
Streambed bristlegrass	<i>Setaria leucopila</i>
Poverty three-awn	<i>Aristida ternipes</i> var. <i>gentilis</i>
Threeawn grass	<i>Aristida</i> spp.

1 **3.4.1 Alternative 1: No Action Alternative**

2 Under the No Action Alternative, no vegetative habitat would be disturbed or removed since the
 3 proposed IFTs and associated access road construction and approach road maintenance and
 4 repair would not occur on the Tohono O’odham Nation. However, long-term direct and indirect
 5 impacts on vegetation communities would continue as a result of cross-border violator activities
 6 that create unauthorized roads and trails, damage vegetation, and promote the dispersal and
 7 establishment of nonnative invasive species. Under the No Action Alternative, USBP’s
 8 detection and threat characterization capabilities would not be enhanced and operational
 9 efficiency within the area covered by the towers would not be improved.

11 **3.4.2 Alternative 2: Proposed Action**

12 The Proposed Action would have a permanent, minor, direct impact on vegetation in the project
 13 area. The Proposed Action would result in the permanent removal of up to 223.00 acres and the
 14 temporary removal of up to 6.06 acres of desertscrub and grassland habitat. CBP does not
 15 anticipate needing to remove vegetation habitat at the existing communication towers or at San
 16 Miguel LEC. The plant community associated with the IFT sites is both locally and regionally
 17 common, and the permanent loss of vegetation would not adversely affect the population
 18 viability of any plant species in the region.

20 The Proposed Action would avoid impacts on columnar cacti (e.g. saguaro cacti and organ pipe
 21 cacti) to the maximum extent practicable. If impacts are not avoidable, columnar cacti 10 feet or
 22 less in height are eligible for relocation or replacement with a nursery stock at a 3:1 ratio in an
 23 area proximate to the project area.

25 Temporary disturbance could result in conditions suitable for the establishment of nonnative
 26 plant species. In order to ensure that the Proposed Action does not actively promote the
 27 establishment of nonnative and invasive species in the area, BMPs (described in Section 5.0)
 28 would be implemented to minimize the spread and reestablishment of nonnative vegetation.
 29 Removal of nonnative vegetation would be done in coordination with the Tohono O’odham
 30 Nation Wildlife and Vegetation Management Program (WVMP). All removed plants would be
 31 bagged and disposed of in construction-related debris bins. Per the direction of the Tohono
 32 O’odham Nation, CBP would salvage all removed mesquite with a diameter of 4 inches or more.
 33 Temporary impact areas would be revegetated with a mixture of native plant seeds, nursery
 34 plantings, and/or allowed to revegetate naturally. These BMPs, as well as measures protecting
 35 vegetation in general, would reduce potential impacts from nonnative invasive species to a
 36 negligible amount.

38 **3.4.3 Alternative 3**

39 Under Alternative 3, impacts on vegetation would be similar to those described under the
 40 Proposed Action.

42 **3.5 WILDLIFE RESOURCES**

44 As described in Section 3.4, the proposed IFT sites and associated approach roads are located
 45 within the Arizona Upland and the Lower Colorado River subdivision of the Sonoran
 46 Desertscrub biotic community (Brown and Lowe 1994). Several mammals, birds, and reptiles

generally associated with Sonoran Desertscrub habitats were observed at the proposed IFT sites and approach roads during the biological surveys (CBP 2013a; Kramer 2014; HDR 2015a). Frequent pauses were made during the survey to watch and listen for wildlife. Several bird nests were observed during the surveys, including one active red-tailed hawk (*Buteo jamaicensis*) nest outside the project area adjacent to tower TCA-CAG-0442 and one inactive gray hawk (*Buteo plagiatus*) nest adjacent to the Vamori Wash. Species observed during the biological survey are detailed in Table 3-7.

Table 3-7. Wildlife Species Observed During the Biological Surveys

Species Common Name	Species Scientific Name	Species Common Name	Species Scientific Name
Mammals		Birds (cont.)	
Antelope jackrabbit	<i>Lepus alleni</i>	Cactus wren	<i>Campylorhynchus brunneicapillus</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>	Common nighthawk	<i>Chordeiles minor</i>
Cottontail rabbit	<i>Sylvilagus</i> sp.	Common raven	<i>Corvus corax</i>
Gray fox	<i>Urocyon cinereoargenteus</i>	Crested caracara	<i>Caracara cheriway</i>
Harris's antelope squirrel	<i>Ammospermophilus harrisi</i>	Gambel's quail	<i>Callipepla gambelii</i>
Round-tailed ground squirrel	<i>Spermophilus tereticaudus</i>	Gila woodpecker	<i>Melanerpes uropygialis</i>
Reptiles		Greater roadrunner	Gilded flicker
Common lesser earless lizard	<i>Holbrookia maculata</i>	Gray hawk	<i>Buteo plagiatus</i>
Common side-blotched lizard	<i>Uta stansburiana</i>	Greater roadrunner	<i>Geococcyx californianus</i>
Desert iguana	<i>Dipsosaurus dorsalis</i>	House finch	<i>Haemorhous mexicanus</i>
Greater earless lizard	<i>Cophosaurus texanus</i>	Killdeer	<i>Charadrius vociferous</i>
Leopard lizard	<i>Gambelia wislizenii</i>	Lesser nighthawk	<i>Chordeiles acutipennis</i>
Mojave rattlesnake	<i>Crotalus scutulatus</i>	Mourning dove	<i>Zenaida macroura</i>
Sonoran collared lizard	<i>Crotaphytus nebrius</i>	Northern cardinal	<i>Cardinalis</i>
Western diamondback rattlesnake	<i>Crotalus atrox</i>	Northern mockingbird	<i>Mimus polyglottos</i>
Western whiptail	<i>Cnemidophorus tigris</i>	Purple martin	<i>Progne subis</i>
Zebra-tailed lizard	<i>Callisaurus draconoides</i>	Pyrrhuloxia	<i>Cardinalis sinuatus</i>
Birds		Red-tailed hawk	<i>Buteo jamaicensis</i>
American kestrel	<i>Falco sparverius</i>	Turkey vulture	<i>Cathartes aura</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	Verdin	<i>Auriparus flavicepsa</i>
Bell's vireo	<i>Vireo bellii</i>	Western kingbird	<i>Tyrannus verticalis</i>
Black-tailed gnatcatcher	<i>Poliophtila melanura</i>	White-winged dove	<i>Zenaida asiatica</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>	Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Black vulture	<i>Coragyps atratus</i>		
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>		

1 **3.5.1 Alternative 1: No Action Alternative**

2 Under the No Action Alternative, no direct impacts on wildlife or wildlife habitats would occur.
3 However, cross-border violator activity and required interdiction actions would continue to
4 degrade wildlife habitat. This degradation of vegetation communities has resulted in wildlife
5 habitat degradation through a loss of cover, forage, nesting or other opportunities and potentially
6 a loss of suitable habitat over large areas.
7

8 **3.5.2 Alternative 2: Proposed Action**

9 The permanent loss of up to 223.00 acres of desertscrub and grassland habitat would have a
10 long-term, direct, minor impact on wildlife. In addition, the temporary degradation of up to 6.06
11 acres of habitat would have a short-term, negligible impact on wildlife. Soil disturbance and
12 operation of heavy equipment could result in the direct loss of less mobile individuals, such as
13 lizards, snakes, and ground-dwelling species such as mice and rats. However, most wildlife
14 would avoid any direct harm by escaping to surrounding habitat. The direct degradation and loss
15 of habitat could also impact burrows and nests, as well as cover, forage, and other important
16 wildlife resources. The loss of these resources would result in the displacement of individuals
17 that would then be forced to compete with other wildlife for the remaining resources. Although
18 this competition for resources could result in a reduction of total population size, such a
19 reduction would be extremely minimal in relation to total population size and would not result in
20 long-term effects on the sustainability of any wildlife species. The wildlife habitat present in the
21 project area is both locally and regionally common, and the permanent loss of up to 223.00 acres
22 of wildlife habitat scattered over 2.8 million acres would not adversely affect the population
23 viability or fecundity of any wildlife species in the region.
24

25 All IFTs may have infrared lighting installed for aviation safety, and, if installed, any such
26 lighting would be compatible with NVG usage. All proposed IFT sites may be lighted for
27 security purposes. If installed, such lighting would consist of a “porch light” on the tower
28 shelter, which would be controlled by a motion detector. When installed, the light would be
29 shielded to avoid illumination outside the footprint of the IFT site, and low-pressure sodium
30 bulbs would be used. USFWS’s *Service Guidance on the Siting, Construction, Operation and*
31 *Decommissioning of Communications Towers and Recommendations for Design and*
32 *Construction of Cell Phone and Other Towers* would be implemented to reduce nighttime
33 atmospheric lighting and the potential adverse effects of nighttime lighting on migratory bird and
34 nocturnal flying species (USFWS 2000, 2015b).
35

36 Noise associated with IFT and access road construction, approach road maintenance and repair
37 would result in temporary, negligible impacts on wildlife. Elevated noise levels associated with
38 construction and maintenance activities would only occur during these activities. The effects of
39 this disturbance would include temporary avoidance of work areas and competition for
40 unaffected resources. BMPs as outlined in Section 5.0 would reduce noise associated with
41 operation of heavy equipment.
42

43 Noise levels associated with the operation and maintenance of the towers would have a
44 permanent, negligible impact on wildlife species. The permanent increase in noise levels
45 associated with operation of the proposed tower sites (i.e., generators) would be sporadic, only
46 occurring when this equipment is operating. It is anticipated that wildlife would become

1 accustomed to these intermittent and minimal increases in noise and that subsequent avoidance
2 of tower sites and any adjacent habitats would be minor.
3

4 A small number of migratory birds may be injured or killed due to collisions with IFTs. It
5 should be noted that the placement and construction of the IFTs would follow guidance from the
6 USFWS for tower height and stabilization to reduce or avoid impacts on migratory birds. For
7 example, the IFT designs do not call for guy wires and the towers would not exceed 200 feet
8 above ground level. These factors greatly reduce the potential for bird collisions with tower
9 infrastructure because most tower collisions are associated with support wires and long distance
10 migrations occur at higher altitudes. Because of the low number of birds expected to be
11 impacted by IFTs and the IFT designs that incorporate measures designed to reduce tower and
12 bird interactions, the impacts to migratory birds are reduced to the maximum extent practicable.
13 The number and extent of bird strikes in relation to the size of migratory bird populations and the
14 extent of the migratory flyway would be minor and would not affect sustainability of migratory
15 bird populations in the region.
16

17 Electromagnetic (EM) radiation is a form of environmental disturbance that may affect wildlife
18 in various ways depending on the species, type of radiation, power of the emission, duration of
19 exposure, and proximity to the emitting source. Adverse biological effects associated with
20 radiofrequency (RF) energy are typically related to the heating of tissue by RF energy. For birds,
21 EM effects could include reducing nesting success when within close proximity to the emitting
22 source (Balmori 2009; Fernie & Reynolds 2005) and various behavioral and physiological
23 responses to electromagnetic fields (Fernie & Bird 2000; Fernie & Bird 2001), such as disruption
24 of normal sleep-wake cycles through interference with pineal gland and hormonal imbalance.
25 Other non-thermal adverse effects such as disorientation of passing birds by RF waves are also
26 of concern. Past studies on effects of communication towers were noted by Beason (1999)
27 during the 1999 Workshop on Avian Mortality at Communication Towers (Evans and Manville
28 2000). During this workshop, Beason (1999) noted that most research on RF signals produced
29 by communication towers have no general disorientation effects on migratory birds. However,
30 more research is needed to better understand the effects of RF energy on the avian brain.
31

32 In addition, Salford (2003) and Marks (1995) report various effects on mammals from EM
33 radiation exposure, including changes in alarm and aversion behavior, deterioration of health,
34 reproductive problems, and changes in normal sleep wake patterns. Notably, experiments and
35 field observations in these studies were based on continual, long-duration exposure, within close
36 proximity (a few meters) to the emitting source. As described in Section 3.6, CBP is currently
37 conducting long-term studies of possible impacts of similar towers on lesser-long nosed bats.
38

39 Based on the current knowledge of microwave emissions and the type of system deployed, EM
40 emissions could have minor impacts on wildlife. However, neither nesting nor breeding activity
41 would occur sufficiently close to the microwave emitter. In addition, the tower sites are located
42 in areas with relatively low densities and abundance of animal populations, compared to those
43 sites studied in the scientific literature. Moreover, wildlife transiting or migrating near the
44 proposed tower sites would not be exposed to sufficient levels of EM radiation to exhibit effects
45 generally seen in the scientific literature. CBP's current studies on lesser-long nosed bats may
46 further support this determination or contribute additional information to revise this conclusion.

1
2 BMPs would be implemented to reduce disturbance and loss of wildlife habitats such as
3 conducting biological surveys prior to construction activities scheduled during nesting seasons
4 and covering or providing an escape ramp for all steep-walled holes or trenches left open at the
5 end of the construction work day. The proposed IFTs could provide raptor perch and nesting
6 sites, but BMPs would also be implemented to discourage this activity. The Tohono O’odham
7 Nation WVMP would be notified of any bird mortality observed during construction activities.
8

9 **3.5.3 Alternative 3**

10 Alternative 3 would result in impacts on wildlife and wildlife habitat similar to those described
11 for the Proposed Action.
12

13 **3.6 THREATENED AND ENDANGERED SPECIES**

14 Federally Listed and Candidate Species

15 The ESA of 1973 (16 U.S.C. § 1531 et seq., as amended) defines an endangered species as a
16 species “in danger of extinction throughout all or a significant portion of its range.” A
17 threatened species is a species “likely to become endangered within the foreseeable future
18 throughout all or a significant portion of its range.” Species may be considered endangered or
19 threatened “because of any of the following factors: (1) the present or threatened destruction,
20 modification, or curtailment of its habitat or range; (2) overutilization for commercial,
21 recreational, scientific, or educational purpose; (3) disease or predation; (4) the inadequacy of
22 existing regulatory mechanisms; and (5) other natural or human-induced factors affecting
23 continued existence.” Proposed species are those that have been proposed in the *Federal*
24 *Register* (FR) to be listed under Section 4 of the ESA. USFWS has identified species that are
25 candidates for listing because of identified threats to their continued existence. The candidate
26 designation includes those species for which USFWS has sufficient information to support
27 proposals to list as endangered or threatened under the ESA (USFWS and NMFS, 1998).
28
29

30 There are 21 Federally listed endangered and threatened species and one candidate species with
31 the potential to occur in Pima County, Arizona (USFWS 2016). Of these, the following four
32 listed species have the potential to occur within the project area: Sonoran pronghorn
33 (*Antilocapra americana sonoriensis*), jaguar (*Panthera onca*), lesser long-nosed bat
34 (*Leptonycteris curasoae yerbabuena*), and western distinct population segment (DPS) of the
35 yellow-billed cuckoo (*Coccyzus americanus*) (Table 3-8). Eight of these 21 Federally listed
36 species have designated critical habitat but not within the range of potential effects of the
37 Proposed Action. A brief description of the four species with the potential to occur near the
38 action area is presented in the following paragraphs.
39

Table 3-8. Federally Listed and Proposed Species Potentially Occurring within Pima County, Arizona

Common (Scientific Name)	Federal Status	Habitat	Effect Determination
PLANTS			
Acuña cactus (<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>)	Endangered, Proposed Critical Habitat	Inhabits well-drained knolls and gravel ridges in Sonoran desertscrub at elevations of 1,198 – 3,773 feet.	No effect. No adverse modification of proposed critical habitat.
Canelo Hills Ladies'-tresses (<i>Spiranthes delitescens</i>)	Endangered	Inhabits fine-grained, highly organic but well-drained moist soils near springs, seeps, wet meadows (cieneegas) and small streams. Known locations are at approximately 5,000 feet elevation.	No effect.
Huachuca water umbel (<i>Lilaeopsis schaffneriana</i> spp. <i>recurva</i>)	Endangered, Designated Critical Habitat	Inhabits saturated soils and shallow waters associated with cieneegas or marshy wetlands within Sonoran desertscrub, grassland, or oak woodland and conifer forest.	No effect. No adverse modification of designated critical habitat.
Kearney's blue star (<i>Amsonia kearneyana</i>)	Endangered	Inhabits west-facing drainages in the Baboquivari Mountains.	No effect.
Nichol Turk's head cactus (<i>Echinocactus horizontalonius</i> var. <i>nicholii</i>)	Endangered	Inhabits unshaded microsites in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountain sides.	No effect.
Pima pineapple cactus (<i>Coryphantha scheeri</i> var. <i>robustispina</i>)	Endangered	Inhabits Sonoran desertscrub or semi-desert grassland communities in alluvial valleys or on hillsides in rocky to sandy or silty soils.	No effect.
BIRDS			
California least tern (<i>Sterna antillarum brownii</i>)	Endangered	Inhabits open, bare, or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems.	No effect.
Masked bobwhite (<i>Colinus virginianus ridgewayi</i>)	Endangered	Inhabits desert grasslands with diversity of dense native grasses, forbs, and brush. The species is closely associated with prairie acacia (<i>Acacia angustissima</i>).	No effect.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened, Designated Critical Habitat	Nests in canyons and dense forests with multilayered foliage structure.	No effect. No adverse modification of designated critical habitat.

1
2

Table 3-8 (cont.)

Common (Scientific Name)	Federal Status	Habitat	Effect Determination
Southwestern willow flycatcher (<i>Empidonax traillii eximius</i>)	Endangered, Designated Critical Habitat	Inhabits dense riparian cottonwood/willow and tamarisk vegetation communities along rivers and streams.	No effect. No adverse modification of designated critical habitat.
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened, Proposed Critical Habitat	Inhabits large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	May affect, but not likely to adversely affect. No adverse modification of proposed critical habitat.
AMPHIBIANS			
Chiricahua leopard frog (<i>Lithobates chiricahuensis</i>)	Threatened, Designated Critical Habitat	Inhabits streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	No effect. No adverse modification of designated critical habitat.
REPTILES			
Northern Mexican gartersnake (<i>Thamnophis eques megalops</i>)	Threatened, Proposed Critical Habitat	Riparian obligate that inhabits cienegas, stock tanks, large river woodlands and streamside gallery forest.	No effect.
Sonoya mud turtle (<i>Kinosternon sonoriense longifemorale</i>)	Candidate	Inhabits ponds and streams. Found in Quitobaquito Springs in Organ Pipe Cactus National Monument (OPCNM) and may potentially inhabit Menagers Lake.	No determination.
MAMMALS			
Jaguar (<i>Panthera onca</i>)	Endangered, Designated Critical Habitat	Known to inhabit a variety of biotic communities, from Sonoran desertscrub to subalpine coniferous forests.	May affect, but not likely to adversely affect. No adverse modification of designated critical habitat.
Lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuena</i>)	Endangered	Inhabits Sonoran desertscrub, semi-desert grassland, and Madrean oak woodland habitats with agave and columnar cacti present as foraging resources.	May affect, but not likely to adversely affect.

Table 3-8 (cont.)

Common (Scientific Name)	Federal Status	Habitat	Effect Determination
Ocelot (<i>Leopardus pardalis</i>)	Endangered	Inhabits humid tropical and subtropical forests, savannahs, and semi-arid thornscrub.	No effect.
Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>)	Endangered	Inhabits broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations.	No effect.
FISHES			
Desert pupfish (<i>Cyprinodon macularius</i>)	Endangered, Designated Critical Habitat	Inhabits shallow springs, small streams and marshes.	No effect. No adverse modification of designated critical habitat.
Gila chub (<i>Gila intermedia</i>)	Endangered, Designated Critical Habitat	Inhabits pools, springs, cienegas and streams.	No effect, no adverse modification.
Gila topminnow (<i>Poeciliopsis occidentalis occidentalis</i>)	Endangered	Inhabits small streams, springs, cienegas, and vegetated shallows.	No effect.
Sonora Chub (<i>Gila ditaenia</i>)	Threatened, Designated Critical Habitat	Known to occur in the Rio de la Concepcion drainage.	No effect. No adverse modification of designated critical habitat..

Sources: AGFD 2015; USFWS 2016

1 *Sonoran Pronghorn*

2 The Sonoran pronghorn is an endangered species that inhabits broad intermountain alluvial
3 valleys with creosote-bursage and palo-verde-mixed cacti associations. Although the proposed
4 project is inside the historic range of this species, the pronghorn's current distribution is confined
5 to the Pinacate and Quitovac Ranges in Mexico, and the Cabeza Prieta and Kofa Ranges in
6 Arizona (USFWS 2015a). This species is not known to occur within the vicinity of the proposed
7 action, and areas where the CBP conducted biological surveys are outside of the Sonoran
8 pronghorn's known range (GSRC 2013; Kramer 2014; and HDR 2015a).

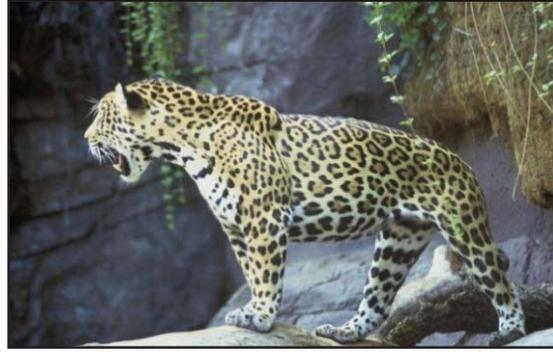
9
10 USFWS (2015b) has identified the eastern limit of the current range of Sonoran pronghorn as SR
11 85. TCA-AJO-216 and TCA-AJO-305 are existing communication towers located along SR 85.
12 The closest proposed new IFT site (TCA-AJO-046) is approximately 4 miles east of SR 85.
13 However, infrequent occurrences of pronghorn have been reported on the Tohono O'odham
14 Nation. There have been two verified Sonoran pronghorn observed on the Tohono O'odham
15 Nation since approximately 1929 (D. Brown, pers. comm., 2013). In 2010, a pronghorn was
16 observed on the Tohono O'odham Nation, approximately 45 miles northeast of tower TCA-AJO-
17 0305. The Tohono O'odham Nation, a participating member of the Sonoran Pronghorn
18 Recovery Team, identified the species as a possible Sonoran pronghorn, but the observation was
19 not confirmed by USFWS or AGFD. It is believed that the pronghorn may have been a member
20 of the Pinacate Range, southeast of the Tohono O'odham Nation. In May and June 2014, radio
21 telemetry equipment detected one male pronghorn ranging in a heavily trafficked area
22 approximately 30 miles east of Why, Arizona, along SR 86 near San Simon. This male was one
23 of six collared pronghorn released within Organ Pipe Cactus National Monument (OPCNM)
24 during the winter of 2013. Two females and one male were also observed ranging back and forth
25 across SR 85 but did not wander far enough east to reach the Tohono O'odham Nation. The
26 collared male that was identified on the Tohono O'odham Nation in 2014, returned west of SR
27 85 after a short period of time and has not returned (USFWS 2015a).

28
29 Section 10(j) of the ESA designates the Sonoran pronghorn as a non-essential experimental
30 population when found on the Tohono O'odham Nation. A non-essential experimental
31 population is a population that, based on the best available science, is not essential for the
32 continued existence of the species and receives reduced regulatory protection. Because the
33 proposed project would occur on the Tohono O'odham Nation, CBP is required to confer with
34 the USFWS when an action is likely to jeopardize the continued existence of this species
35 (USFWS 2011).

36
37 *Jaguar*

38 The jaguar is the largest and most robust of the North American cats (Photograph 3-3). The
39 southwestern United States and Sonora, Mexico, are the extreme northern limits of the jaguar's
40 range, which extends through southern Mexico, into Central and South America to northern
41 Argentina (Hatten et al. 2005). The jaguar's home range is highly variable and is dependent on
42 topography, prey abundance, and the population density of resident jaguars (Brown and
43 Gonzalez 2001). The jaguar's potential range in Arizona includes mountain ranges and rugged
44 terrain along the southeast border. A closed vegetative structure is the major habitat requirement
45 for the jaguar. The open, dry areas in the southwestern United States are considered marginal

1 habitat in terms of water, cover, and prey
 2 densities. Jaguars usually avoid open country
 3 like grassland and desert scrub (USFWS 2012).
 4 Jaguar distribution patterns over the last 50
 5 years and recent observations of individuals
 6 suggest that southeast Arizona is the most likely
 7 area for jaguar occurrence in the United States
 8 (Hatten et al. 2002). In 2001, the Borderlands
 9 Jaguar Detection Project was initiated to
 10 systematically survey for jaguars in southeastern
 11 Arizona. During this project, Childs and Childs
 12 (2008) reported that two male jaguars and a
 13 possible third were documented in southeastern
 14 Arizona between March 2001 and July 2007. This third jaguar, subsequently referred to as
 15 “Macho B,” was documented moving between the Atascosa Mountain complex and the
 16 Baboquivari Mountain complex, between 2004 and 2007 (McCain and Childs 2008). Macho B
 17 was euthanized in 2009. Most recently, an ongoing automatic wildlife camera study being
 18 conducted by the University of Arizona has revealed a single adult male jaguar, in the eastern
 19 Santa Rita Mountains, Pima County, Arizona, which is over 55 miles northeast of the Tohono
 20 O’odham Nation (Davis 2013). The adult male, nicknamed “El Jefe,” has been photographed at
 21 least seven times since October 2012.



Photograph 3-3. Jaguar
 (Source: USFWS)

22
 23 USFWS determined that the following physical or biological features are essential to the
 24 conservation of the jaguar: expansive open spaces in the southwestern United States with
 25 adequate connectivity to Mexico that contains a sufficient native prey base, have available
 26 surface water within 12.4 miles, have suitable vegetative cover and rugged topography below
 27 6,562 feet amsl to provide sites for resting, and have minimal to no human population density.
 28 In March 2014, USFWS designated 764,207 acres of critical habitat for the jaguar, including
 29 areas along and near the international border in Pima, Santa Cruz, and Cochise Counties,
 30 Arizona, and Hidalgo County, New Mexico (79 FR 12571) (Figure 3-1). The Tohono O’odham
 31 Nation lands were excluded from the critical habitat designation.

32 33 *Lesser Long-nosed Bat*

34 USFWS listed the lesser long-nosed bat as endangered in 1988 and published the most recent
 35 Recovery Plan in 1997 (USFWS 1997). USFWS completed a 5-year review of the species in
 36 2007, recommending that the species be downlisted to threatened (USFWS 2007b). The lesser
 37 long-nosed bat’s range extends from southern Arizona and extreme southwestern New Mexico,
 38 through western Mexico and south to El Salvador (see Figure 3-2; USFWS 1997). Lesser long-
 39 nosed bats primarily utilize natural caves and abandoned mines for roosting but can transiently
 40 roost among overhanging rocks and other shelters. Occupied roosts have been documented from
 41 eastern portions of the Cabeza Prieta National Wildlife Refuge, north as far as Phoenix and east
 42 as far as the Animas Valley in New Mexico (Cockrum and Petryszyn 1991). Use of roosting
 43 sites may vary depending upon seasonal fluctuations in the timing of available forage. Thus,
 44 some roosts may be occupied or unoccupied through parts or all of a breeding season. Female
 45 lesser long-nosed bats arrive at known maternity roosts in southwest Arizona as early as April
 46 and continuing through mid-July (USFWS 1997). These maternity colonies begin to disband by

1 September. Both males and females can be found in transient roosts or at maternity roosts from
2 September to as late as early November.

3
4 Lesser long-nosed bats feed on nectar of paniculate agaves and nectar and fruits of columnar
5 cacti; as such, they are considered an important dispersal and pollination vector for these plant
6 species (AGFD 2003). Lesser long-nosed bats are known to travel 30 miles to reach suitable
7 concentrations of forage. No agaves were observed within the project area; however, two
8 species of columnar cacti, saguaro and organ pipe cacti, were observed at low densities
9 throughout the project area (see Table 3-6).

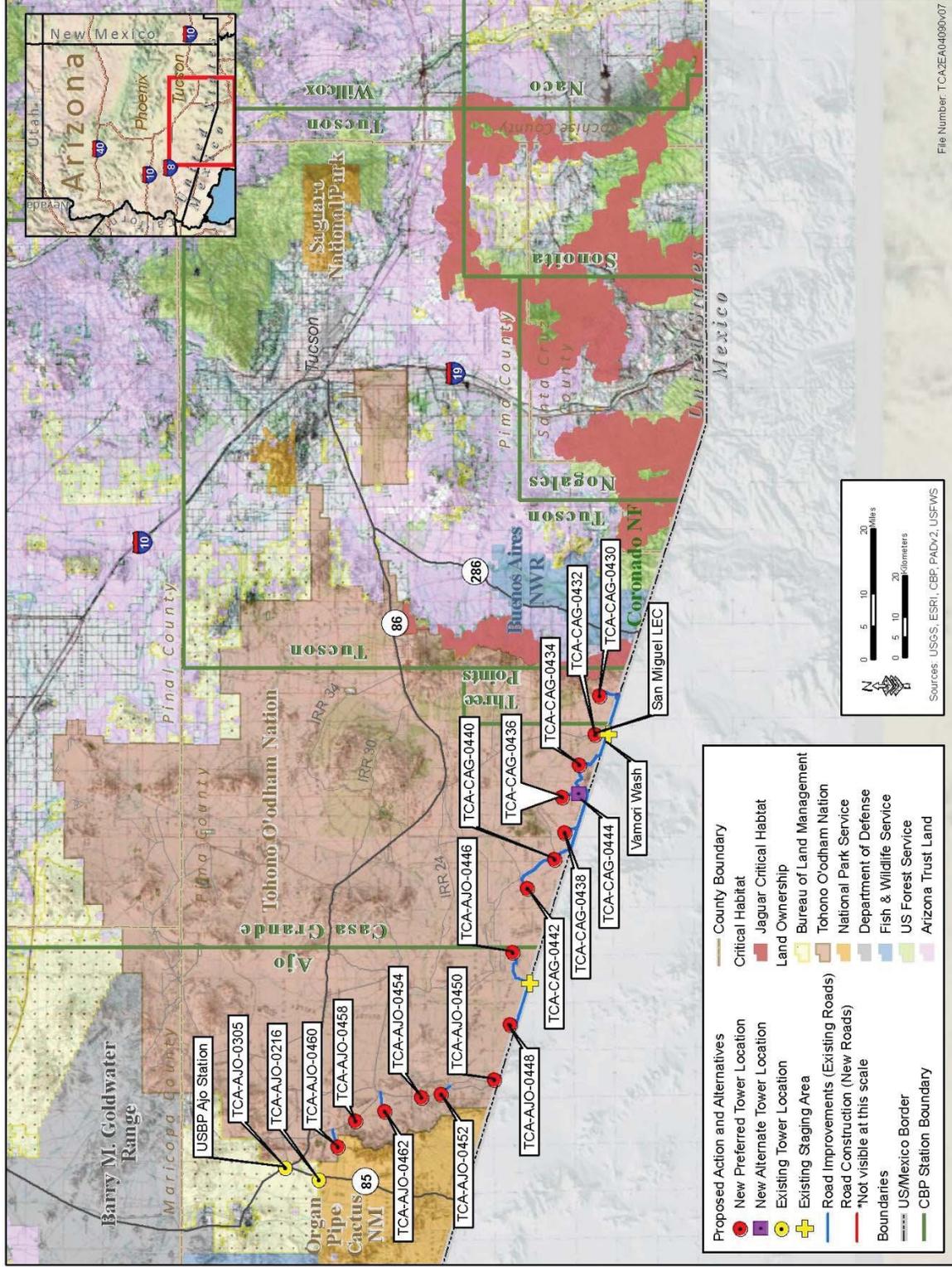
10

11 *Yellow-billed Cuckoo*

12 USFWS lists the western DPS of the yellow-billed cuckoo (*Coccyzus americanus*) as threatened
13 under the ESA, effective November 3, 2014 (79 FR 59992). The western population of this
14 avian species is a secretive, insectivorous Neotropical migrant inhabiting North American
15 riparian woodlands during the summer breeding season. Optimal habitat conditions include at
16 least 200 acres of dense canopy riparian forest near a perennial river or stream, dominated by
17 willow and cottonwood trees that provide prime feeding and nesting opportunities. Habitats
18 dominated by mesquite and nonnative tamarisk are also known to support the yellow-billed
19 cuckoo; however, the requirement for sufficient water and humidity levels in proximity to these
20 habitats is crucial for nesting site selection (USFWS 2014b). Laymon (1998) notes that flooding
21 in wet years reduces the survival of larvae of preferred prey that winter underground, katydids
22 and sphinx moth, and that during these times the species requires upland foraging habitat away
23 from the floodplain that contains adequate foraging opportunities. In the extreme southern
24 portion of their range in the States of Sonora (southern quarter) and Sinaloa, Mexico, yellow-
25 billed cuckoos also nest in upland thorn scrub and dry deciduous habitats away from the riparian
26 zone (Russell and Monson 1988), though their densities are lower in these habitats than they are
27 in adjacent riparian areas.

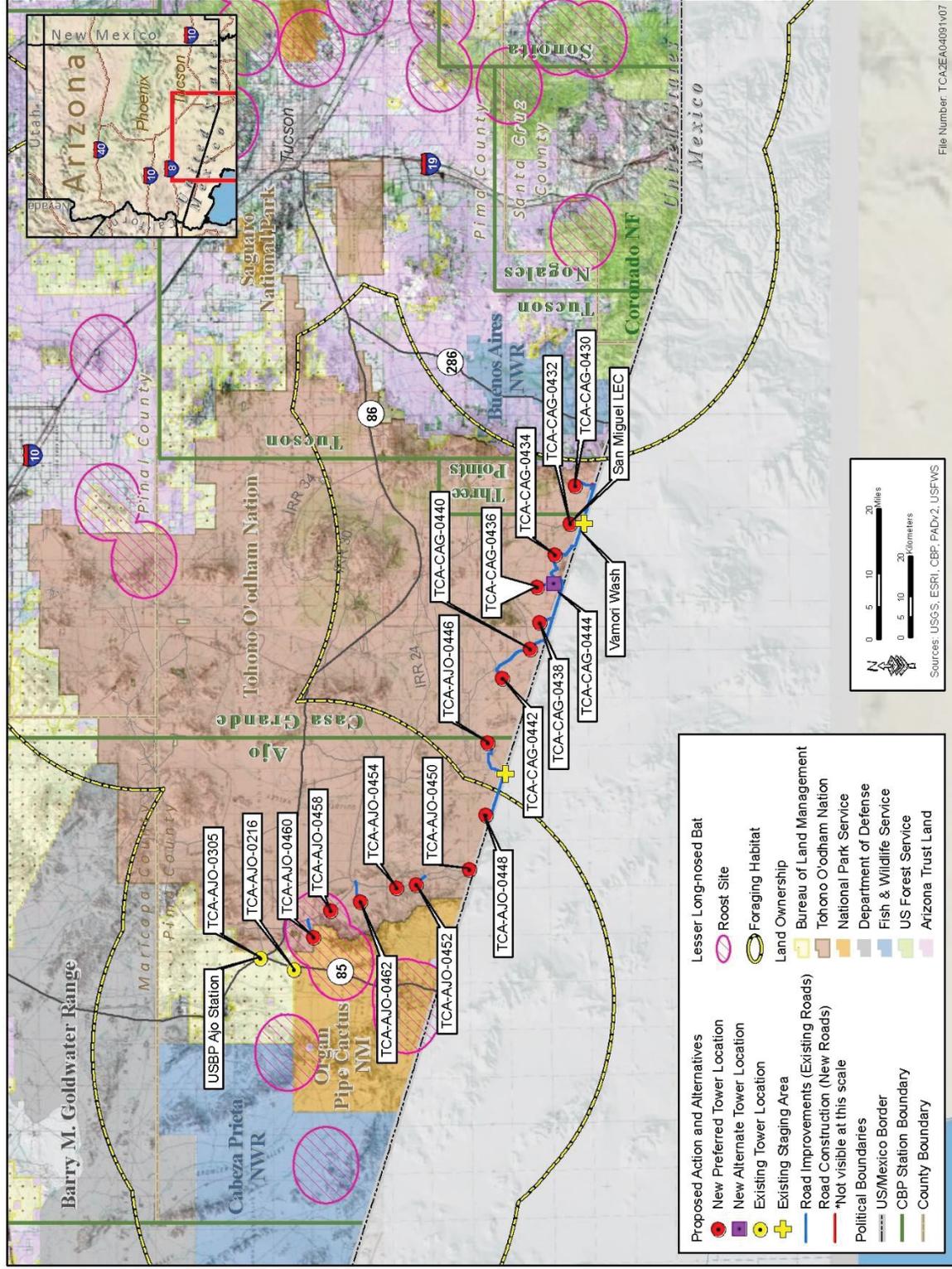
28

29 During the regional period of northern migration, which begins in May in Arizona, the yellow-
30 billed cuckoo is known to roam widely assessing the availability of food resources before
31 selecting a nest site, and more than one nest site may be utilized during a single breeding season
32 (15 May through 30 September). During these movements, the species may frequent strips of
33 woodland habitat that may not otherwise provide sufficient conditions for nesting. The yellow-
34 billed cuckoo's home range averages approximately 100 acres but has been documented at up to
35 500 acres. USFWS has proposed designating critical habitat for this species (79 FR 48548)
36 (USFWS 2014a). At this time, no critical habitat is proposed within or near the project area
37 (Figure 3-3).



March 2016

Figure 3-1. Designated Critical Habitat for the Jaguar in the Vicinity of the Action Area



March 2016

Figure 3-2. Lesser Long-nosed Bat Roost Sites in the Vicinity of the Action Area

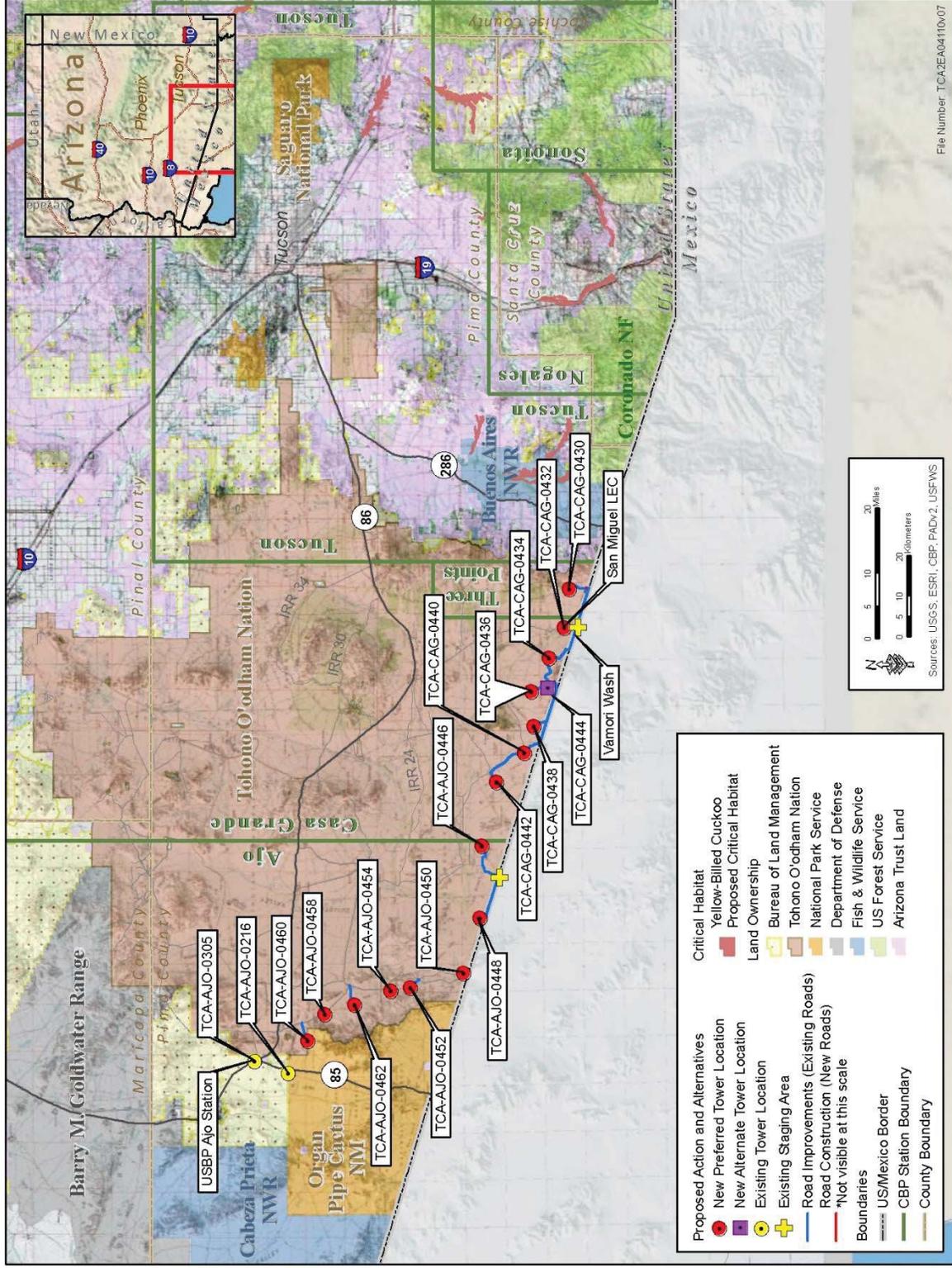


Figure 3-3. Proposed Critical Habitat for the Western Yellow-billed Cuckoo in the Vicinity of the Action Area

March 2016

1 State-Listed Species

2 The Arizona Natural Heritage Program (ANHP) maintains a list of species with special status in
 3 Arizona. The ANHP list includes flora and fauna whose occurrence in Arizona is or may be in
 4 jeopardy or that have known or perceived threats or population declines (AGFD 2015). The
 5 ANHP list for Pima County is provided in Appendix F. These species are not necessarily the
 6 same as those protected under the ESA. Several state-listed special status species for Pima
 7 County were observed during the July 2012 site visits and the June 2013, April 2014, July 2014,
 8 June 2015, and October 2015 biological surveys (Table 3-9). The project area could be
 9 considered suitable habitat for various state-sensitive bird, mammal, and plant species.

10
 11 **Table 3-9. State-Listed Special Status Species Observed**

Common Name	Scientific Name
Antelope Jackrabbit	<i>Lepus alleni</i>
Cactus Ferruginous Pygmy-owl	<i>Glaucidium brasilianum cactorum</i>
Counterclockwise Nipple Cactus	<i>Mammillaria mainiae</i>
Crested Caracara	<i>Caracara cheriway</i>
Dahlia-rooted Cereus	<i>Peniocereus striatus</i>
Emory's Barrel Cactus	<i>Ferocactus emoryi</i>
Night-blooming Cereus	<i>Peniocereus greggii</i>
Organ Pipe Cactus	<i>Stenocereus thurberi</i>
Sonoran Collared Lizard	<i>Crotaphytus nebrius</i>
Thornber's Fishhook Cactus	<i>Mammillaria thornberi</i>
Tumamoc Globeberry	<i>Tumamoca macdougalii</i>

12 Sources: AGFD 2015

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14 Tohono O'odham Nation Sensitive Species

15 The Tohono O'odham Nation maintains a list of species that are considered endangered and
 16 culturally sensitive. Several of these species were observed during the site visits and biological
 17 surveys. A complete listing of the Tohono O'odham Nation Endangered and Culturally
 18 Sensitive Species is not included in this EA at the request of the Tohono O'odham Nation. The
 19 list of sensitive species may be obtained by contacting the Tohono O'odham Nation WVMP. At
 20 the request of the Tohono O'odham Nation WVMP, CBP included BMPs for the Sonoran
 21 pronghorn and the Sonoran desert tortoise (*Gopherus morafkai*) in Section 5.0 of this EA should
 22 these species be encountered within or near the project area.

24 **3.6.1 Alternative 1: No Action Alternative**

25 Under the No Action Alternative, there would be no direct impacts on threatened or endangered
 26 species or their habitats as no construction activities would occur. However, the indirect and
 27 long-term impacts of illegal border activities throughout the project area and surrounding areas
 28 could continue to disturb threatened or endangered species and their habitats (USFWS 2015a).
 29 Cross-border violator activities create trails, damage vegetation, and promote the dispersal and
 30 establishment of invasive species. These actions have an indirect adverse impact on threatened
 31 and endangered species by causing harm to individuals and degrading habitats occupied by these
 32 species.

1 **3.6.2 Alternative 2: Proposed Action**

2 Based on the information outlined below, CBP has determined that the Proposed Action may
3 affect, but is not likely to adversely affect, the Sonoran pronghorn, jaguar, lesser long-nosed bat,
4 and yellow-billed cuckoo and is not anticipated to adversely modify proposed or designated
5 critical habitat. Biological surveyors observed several state-listed and culturally-sensitive
6 species within the project area; however, these species would be avoided during tower
7 construction or transplanted prior to construction if the species is eligible for relocation. CBP is
8 currently consulting with USFWS under ESA Section 7 for the Proposed Action; results from the
9 consultation will be incorporated into the Final EA.

10 Sonoran Pronghorn

11 Sonoran pronghorn are highly sensitive to human activity and typically respond by avoidance.
12 The intensity of impacts related to avoidance behavior would depend on many biotic and
13 climatic factors. If an individual is startled during a period of drought and is already under
14 physical stress, the disturbance would further increase the physical stress. A lack of alternative
15 sources of cover and forage could compound these impacts.

16
17
18 Based on telemetry data and biological surveys of proposed tower sites and roads, Sonoran
19 pronghorn are not likely to occur in the vicinity of proposed tower sites or approach roads. New
20 individuals from captive breeding pens have recently been known to use the area east of SR 85,
21 particularly on the Organ Pipe Cactus National Monument. With only two confirmed sighting
22 on the Tohono O'odham Nation during the last 84 years, coupled with USFWS's identification
23 of the range of the known population, suggests that Sonoran pronghorn have been extirpated
24 from the Tohono O'odham Nation. Further, USFWS does not anticipate the establishment of a
25 non-essential experimental population of Sonoran pronghorn in the vicinity of the Proposed
26 Action before 2016. The occupancy of Tohono O'odham Nation lands by Sonoran pronghorn is
27 sporadic and uncommon, and there is limited potential for this project to directly affect the
28 Sonoran pronghorn. Any individuals found on the Tohono O'odham Nation would qualify as
29 part of a non-essential experimental population under ESA Section 10(j). Increased interdictions
30 within the immediate vicinity of the tower sites could potentially affect pronghorn that may
31 become established in the 10(j) area. However, this population would not create any
32 impediments to border security efforts; and, ultimately, the reduction in illegal activity in the
33 immediate vicinity of the proposed tower sites could have a long-term, indirect benefit to
34 Sonoran pronghorn. Therefore, CBP has determined that the Proposed Action may affect, but is
35 not likely to adversely affect, the Sonoran pronghorn and has adopted the BMPs requested by the
36 Tohono O'odham Nation.

37 Jaguar

38
39 None of the proposed IFTs are located within designated critical habitat for the jaguar. The
40 closest IFT site, TCA-CAG-0430, is located approximately 2 miles west of the boundary for
41 Subunit 1b: Southern Baboquivari Subunit. Subunit 1b includes approximately 21,000 acres and
42 was not considered occupied at the time of listing (79 FR 12572). As recently as 2007, a single
43 male jaguar (Macho B) was confirmed in the area now identified as designated critical habitat
44 Subunit 1a (Baboquivari-Coyote Subunit); however, Macho B was euthanized in 2009. The
45 southern boundary of Subunit 1a is approximately 10 miles east from the nearest tower location
46 (TCA-CAG-0430). The most recent confirmed jaguar sightings have occurred approximately 55

1 miles northeast of the Tohono O’odham Nation in the eastern Santa Rita Mountains, Pima
2 County, Arizona (Davis 2013). In addition, most of the recent confirmed jaguar observations in
3 Arizona have been from Madrean oak woodland and semidesert grassland habitats (77 FR
4 50214). Proposed IFT site TCA-CAG-0430 occurs in Arizona upland Sonoran desertscrub.
5 Although jaguars have been known to move through desertscrub habitats, there is no evidence of
6 jaguars occupying this habitat type. Additionally, implementation of BMPs would minimize
7 removal of native vegetation and disturbance of soils.
8

9 Construction of tower sites and access roads and improvements to approach roads would result in
10 a temporary increase of noise and human-related activity. Due to the limited duration and
11 limited area over which these effects would occur relative to the assumed range of the jaguar, the
12 potential for adverse effects to occur would be discountable. Construction-related noise effects
13 would not extend more than 1,000 feet from construction activities. Due to the vast amount of
14 equally suitable habitat and distance between tower sites, any noise-related effects are not likely
15 to result in changes in behavior such that the health of individual jaguars would be affected and
16 are thus considered discountable. Operation-related noise, any required maintenance, and post-
17 construction monitoring would be limited in extent and duration and would be less in magnitude
18 than construction-related noise effects, and it is highly unlikely that a jaguar would be present
19 during these activities. Implementation of BMPs would further minimize the effects of noise,
20 light, and human presence during construction and operation.
21

22 Given the distance of the most recent sightings, the marginal jaguar habitat in the Action Area,
23 the relatively small area of impact, and the implementation of BMPs during construction and
24 operation of the IFTs, associated access roads, and approach roads, CBP has determined that the
25 Proposed Action may affect, but is not likely to adversely affect, the jaguar and would not
26 adversely modify designated critical habitat.
27

28 Lesser Long-nosed Bat

29 No roosts were observed within the project footprint. Two proposed tower sites, TCA-AJO-
30 0458 and TCA-AJO-0460, and their associated access and approach roads are located within 5
31 miles of a known lesser long-nosed bat roost, and seven of the proposed IFT sites (TCA-AJO-
32 0448, -0450, -0452, -0454, -0458, -0460, and -0462) and associated roads are located within the
33 30-mile range of foraging lesser long-nosed bats (Figure 3-2). Since no agave were observed
34 within the project footprint, saguaro and organ pipe cacti likely serve as the primary food source
35 for foraging lesser long-nosed bats within the area.
36

37 Saguaro and organ pipe cacti were observed at varying densities within and near the project
38 footprint (CBP 2013a). During the biological surveys, the locations of all saguaros and organ
39 pipe cacti within the project footprint were documented to sub-meter accuracy using handheld
40 Global Positioning System (GPS) devices. The data collected was utilized during the design
41 phases for the tower sites and approach roads to avoid removal of or impacts on columnar cacti
42 from the proposed project area. The construction footprint boundaries and all saguaro and organ
43 pipe cacti within them would be flagged prior to the initiation of construction activities and
44 avoided where practicable.
45

1 During the biological surveys, the heights of the columnar cacti were recorded. As per guidance
2 from the Tohono O’odham Nation, columnar cacti that are 10 feet tall or shorter are eligible for
3 relocation outside the project footprint. Avoidance, relocation, or 3:1 ratio replacement for
4 columnar cacti would minimize potential impacts on lesser long-nosed bat foraging
5 opportunities. Currently, CBP predicts only having to relocate and replace less than five
6 columnar cacti throughout the entire project area.

7
8 From 2010 through 2014, CBP conducted bat carcass surveys at existing CBP communications
9 and sensor towers in the Ajo and Tucson Stations’ AORs in an effort to document bat fatalities
10 associated with CBP towers (GSRC 2012, 2014). The existing towers were monitored during
11 lesser long-nosed bat’s peak activity periods. No bat carcasses have been observed during the 5
12 years completed for this ongoing study. The data collected to date show no potential for lesser
13 long-nosed bats to be impacted by the proposed IFT sites. Bats would be able to avoid the
14 physical structures at the IFT site. Therefore, the physical presence of 14 towers (seven within
15 the lesser long-nosed bat Action Area) is not expected to have an adverse effect on lesser long-
16 nosed bat and any potential effects would be discountable.

17
18 Nicholls and Racey (2007) suggest that the electromagnetic field (EMF) produced by radio
19 equipment could affect lesser long-nosed bat by causing increased surface and deep body
20 temperatures if exposed for prolonged periods or by causing bats to avoid foraging in the
21 immediate area. However, current monitoring conducted by CBP at existing sensor towers
22 equipped with radar has not shown that the lesser long-nosed bats avoid the tower sites or
23 adjacent areas. Given the construction and design measures that would be implemented during
24 construction of the towers and the data obtained from 4 years of monitoring operational towers,
25 CBP has determined that the Proposed Action may affect, but is not likely to adversely affect, the
26 lesser long-nosed bat. Implementation of BMPs would minimize any potential impacts on forage
27 plants and would reduce the potential for catastrophic wildfires due to the spread of invasive
28 plant species. USFWS has observed noticeably adverse impacts from the use and occupancy of
29 roost sites by individuals involved in illegal border crossings. A beneficial impact may occur
30 from the reduction in roost disturbance due to a law enforcement presence and the detection
31 capabilities of illegal border crossings (USFWS 2007b).

32 33 Yellow-billed Cuckoo

34 CBP contracted biological surveyors observed a yellow-billed cuckoo in the Vamori Wash in
35 June 2014 (Kramer 2014). In coordination with the Tohono O’odham Nation, CBP conducted
36 protocol surveys for the species using established protocols (Halterman et al. 2015) for the 2015
37 breeding season. Surveyors observed two yellow-billed cuckoo’s near the project area, which
38 were detected without the use of playback calls to solicit a counter call (HDR 2015b). It was not
39 possible for the surveyors to conclusively determine breeding status or sex, due to the similarity
40 in the vocalizations between male and female cuckoos. The survey results suggest, however,
41 that those areas within the Vamori Wash with marginal levels of vegetation surrounding the
42 wash’s floodplain may support intermittent foraging and breeding activities. The results of the
43 surveys are being shared with USFWS through the ESA Section 7 consultation process. No
44 other washes qualify as suitable habitat within the vicinity of the project area. The species is
45 known, however, to stop over and forage at riparian habitat of less than 10 acres that is otherwise
46 unsuitable for nesting.

1 At 0.5 miles from Vamori Wash, TCA-CAG-0432 is the nearest IFT site to Vamori Wash.
 2 Construction of tower sites and access roads, and improvements to approach roads would result
 3 in a temporary increase of noise and human-related activity, with noise effects not extending
 4 more than 1,000 feet from construction activities. Maintenance and construction activities are
 5 unlikely to occur within the species' regional migration and breeding season (May to September)
 6 (USFWS 2014a) as this coincides with Arizona's monsoon season. Activities within Vamori
 7 Wash would be limited to maintenance and repair of the current Traditional Northern Road.
 8 BMPs would be implemented to further minimize impacts to the species. None of the 37
 9 proposed critical habitat units for the yellow-billed cuckoo in Arizona (79 FR 48548) are in
 10 proximity to the project (see Figure 3-3). Due to the range and status of the species, and the
 11 implementation of BMPs identified in Section 5.0, CBP considers adverse effects on the yellow-
 12 billed cuckoo to be discountable. Therefore, CBP has determined that the Proposed Action may
 13 affect, but is not likely to adversely affect, the yellow-billed cuckoo and no adverse modification
 14 of proposed critical habitat would occur.

16 **3.6.3 Alternative 3**

17 Under Alternative 3, impacts on protected species and critical habitats would be similar to those
 18 discussed for the Proposed Action.

20 **3.7 GROUNDWATER**

21
 22 The major aquifer in the San Simon Wash Basin in the vicinity of the IFT sites consists of
 23 consolidated crystalline and sedimentary rocks and unconsolidated sediments, and flow direction
 24 is generally from the east and north to the south. Groundwater storage for the San Simon Wash
 25 Basin ranges from 6.7 million to 45 million acre-feet to a depth of 1,200 feet with a natural
 26 recharge estimated at over 11,000 acre-feet (approximately 4 billion gallons) per year (ADWR
 27 2014). The water supply for the Tohono O'odham Nation comes from 73 groundwater wells
 28 within and around the Tohono O'odham communities. Water use is primarily related to
 29 municipal and domestic uses in the tribal communities and this usage is not causing an overdraft
 30 of the groundwater supplies within the basin (ADWR 2014).

32 **3.7.1 Alternative 1: No Action Alternative**

33 Under the No Action Alternative, no additional impacts on groundwater resources would occur
 34 as a result of constructing the proposed IFTs, constructing access roads, or improving approach
 35 roads.

37 **3.7.2 Alternative 2: Proposed Action**

38 The Proposed Action would have a temporary, direct, minor impact on groundwater resources.
 39 The Proposed Action would slightly increase demands on water supplies during the construction
 40 period. Water would be needed for a variety of construction activities, including, but not limited
 41 to, wetting construction sites for dust suppression, and concrete mixing. Water for construction
 42 activities would be obtained from an existing fire hydrant located in proximity to the border.
 43 CBP would contract with Tohono O'odham Utility Authority for the installation of a water meter
 44 on the fire hydrant. The water used during construction activities to control dust would equal
 45 approximately 400 acre-feet (approximately 130 million gallons) and would not affect the water
 46 supply for the Tohono O'odham Nation.

1 **3.7.3 Alternative 3**

2 Under Alternative 3, impacts on water resources would be similar to those described under the
3 Proposed Action.

4 **3.8 SURFACE WATERS AND WATERS OF THE UNITED STATES**

5
6
7 The project area is located within the San Simon Wash Basin. This basin occupies
8 approximately 1.5 million acres (2,284 square miles) and is characterized by plains and valleys
9 bordered by mountain ranges. It is located in the central portion of Pima County and extends
10 from the U.S./Mexico border northward. It is bounded to the west by the Ajo Mountains and to
11 the east by the Baboquivari Mountains (ADWR 2014).

12
13 The San Simon Wash Basin contains one large reservoir, Menagers Lake, with a maximum
14 storage of 15,000 acre-feet and 12 small reservoirs with a total surface area of 144 acres. Three
15 registered stock ponds are located within this basin. No permanent surface waters or reservoirs
16 are located at any of the proposed IFT sites or within the existing approach roads. No surface
17 waters in the vicinity of the IFT sites have state-approved designated uses, and none are listed on
18 the state Clean Water Act (CWA) Section 303(d) impaired waters list (ADEQ 2010).

19
20 Waters of the United States are defined within the CWA, and jurisdiction is addressed by the
21 USACE and EPA. Wetlands are a subset of the waters of the United States that may be subject
22 to regulation under Section 404 of the CWA (40 C.F.R. 230.3). A wetlands site must contain
23 hydric soils, wetland hydrology, and a dominance of hydrophytic vegetation in order to be
24 considered a wetland. Many waters of the United States are unvegetated and thus are excluded
25 from the USACE/EPA definition of wetlands, although they may still be subject to CWA
26 regulation. Other potential waters of the United States in the arid west include but are not
27 limited to desert playas, mud and salt flats, and intermittent and ephemeral stream channels
28 (Photograph 3-4). No wetlands were observed within the project area; however, there were 270
29 washes observed crossing either the approach roads or IFT sites (Appendix E). All washes
30 observed are classified as ephemeral streams and are considered potential waters of the United
31 States. A list of IFT sites, including the associated approach roads, and the number of potential
32 waters of the United States observed during biological surveys is presented in Table 3-10.

33
34 Activities that result in the dredging and/or filling of waters of the United States, including
35 wetlands, are regulated under Sections 404 and 401 of the CWA. The USACE established the
36 Section 404 Nationwide Permit (NWP) 14 to efficiently authorize common linear transportation
37 project activities that do not significantly impact waters of the United States, including wetlands.
38 For “Linear Transportation Projects” (e.g., roads, highways, and road improvements such as
39 those presented in the Proposed Action), the discharge cannot cause the loss of greater than 0.5
40 acres of waters of the United States (USACE 2012). In addition, the permittee must submit a
41 pre-construction notification to the USACE district engineer prior to commencing the activity if
42 (1) the loss of waters of the United States exceeds 0.1 acres or (2) there is a discharge in a special
43 aquatic site, including wetlands (USACE 2012). Each water of the United States is assessed
44 individually.

Table 3-10. Number of Potential Waters of the United States Associated with IFT Sites and Approach Roads

IFT Sites and Associated Approach Roads	Number of Potential Waters of the United States Observed
TCA-AJO-0446	2
TCA-AJO-0448	10
TCA-AJO-0450	3
TCA-AJO-0452	4
TCA-AJO-0454	5
TCA-AJO-0460	15
TCA-AJO-0462	5
TCA-CAG-0430	32
TCA-CAG-0434	35
TCA-CAG-0436	18
TCA-CAG-0438	53
TCA-CAG-0440	34
TCA-CAG-0442	18
TCA-CAG-0444	36
TCA-CAG-0446	0
TOTAL	270

3.8.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no additional impacts on surface waters or waters of the United States would occur as a result of constructing the proposed IFTs, constructing access roads, or maintaining or repairing approach roads.

3.8.2 Alternative 2: Proposed Action

The Proposed Action may potentially have temporary, direct, minor impacts on surface waters as a result of increases in erosion and sedimentation during periods of construction. Disturbed soils and hazardous substances (i.e., anti-freeze, fuels, oils, and lubricants) could directly affect water quality during a rain event. These effects would be minimized through the use of BMPs. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of a site-specific SWPPP. A site-specific spill response plan would also be in place prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local surface waters. Once the construction project is complete, the temporary construction footprints would be revegetated with native vegetation, as outlined in the SWPPPs, which would mitigate the potential of non-point source pollution to enter local surface waters. Therefore,



Photograph 3-4. Example of a Waters of the United States in the Southwest

1 there would be negligible to minor impacts on surface waters or waters of the United States
2 caused by soil erosion or sedimentation.

3
4 Biological surveys identified 270 potential waters of the United States located within the current
5 project's footprint. Maintenance and repair of existing approach roads could occur in all 270
6 crossings, subject to biological and cultural resource constraints. In addition, it is currently
7 estimated that 195 of these crossing would be improved with a low water crossing or culvert.
8 Proposed roadwork may affect potential waters of the United States by filling in existing washes
9 or altering the path of their overland flow. However, the impact area for any one of the
10 ephemeral washes would be less than 0.5 acres and would be authorized under NWP 14;
11 therefore, impacts would be negligible.

12
13 An impact of greater than 0.1 acres and less than 0.5 acres requires that a preconstruction
14 notification be submitted to the USACE and approved before the performance of any work.
15 Maintenance and repair of the existing Traditional Northern Road through Vamori Wash has the
16 potential to affect 0.13 acres. This is the only potential water of the United States in the project
17 area where roadwork would impact greater than 0.1 acres. CBP would submit a preconstruction
18 notification to the local USACE district before road improvements occur at the Vamori Wash, as
19 appropriate.

20
21 CBP would implement BMPs that would ensure that the Proposed Action would not result in
22 more than a minimal degradation of water quality at or near the project sites. A list of the 270
23 potential waters of the United States observed within the project footprint is presented in
24 Appendix E. The list provides the location, stream area within the project footprint, whether or
25 not modifications to the waters of the United States are covered under the NWP 14, and if a
26 preconstruction notification is required.

27 28 **3.8.3 Alternative 3**

29 Under Alternative 3, impacts on water resources would be similar to those described under the
30 Proposed Action. Maintenance and repair of existing approach roads could occur within 250
31 ephemeral washes that were identified as potential waters of the United States. Of these, 187
32 wash crossings would be further improved with a low water crossing or culvert.

33 34 **3.9 FLOODPLAINS**

35
36 Under the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Statute 975), Executive Order
37 (EO) 11988, *Floodplain Management*, and EO 13690, *Establishing a Federal Flood Risk*
38 *Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*,
39 each Federal agency is required to take actions to reduce the risk of flood loss, minimize the
40 impact of floods on human safety, health and welfare and preserve the beneficial values that
41 floodplains serve. EO 11988 and EO 13690 require that agencies evaluate the potential effects
42 of actions within a floodplain and avoid floodplains unless the agency determines that there is no
43 practicable alternative. Where the only practicable alternative is to site in a floodplain, a
44 planning process is followed to ensure compliance with EO 11988 and EO 13690. In summary,
45 this process includes the following eight steps:

- 1 1. Determine whether or not the action is in the regulatory floodplain.
- 2 2. Conduct early public notice
- 3 3. Identify and evaluate practicable alternatives, if any
- 4 4. Identify impacts of the action
- 5 5. Minimize the impacts
- 6 6. Reevaluate alternatives
- 7 7. Present the findings and a public explanation
- 8 8. Implement the action

9

10 This process is further outlined on FEMA’s Environmental Planning and Historic Preservation
 11 Program website (FEMA 2015). As a planning tool, the NEPA process incorporates floodplain
 12 management through analysis and public coordination.

13

14 Currently, Federal Emergency Management Agency (FEMA) floodplain data and maps are not
 15 available for Tohono O’odham Nation land. Available floodplain data from surrounding areas
 16 was extrapolated to estimate potential flood zones within the Tohono O’odham Nation based on
 17 proximity to washes, topography, and elevation. There are 270 ephemeral washes crossing near
 18 the IFT sites and/or existing approach roads. Although no IFT sites are located within potential
 19 flood zones, 10 of the sites (TCA-AJO-0448, TCA-AJO-0458, TCA-AJO-0460, TCA-CAG-
 20 0430, TCA-CAG-0432, TCA-CAG-0434, TCA-CAG-0436, TCA-CAG-0438, TCA-CAG-0440,
 21 and TCA-CAG-0442) are located adjacent to potential flood zones.

22

23 **3.9.1 Alternative 1: No Action Alternative**

24 Under the No Action Alternative, no impacts on floodplains would occur as a result of
 25 constructing the proposed IFTs, constructing access roads, or maintaining and repairing approach
 26 roads.

27

28 **3.9.2 Alternative 2: Proposed Action**

29 Neither FEMA nor the Tohono O’odham Nation have delineated floodplains or flood zones
 30 within the project area. No construction of tower sites or access roads would occur within a
 31 known potential flood zone, and no wetlands are present within the project footprint.
 32 Maintenance and repair of existing approach roads would occur within 270 ephemeral washes,
 33 195 of which would be further improved with a low water crossing or culvert. All other
 34 proposed low-water crossings would be designed to withstand a 25-year storm event. No
 35 structures would impede the conveyance of floodwaters, decrease floodplain capacity, or
 36 increase flood elevations, frequencies, or durations. Therefore, the implementation of the
 37 Proposed Action would have no effect on floodplain management. CBP would install flood
 38 gauges and signs warning vehicle traffic of floodwaters along existing approach roads at
 39 approximately 61 washes.

40

41 **3.9.3 Alternative 3**

42 Under Alternative 3, impacts on floodplains would be similar to those described under the
 43 Proposed Action.

44

45

1 3.10 AIR QUALITY

2
3 EPA established National Ambient Air Quality Standards (NAAQS) for specific pollutants
4 determined to be of concern with respect to the health and welfare of the general public.
5 Ambient air quality standards are classified as either "primary" or "secondary." The major
6 pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO₂),
7 nitrogen dioxide (NO₂), ozone (O₃), particulate matter less than 10 microns (PM-10), particulate
8 matter less than 2.5 microns (PM-2.5), and lead. NAAQS represent the maximum levels of
9 background pollution that are considered safe, with an adequate margin of safety, to protect the
10 public health and welfare.

11
12 A conformity analysis is the process used to determine whether a Federal action meets the
13 requirements of the General Conformity Rule. It requires the responsible Federal agency to
14 evaluate the nature of a proposed action and associated air pollutant emissions, and calculate
15 emissions as a result of the proposed action to ensure that the proposed action does not interfere
16 with a state's ability to meet national standards for air quality. If the emissions exceed
17 established limits, known as *de minimis* thresholds, the proponent is required to implement
18 appropriate mitigation measures. Pima County is designated by EPA as a moderate non-
19 attainment area for PM-10 (EPA 2015). The *de minimis* threshold for moderate non-attainment
20 for PM-10 is 100 tons per year (40 C.F.R. § 51.853).

21 Greenhouse Gases and Climate Change

22
23 Global climate change refers to a change in the average weather on the earth. Greenhouse gases
24 (GHG) are gases that trap heat in the atmosphere and are the primary cause of climate change.
25 They include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O),
26 fluorinated gases including chlorofluorocarbons and hydrochlorofluorocarbons (HFC), and
27 halons, as well as ground-level O₃ (AZ CCAG 2006). The major GHG-producing sectors in
28 Arizona include transportation and utilities (e.g., coal and gas power plants) which account for
29 nearly 80 percent of the state's gross GHG emissions. Industry/manufacturing, agriculture, and
30 landfills and wastewater management facilities account for the remaining percentage of
31 emissions (AZ CCAG 2006).

32
33 CEQ drafted guidelines for determining meaningful GHG decision-making analysis. The CEQ
34 guidance states that if a project would be reasonably anticipated to cause direct emissions of
35 25,000 U.S. tons or more of CO₂ GHG emissions on an annual basis, agencies should consider
36 this a threshold for decision makers and the public (CEQ 2010). CEQ proposes this as an
37 indicator of a minimum level of GHG emissions that may warrant some description in the
38 appropriate NEPA analysis for agency actions involving direct emissions of GHG (CEQ 2010).
39 This CEQ guidance was never finalized and may be subject to change.

40
41 The GHG covered by Executive Order (EO) 13514, *Federal Leadership in Environmental,*
42 *Energy, and Economic Performance*, are CO₂, CH₄, N₂O, HFC, perfluorocarbons, and sulfur
43 hexafluoride. These GHG have varying heat-trapping abilities and atmospheric lifetimes. CO₂
44 equivalency is a measuring methodology used to compare the heat-trapping impact from various
45 GHG relative to CO₂. Some gases have a greater atmospheric warming potential than other
46 gases. Nitrogen oxides (NO_x), for instance, have an atmospheric warming potential that is 310

1 times greater than an equivalent amount of CO₂, and CH₄ is 21 times greater than an equivalent
 2 amount of CO₂ (CEQ 2012).

3.10.1 Alternative 1: No Action Alternative

5 The No Action Alternative would not result in any direct impacts on air quality because there
 6 would be no construction activities. However, fugitive dust emissions created by illegal off-road
 7 vehicle traffic and resulting law enforcement actions, as well as routine vehicle traffic on
 8 authorized roads, would continue.

3.10.2 Alternative 2: Proposed Action

11 Temporary and minor increases in air emissions would occur from the use of construction
 12 equipment (combustion emissions) and the disturbance of soils (fugitive dust) during
 13 construction of the towers and access roads and the maintenance and repair of approach roads.
 14 The following paragraphs describe the air calculation methodologies utilized to estimate air
 15 emissions produced by the construction of the towers and approach roads.

17 Fugitive dust emissions were calculated using the emission factor of 0.19 ton per acre per month
 18 (Midwest Research Institute 1996), which is a more current standard than the 1985 PM-10
 19 emission factor of 1.2 tons per acre-month presented in AP-42 Section 13 Miscellaneous Sources
 20 13.2.3.3 (EPA 2001).

22 EPA's NONROAD2008a model was used, as recommended by EPA's *Procedures Document for*
 23 *National Emission Inventory, Criteria Air Pollutants, 1985-1999* (EPA 2001), to calculate
 24 emissions from construction equipment. Combustion emission calculations were made for
 25 standard construction equipment, such as front-end loaders, backhoes, cranes, and cement trucks.
 26 Assumptions were made regarding the total number of days each piece of equipment would be
 27 used and the number of hours per day each type of equipment would be used.

29 Construction workers would temporarily increase the combustion emissions in the airshed during
 30 their commute to and from the project area. Emissions from delivery trucks would also
 31 contribute to the overall air emission budget. Emissions from delivery trucks and construction
 32 worker commuters traveling to the job site were calculated using EPA's preferred on-road
 33 vehicle emission model MOVES2010a (EPA 2009).

35 The total air quality emissions for the construction activities were calculated to compare to the
 36 General Conformity Rule. Summaries of the total emissions for the Proposed Action are
 37 presented in Table 3-11. Details of the conformity analyses are presented in Appendix G.

39 Several sources of air pollutants would contribute to the overall air impacts of the construction
 40 project. The air results in Table 3-11 included emissions from the following sources:

- 42 • Combustion engines of construction equipment
- 43 • Construction workers commuting to and from work
- 44 • Supply trucks delivering materials to the construction site
- 45 • Fugitive dust from job-site ground disturbances

Table 3-11. Total Air Emissions from the Proposed Action Construction versus the *De Minimis* Threshold Levels*

Pollutant	Total (tons/year)	<i>De minimis</i> Thresholds (tons/year) ¹
CO	24.41	100
Volatile Organic Compounds (VOC)	11.11	100
Nitrous Oxides (NO _x)	51.55	100
PM-10	52.71	100
PM-2.5	8.91	100
SO ₂	6.44	100
CO ₂ and CO ₂ equivalents	20,775	25,000

Source: 40 C.F.R. § 51.853 and Gulf South Research Corporation (GSRC) model projections (Appendix G).

*Note that portions of Pima County is in non-attainment for CO (EPA 2015).

Operational Air Emissions

Operational air emissions refer to air emissions that may occur after the IFTs have been installed, such as maintenance and the use of generators. Generator run times for systems connected to the commercial power grid would be limited to 1 to 5 hours twice per month for maintenance purposes. System conditioning would occur during off-grid operational schedules or if grid power is interrupted, and generators would temporarily be operated, as needed, until grid power is again available. The air emissions from generators and bimonthly maintenance commutes are presented in Appendix G and are summarized in Table 3-12.

Table 3-12. Total Air Emissions (tons/year) from Generator and Commuter Activities versus the *De Minimis* Threshold Levels*

Pollutant	Total (tons/year)	<i>De minimis</i> Thresholds (tons/year) ¹
CO	26.56	100
VOC	2.08	100
NO _x	8.50	100
PM-10	0.06	100
PM-2.5	0.06	100
SO ₂	0.01	100
CO ₂ and CO ₂ equivalents	3,181	27,557

Source: 40 C.F.R. § 51.853 and GSRC model projections (Appendix G).

*Note that portions of Pima County is in non-attainment for CO (EPA 2015).

As can be seen from Tables 3-11 and 3-12, the proposed construction and operational activities do not exceed Federal *de minimis* thresholds for NAAQS and GHG and, thus, would not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the state implementation plans, the impacts on air quality from the implementation of the Proposed Action would be negligible and would not be expected to affect the climate.

1 The following BMPs would be incorporated to ensure that fugitive dust and other air quality
 2 constituent emission levels do not rise above the minimum threshold as required per 40 C.F.R. §
 3 51.853(b)(1):

- 4
- 5 • Standard construction BMPs such as routine watering of the construction site, as well as
 6 approach roads to the site, would be used to control fugitive dust and thereby will assist
 7 in limiting potential PM-10 excursions during the construction phase of the Proposed
 8 Action.
- 9 • All construction equipment and vehicles would be required to be maintained in good
 10 operating condition to minimize exhaust emissions.

11 **3.10.3 Alternative 3**

12 Under Alternative 3, impacts on air quality would be similar to those described for the Proposed
 13 Action.

14 **3.11 NOISE**

15
 16
 17
 18 Noise is generally described as unwanted sound, which can be based on either objective effects
 19 (i.e., hearing loss, damage to structures) or subjective judgments (e.g., community annoyance).
 20 Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on
 21 the decibel scale is referred to as sound level. The perceived threshold of human hearing is 0 dB,
 22 and the threshold of discomfort or pain is around 120 dB (EPA 1974). The A-weighted decibel
 23 (dBA) is a measurement of sound pressure adjusted to conform to the frequency response of the
 24 human ear.

25
 26 Noise levels occurring at night generally produce a greater annoyance than do the same levels
 27 occurring during the day. It is generally agreed that people perceive intrusive noise at night as
 28 being 10 dBA louder than the same level of intrusive noise during the day, at least in terms of its
 29 potential for causing community annoyance. This perception is largely because background
 30 environmental sound levels at night in most areas are about 10 dBA lower than during the day.

31
 32 Long-term noise levels are computed over a 24-hour period and adjusted for nighttime
 33 annoyances to produce the day-night average sound level (DNL). DNL is the community noise
 34 metric recommended by EPA and has been adopted by most Federal agencies (EPA 1974).

35 *Residential Homes*

36
 37 When noise affects humans, it can be based either on objective effects (i.e., hearing loss, damage
 38 to structures) or subjective judgments (e.g., community annoyance). A 65 dBA DNL is the impact
 39 threshold most commonly used for noise planning purposes near residents and represents a
 40 compromise between community impact and the need for activities like construction (HUD 1984).

41
 42 All the tower sites and access roads/approach roads are located in remote locations on the
 43 Tohono O'odham Nation with the exception of towers TCA-AJO-0450 and TCA-AJO-0462 and
 44 their associated approach roads. The TCA-AJO-0450 tower is located greater than a mile and
 45 TCA-AJO-0462 tower is located over 4,600 feet from the nearest residential home. However,

1 the associated approach roads to the towers, which are scheduled for maintenance and repair, are
2 located within 500 feet of the Menagers community and a small community at the intersection of
3 Well Road and Indian Route 1 respectively.

4
5 *National Parks and Wildlife Refuges*

6 The OPCNM and Buenos Aires National Wildlife Refuge (BANWR) are considered sensitive
7 noise receptors. Noise emission criteria for construction activities were published by the Federal
8 Highway Administration (FHWA), which has established a construction noise abatement
9 criterion of 57 dBA for lands, such as National Parks and Wildlife Refuges, in which serenity
10 and quiet are of extraordinary significance (23 C.F.R. § 722 Table 1). The 57 dBA criterion
11 threshold is used to measure the impacts from short-term noise emissions associated with
12 constructing the proposed towers and access roads and maintaining and repairing approach
13 roads. For long-term noise emissions, EPA (1978) notes that noise emissions of 55 dB or less
14 are suitable for areas in which quiet is a basis for use. This 55 dBA criterion threshold is used to
15 measure the impacts from noise emissions associated with tower operations.

16
17 The tower sites, access roads, and approach roads are located across a wide geographical range
18 within the Tohono O’odham Nation, which includes areas located adjacent to designated
19 wilderness areas such as OPCNM and wildlife refuges such as BANWR. The TCA-AJO-0460
20 and TCA-AJO-0216 towers are located adjacent to OPCNM, and tower TCA-CAG-0430 is
21 located approximately 6 miles west of BANWR.

22
23 Noise Attenuation

24 As a general rule, noise generated by a stationary noise source, or “point source,” will decrease
25 by approximately 6 dBA over hard surfaces and 9 dBA over soft surfaces for each doubling of
26 the distance. For example, if a noise source produces a noise level of 85 dBA at a reference
27 distance of 50 feet over a hard surface, then the noise level would be 79 dBA at a distance of 100
28 feet from the noise source and 73 dBA at a distance of 200 feet. To estimate the attenuation of
29 the noise over a given distance, the following relationship is utilized:

30
31 Equation 1: $dBA_2 = dBA_1 - 20 \log^{(d_2/d_1)}$

32 Where:

- 33 $dBA_2 =$ dBA at distance 2 from source (predicted)
- 34 $dBA_1 =$ dBA at distance 1 from source (measured)
- 35 $d_2 =$ Distance to location 2 from the source
- 36 $d_1 =$ Distance to location 1 from the source
- 37 Source: Caltrans 1998

38
39 **3.11.1 Alternative 1: No Action Alternative**

40 Under the No Action Alternative, the sensitive noise receptors and wildlife near the proposed
41 IFT sites and associated roads would not experience construction or operational noise associated
42 with the towers; however, noise emissions associated with cross-border violator off-road travel
43 and consequent law enforcement actions would be long-term and minor, and would continue
44 under the No Action Alternative.

45

1
2 **3.11.2 Alternative 2: Proposed Action**
3 Short-Term Construction Noise Emissions

4 The construction of the IFTs and access roads and maintenance and repairs to existing approach
5 roads would require the use of common construction equipment. Table 3-13 describes noise
6 emission levels for construction equipment that range from 63 dBA to 85 dBA at a distance of 50
7 feet (FHWA 2007).

8
9 **Table 3-13. A-Weighted (dBA) Sound Levels of Construction Equipment**
10 **and Modeled Attenuation at Various Distances***

Noise Source	50 feet	100 feet	200 feet	500 feet	1000 feet
Bulldozer	82	76	70	62	56
Concrete mixer truck	85	79	73	65	59
Crane	81	75	69	61	55
Drill rig	85	79	73	65	59
Dump truck	84	78	72	64	58
Excavator	81	75	69	61	55
Front-end loader	79	73	67	59	53
Generator	63	57	51	43	37

11 Source: FHWA 2007

12 * The dBA at 50 feet is a measured noise emission. The 100- to 1,000-foot results are GSRC modeled estimates.

13
14 Assuming the worst case scenario of 85 dBA from general construction equipment, the noise
15 model predicts that noise emissions would have to travel 1,138 feet before they would be
16 attenuated to acceptable levels equal to or below 57 dBA, which is the criterion for National
17 Monument and Wildlife Refuges (23 C.F.R. § 722, Table 1), or 482 feet to attenuate to 65 dBA,
18 which is the criterion for residential receptors.

19
20 The majority of the tower sites are located in remote areas far from sensitive noise receptors such
21 as residential homes or National Parks. BANWR is located on the east side of the Pozo Verde
22 Mountains, approximately 6 miles from the closest IFT, TCA-CAG-0430, so noise emissions
23 generated from construction activities would not reach the BANWR. Two of the towers (TCA-
24 AJO-0460 and TCA-AJO-0216) are located within 100 feet of the boundary of OPCNM. During
25 construction activities for tower TCA-AJO-0460, approximately 38 acres of OPCNM land would
26 be subjected to noise emissions for 40 days while installing the tower. The TCA-AJO-0216
27 tower is located adjacent to the OPCNM; however, no major construction would be at this site.

28
29 Depending upon the number of construction hours, and the number, type, and distribution of
30 construction equipment being used, the noise levels near the road construction areas could
31 temporarily exceed 65 dBA up to 482 feet from the construction activity. Geographic
32 Information System (GIS) was used to determine that Menagers and a small residential
33 community are within 482 feet of the TCA-AJO-0450 and TCA-AJO-0462 approach roads.
34 Some residential noise receptors in this community may experience temporary noise intrusion
35 equal to or greater than 65 dBA from construction equipment. Noise generated by the
36 construction activities would be intermittent and last for approximately 1 month, after which

1 noise levels would return to ambient levels. To minimize impacts, construction activity should
 2 be limited to daylight hours on Monday through Friday. Therefore, the noise impacts from
 3 construction activities would be considered temporary and negligible.

4 Long-term Operational Noise

5 Long-term noise emissions refer to noise emissions that would occur after the new towers have
 6 been installed. Four of the proposed new tower sites would be connected to commercial grid
 7 power with a backup power propane generator that would run 1 hour twice a month. The
 8 remaining 10 towers sites are located in remote areas and would be powered by a hybrid propane
 9 generator/solar system, not connected to the commercial grid. The propane generator would be
 10 expected to operate 4 to 8 hours a day. Noise emissions from the propane generator produce the
 11 dominant noise signature at these tower sites. Noise emissions from the propane generator are
 12 estimated to be 63 dBA at 50 feet from the enclosure. The noise model predicts that noise
 13 emissions of 63 dBA from propane generators would have to travel 100 feet before they would
 14 attenuate to acceptable levels equal to or below 57 dBA. TCA-AJO-0460 and TCA-AJO-216
 15 are approximately 100 feet from the border of OPCNM and ongoing noise emissions from the
 16 tower generators would attenuate to below 57 dBA, which is the criterion for National
 17 Monument and Wildlife Refuges (23 C.F.R. § 722), before they reach OPCNM lands.
 18 Therefore, the noise impacts from ongoing tower activities would be considered negligible.
 19

20 **3.11.3 Alternative 3**

21 Noise emissions associated with the construction of Alternative 3 would be similar to those
 22 described for the Proposed Action.
 23

24 **3.12 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES**

25 The NHPA establishes the Federal Government's policy to provide leadership in the preservation
 26 of historic properties and to administer Federally-owned or controlled historic properties in a
 27 spirit of stewardship. The NHPA established the Advisory Council on Historic Preservation
 28 (ACHP) to advocate full consideration of historic values in Federal decision making; review
 29 Federal programs and policies to promote effectiveness, coordination, and consistency with
 30 National preservation policies; and recommend administrative and legislative improvements for
 31 protecting our Nation's heritage with due recognition of other National needs and priorities. The
 32 NHPA also established the State Historic Preservation Office (SHPO) to administer national
 33 historic preservation programs on the state level and THPO programs on tribal lands, where
 34 appropriate. The NHPA also established the National Register of Historic Places (NRHP). The
 35 NRHP is the Nation's official list of cultural resources worthy of preservation and protection.
 36 Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are
 37 significant in U.S. history, architecture, archaeology, engineering, and culture. The National
 38 Park Service administers the NRHP.
 39

40 Section 106 of the NHPA (54 U.S.C. § 306108) requires Federal agencies to identify and assess
 41 the effects of their actions on cultural resources. Federal agencies must consult with appropriate
 42 state and local officials, Native American tribes, and members of the public and consider their
 43 views and concerns about historic preservation issues when making final project decisions.
 44 ACHP issues regulations for the Section 106 process (36 C.F.R. § 800). In addition, CBP's
 45

1 activities are required to comply with DHS Directive 017-01 and Instruction 017-01-001,
 2 *Historic Preservation in Asset Management and Operations*, which are supplemented by CBP
 3 Directive 5270-013, *Historic Preservation*. In September 2014, CBP entered into a
 4 Programmatic Agreement with the States of Arizona, California, New Mexico, and Texas as well
 5 as several Federal agencies and tribal governments regarding CBP's undertakings within these
 6 states (CBP 2014b). Among other things, this agreement includes stipulations that exempt
 7 certain activities from further Section 106 review. Although the Tohono O'odham Nation has
 8 been a consulting party to the agreement, it is not yet a signatory of the agreement.

9 Cultural History

11 The cultural history of southern Arizona is often discussed in the following periods: Preceramic
 12 (*circa* 10,000 B.C to A.D. 150), Ceramic (*circa* A.D. 150 to 1500), Early Historic (*circa* A.D.
 13 1500 to 1848), and Late Historic (*circa* A.D. 1848 to 1945). Both the Preceramic and Ceramic
 14 periods can be further subdivided based on differing cultural traditions. The Preceramic period
 15 is typically subdivided into Paleoindian (10,000 B.C. to 7,500 B.C.) and Archaic (7,500 B.C. to
 16 A.D. 150) periods, while the Ceramic period is typically subdivided into three complexes that
 17 include the Hohokam (A.D. 150 to 1450), Patayan (A.D. 700 to 1850), and Trincheras (A.D. 150
 18 to 1940). These complexes are based on varying ceramic traditions throughout the region that
 19 encompasses the project area.

20 Previous Investigations

22 The archaeological site records on the Arizona State Museum's (ASM) AZSITE Cultural
 23 Resource Inventory were examined prior to the initiation of the field surveys of the 16 proposed
 24 IFT sites (Proposed Action and Alternative 3) and associated road improvement areas. Both
 25 maps and patent records from the General Land Office, BLM records, and Gulf South Research
 26 Corporation's (GSRC) archives were examined in order to identify potential cultural resources
 27 located within the vicinity of the 16 proposed IFT sites and associated road improvement areas.
 28 Table 3-14 contains a numerical summary by IFT site of previous investigations and recorded
 29 sites at each proposed tower location. It should be noted that some towers, due to their proximity
 30 to one another, may share previous investigations and recorded archaeological sites in the table.
 31 The records review indicates that 10 previous investigations have been conducted within a 1-
 32 mile radius of the proposed IFT tower locations and associated approach roads, resulting in the
 33 identification of 83 archaeological sites. These surveys were conducted in support of various
 34 construction, utility installation, road maintenance and improvements, research, and other
 35 initiatives. These sites include prehistoric and historic artifact scatters, prehistoric habitation
 36 sites, historic-period home sites, and ranching sites either located adjacent to or intersecting the
 37 area of potential effect (APE) of the proposed IFT tower locations (both permanent and
 38 temporary construction ground disturbance) or associated road corridors.

39
 40 **Table 3-14. Summary of Previous Investigations within a 1-mile Radius**

Tower ID	Previous Investigations	Recorded Sites
TCA-AJO-0446	None	0
TCA-AJO-0448	3	9
TCA-AJO-0450	6	16
TCA-AJO-0452	None	0

Table 3-14 (cont.)

Tower ID	Previous Investigations	Recorded Sites
TCA-AJO-0454	None	0
TCA-AJO-0458	None	0
TCA-AJO-0460	None	0
TCA-AJO-0462	3	0
TCA-CAG-0430	3	10
TCA-CAG-0432	None	0
TCA-CAG-0434	2	8
TCA-CAG-0436	2	5
TCA-CAG-0438	3	6
TCA-CAG-0440	3	6
TCA-CAG-0442	4	30
TCA-CAG-0444	2	2

Source: CBP 2013a

1

2 Current Investigations

3 CBP contractors conducted a Class III Cultural Resources Survey at the 16 proposed IFT sites
4 and their associated roads on June 3 through 7, June 10 through 14, and June 21 through 25,
5 2013, in compliance with Section 106 of the NHPA for all proposed construction and related
6 activities (Hart 2014). A 250-foot radius area was surveyed around the center point of each
7 proposed IFT site to cover the permanent footprint and temporary construction easement. The
8 contractor performed 30-, 50-, or 70-foot-wide surveys along approximately 86 miles of potential
9 approach and access roads to the proposed IFT tower sites. In sum, the contractor surveyed
10 approximately 500 acres for cultural resources during this initial survey effort. The 2013
11 pedestrian survey resulted in the identification of 15 new archaeological sites and the verification
12 or update of 30 previously recorded sites, as well as 146 isolated occurrences (IOs) of cultural
13 material, that are located within or adjacent to the current project area. IOs, by their nature, are
14 not considered archaeological sites and are not eligible for listing on the NRHP. Of the 45
15 archaeological sites recorded during the 2013 survey efforts, 26 are recommended or determined
16 eligible for inclusion in the NRHP and the remaining 19 sites have undetermined NRHP
17 eligibility.

18

19 CBP contractors conducted a supplemental cultural resources survey of the Vamori Wash on
20 April 12, 2014, and July 16, 2014 (Gage 2014). The survey area encompassed approximately 7
21 acres along the Vamori Wash, in the vicinity of the Traditional Northern Road. No NRHP sites,
22 NRHP eligible sites, or sites with undetermined NRHP eligibility were identified in the survey
23 area. However, there was one previously recorded site of undetermined eligibility immediately
24 west of the survey area.

25

26 CBP contractors conducted another supplemental Class III Cultural Resources Survey on June 14
27 through 15, 2015, and on October 14, 2015 (Gabler and Mueller 2015). The additional surveys
28 expanded the survey area along approximately eight non-contiguous miles of approach roads and
29 included surveying 100-foot wide swaths for 88 proposed low-water crossings and culverts along
30 the Traditional Northern Road. The Contractor identified no new archaeological sites and 14 IOs
31 during this survey effort.

1 CBP's contract archaeologist did not identify any traditional cultural properties (TCPs) or sacred
2 sites in the archaeological APE of the Proposed Action or Alternative 3. However, many of the
3 mountain areas near the project area hold a cultural significance for the Tohono O'odham people
4 and are classified as TCPs or are eligible for classification as TCPs. As a matter of policy, CBP
5 does not disclose the locations of culturally sensitive sites.
6

7 **3.12.1 Alternative 1: No Action Alternative**

8 Since construction activities associated with the proposed IFT project would not occur, the No
9 Action Alternative would have no direct effect, either beneficial or adverse, on cultural
10 resources. Under the No Action Alternative, USBP detection and threat classification
11 capabilities would not be enhanced and operational efficiency would not be improved. Thus, the
12 anticipated deterrence of cross-border violator traffic in the project area would not occur.
13

14 **3.12.2 Alternative 2: Proposed Action**

15 The archaeological APE for the Proposed Action is limited to the areas of permanent and
16 temporary ground disturbance. In addition, a 0.5-mile radius visual APE was used for all tower
17 sites per the Programmatic Agreement (See CBP 2014b). Of the new and previously recorded
18 sites CBP identified within the project area, 26 are recommended or have been determined
19 eligible for listing on the NRHP. Surface evidence alone was insufficient to accurately assess the
20 NRHP eligibility of 18 sites. These sites would require additional investigation, including but
21 not limited to subsurface archaeological testing to accurately assess eligibility. In addition, one
22 assessed site, an artifact scatter from the Ceramic period, is not recommended NRHP eligible.
23

24 CBP is developing a standard operating procedure for the undertaking in coordination with the
25 Tohono O'odham Nation THPO. Under this procedure, CBP and its contractors would avoid
26 ground disturbance at all NRHP-eligible sites (recommended, determined, and undetermined)
27 within the APE. This procedure also includes the requirement that archaeological monitors and
28 Tohono O'odham tribal representatives be present during construction activities to ensure that no
29 adverse effects result from the Proposed Action. In addition, prior to construction, CBP would
30 perform ground-penetrating radar of a possible adobe mound near one of the tower sites to
31 accurately assess the nature and significance of the site
32

33 Beneficial impacts in the form of increased knowledge of the past, including site density and
34 distribution, were realized as a result of surveys conducted as part of this EA. Previously
35 recorded and unidentified cultural resources sites located within the project area could receive
36 increased protection from disturbance through the anticipated deterrence of cross-border violator
37 foot and vehicle traffic moving through the area covered by the towers.
38

39 Section 106 consultation with the Tohono O'odham Nation THPO is currently ongoing and
40 results from the consultation would be incorporated into the Final EA. Based on the
41 archaeological surveys, archival research results, Native American Tribal consultation to date,
42 and implementation of BMPs, CBP has determined that there would be no adverse effects from
43 the Proposed Action on any NRHP-eligible architectural or aboveground resources, NRHP-
44 eligible archaeological resources, TCPs, or sacred sites.
45

1 CBP completed Section 106 consultation for the construction of TCA-AJO-216 and TCA-AJO-
 2 305 in 2007 (CBP 2009). The collocation and in-kind replacement of communications
 3 equipment at these towers and the modifications to interior space at the C2 facility at USBP Ajo
 4 Station should be exempt from further Section 106 review under the Programmatic Agreement
 5 (CBP 2014b).

6
 7 **3.12.3 Alternative 3**

8 Under Alternative 3, impacts on cultural resources would be similar to those discussed for the
 9 Proposed Action, with one exception. TCA-CAG-0444 would be constructed as an alternate to
 10 TCA-CAG-0436; therefore, impacts associated with construction activities at TCA-CAG-0436
 11 would not occur. No new archaeological sites were observed during the pedestrian survey at
 12 TCA-CAG-0444. Similar mitigation measures and indirect beneficial impacts as described for
 13 the Proposed Action would occur under Alternative 3.

14
 15 **3.13 UTILITIES AND INFRASTRUCTURE**

16
 17 Utility Commercial Grid Power and Fiber-Optic Communication Services

18 The Tohono O’odham Utility Authority provides commercial electrical and communication
 19 services to the main reservation. Commercial grid power is potentially available for five new
 20 IFT sites (Table 3-15). The remaining proposed IFTs would be located in remote areas where
 21 commercial grid power is not readily accessible. Fiber-optic communication services would be
 22 installed at the San Miguel LEC C2 facility and at towers TCA-AJO-0452, TCA-AJO-0454,
 23 TCA-CAG-0432. Fiber-optic cables would be buried from the main line to the tower site shelter.
 24 The fiber-optic cable would be placed within surveyed roadwork buffer areas, all of which were
 25 surveyed for potential impacts on biological and cultural resources and would be field verified
 26 prior to construction.

27
 28 **Table 3-15. Power Company Service Areas**

Tower ID	Grid Power	Fiber-Optic Communication
TCA-AJO-0452	X	X
TCA-AJO-0454	X	X
TCA-AJO-0458	X	
TCA-CAG-0432	X	X
TCA-CAG-0442	X	

29
 30 Ambient and Artificial Lighting

31 Ambient or atmospheric light is of concern to many, including, most notably, astronomical
 32 observatories (International Dark Sky Association 2013). The reduction of man-made or
 33 artificial light sources is generally desired by astronomers in the southwest, and there are light
 34 ordinances in place in some cities and counties in the southwest United States to minimize sky
 35 brightness in large population centers. The 2012 Pima County Outdoor Lighting Code applies to
 36 the installation of outdoor lighting within Pima County. The purpose of the Outdoor Lighting
 37 Code is “to preserve the relationship of the residents of the City of Tucson, Arizona and Pima

1 County, Arizona to their unique desert environment through protection of access to the dark
 2 night sky” (Pima County 2012).

3
 4 The main features of the Pima County Outdoor Lighting Code include the following:

- 5
- 6 • Lumen caps are established by zoning and use and the total outdoor light output shall not
- 7 exceed the lumen limits.
- 8 • Shielding on light fixtures will be installed so that it is effective and permanent.
- 9 • All lights within 25 feet of a residential property must be full cutoff.
- 10 • Flood and spot lamps will be aimed no higher than 45 degrees to the horizontal when
- 11 visible from adjacent residential property.
- 12 • Unshielded fixtures or lighting sources shall not exceed 3,000 lumens per luminaire.
- 13 • Lighting for outdoor athletic fields and lighting for special-use areas are exempt from the
- 14 lumen caps.
- 15

16 **3.13.1 Alternative 1: No Action Alternative**

17 Under the No Action Alternative, the proposed IFTs would not be constructed. The No Action
 18 Alternative would not affect the availability of utilities or require construction of additional
 19 facilities.

20 **3.13.2 Alternative 2: Proposed Action**

21 The Proposed Action would result in negligible effects on the availability of utilities, including
 22 connection to existing hardline communications service and installation of underground fiber-
 23 optic services. Five of the new IFTs (TCA-AJO-0452, -0454, -0458 and TCA-CAG-0432 and -
 24 0442) would potentially be connected to existing commercial grid power located adjacent to each
 25 of the five IFT sites. Fiber-optic communication services would be installed at the San Miguel
 26 LEC C2 facility and at towers TCA-AJO-0452, TCA-AJO-0454, and TCA-CAG-0432. All
 27 utility installations would be coordinated with the Tohono O’odham Nation Utility Authority and
 28 service line agreements would be established with BIA as needed.
 29

30
 31 The proposed tower sites may be lighted for security purposes. When so equipped, the light
 32 would be shielded to avoid illumination outside the footprint of the tower site and would have a
 33 negligible impact on ambient or atmospheric light. Lighting for construction activities is not
 34 anticipated. If nighttime construction becomes necessary, use of lights would conform to the
 35 Pima County Code and would have a temporary negligible impact on ambient or atmospheric
 36 light.

37 **3.13.3 Alternative 3**

38 Under Alternative 3, impacts would be similar to those described for the Proposed Action.
 39

40 **3.14 ROADWAYS AND TRAFFIC**

41
 42
 43 SR 86 is the primary east-west route for vehicular traffic through the main reservation of the
 44 Tohono O’odham Nation (Figure 3-4). Indian Rural Route (IRR) 1, IRR 5, IRR 19, and IRR 21
 45 provide secondary access from SR 86 south to the proposed IFT sites. SR 86 is maintained by
 46 the Tucson Engineering District of the ADOT, and the IRRs are maintained by BIA.

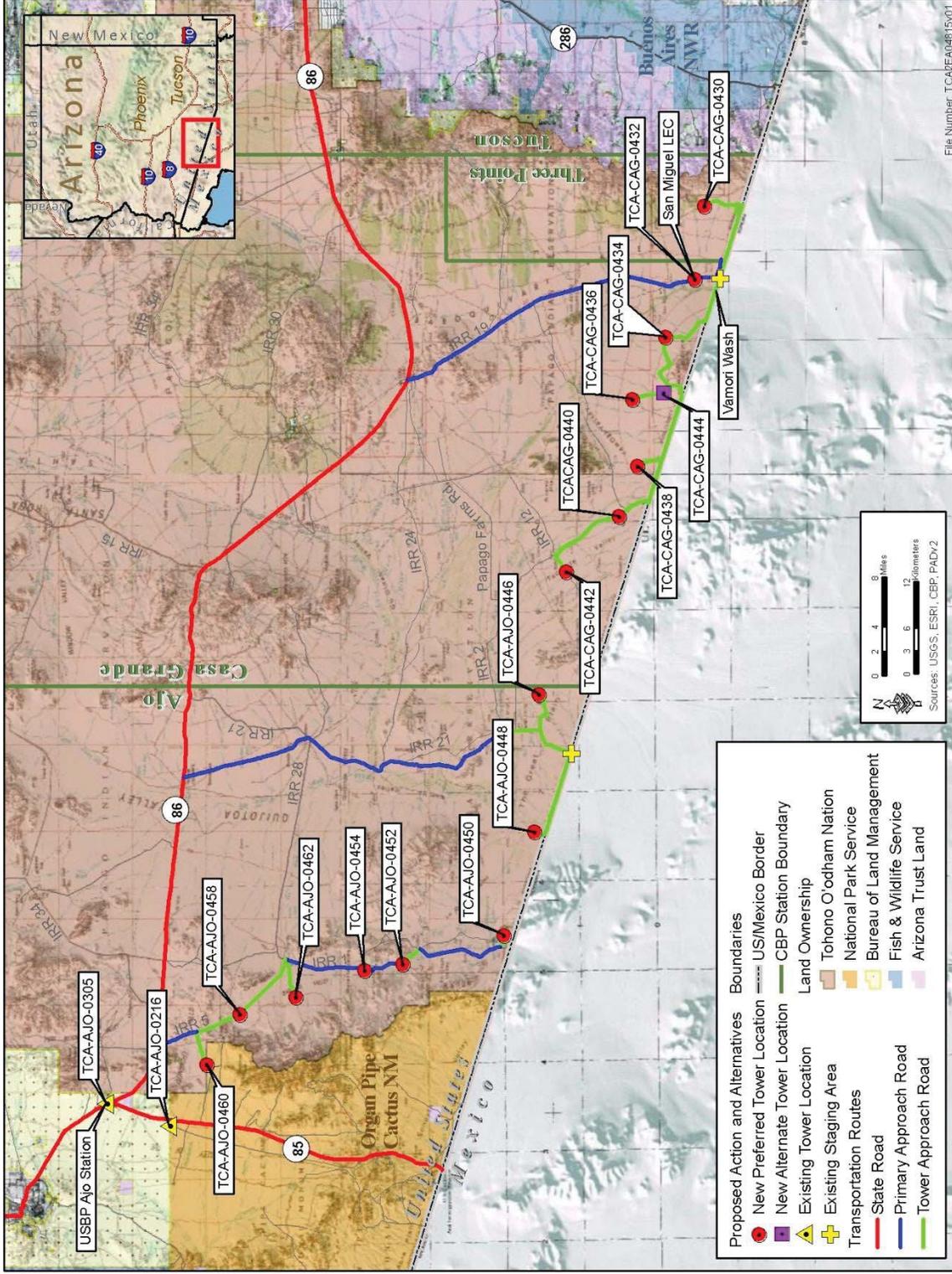


Figure 3-4. Transportation Routes to the Project Area

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1 ADOT classifies SR 86 as a minor arterial roadway and the IRRs as minor collectors. The
 2 annual average daily traffic count (AADT) for SR 86 west of Tucson from Robles Junction to
 3 Sells is 1,400 vehicles (ADOT 2009). The AADT for SR 86 from Why, Arizona, east to IRR 15
 4 is 750 vehicles and the AADT from IRR 15 east to Sells is 1,800 vehicles. These sections of SR
 5 86 and associated IRRs would ultimately carry all traffic related to the proposed IFT sites.
 6

7 **3.14.1 Alternative 1: No Action Alternative**

8 Under the No Action Alternative, impacts on roadways and traffic would remain status quo.
 9

10 **3.14.2 Alternative 2: Proposed Action**

11 With the implementation of the Proposed Action, construction activities at IFT sites would have
 12 a temporary, minor, direct impact on roadways and traffic within the project area. An increase of
 13 vehicular traffic along SR 86 and the adjacent IRRs would occur to supply materials and work
 14 crews to the IFT sites during the construction phase and in support of tower maintenance and
 15 refueling trips.
 16

17 Tower maintenance requires vehicle travel to and from each of the proposed tower sites for fuel
 18 delivery, maintenance, and operations of the proposed IFTs. The number of maintenance trips
 19 and refueling trips varies depending on tower function (e.g., sensor) and power type (e.g.,
 20 commercial grid power). Approximately 416 vehicle trips per year are anticipated for tower
 21 maintenance and refueling under the Proposed Action (see Table 2-3). Traffic impacts
 22 associated with tower maintenance would be long-term and negligible.
 23

24 **3.14.3 Alternative 3**

25 Alternative 3 would result in traffic impacts similar to those described for the Proposed Action.
 26

27 **3.15 AESTHETIC AND VISUAL RESOURCES**

28
 29 The Proposed Action area is a sparsely populated, scenic expanse along the border between
 30 Arizona and Sonora, Mexico. Few roads cross the region and the land use remains relatively
 31 unchanged from historic grazing and agricultural practices. The landscape is largely dominated
 32 by native vegetation.
 33

34 The aesthetic and visual resources within the Tohono O’odham Nation in the vicinity of the
 35 proposed IFT sites include the low mountain foothills, broad bajadas, and the characteristic
 36 natural desertscrub vegetation of the Sonoran Desert Biome (Brown and Lowe 1994). The
 37 relatively uniform structure and composition of the Sonoran Desert vegetation creates an almost
 38 unbroken visual landscape that changes little from horizon to horizon. The region lies within the
 39 Basin and Range geologic province that created a rugged mountainous landscape dating back to
 40 the Early Miocene epoch (Chronic 1983). Mountains and ridges can be seen clearly in all
 41 cardinal directions from the IFT sites. Many of these mountain areas hold a cultural significance
 42 for the Tohono O’odham people and are classified or are eligible for classification as TCPs.
 43 Isolated, rural, agricultural communities contribute to the aesthetic and visual quality of the
 44 region.
 45

1 Federal lands are often assigned visual resource inventory classes. These landscapes are often
 2 subdivided into three distance zones based on relative visibility from observation points. The
 3 three zones are foreground-middleground, background, and seldom-seen. The foreground-
 4 middleground zone includes areas seen from highways, rivers, or other viewing locations that are
 5 less than 5 miles away and where management activities might be viewed in detail. This zone
 6 can be more visible to the public and changes may be more noticeable. The background zone
 7 includes areas beyond the foreground-middleground zone but usually less than 15 miles away.
 8 This does not include areas in the background that are so far distant that the only thing
 9 discernible is the form or outline. Areas that are not visible within the foreground-middleground
 10 zone or background zone are in the seldom-seen zone (BLM 2009). The Tohono O’odham
 11 Nation does not have an established visual resource management system. In general, the BLM
 12 distance zone classes were used as a means to quantify the visual impacts of each IFT analyzed
 13 in this EA.
 14

15 **3.15.1 Alternative 1: No Action Alternative**

16 Under the No Action Alternative, the visual and aesthetic resources of the project area would not
 17 be directly affected because no towers would be constructed. However, discarded debris and
 18 trash, as well as increases in illegal off-road traffic, graffiti, and general vandalism resulting from
 19 cross-border violator activity would be expected to continue and would increasingly detract from
 20 the visual and aesthetic quality of the project area.
 21

22 **3.15.2 Alternative 2: Proposed Action**

23 The Proposed Action would have a long-term, moderate impact on visual and aesthetic qualities
 24 within the project area. Depending on the location and elevation of a viewer and due to the open
 25 nature of the landscape throughout most of the Proposed Action area, it is possible that most of
 26 the proposed IFTs would be visible from up to 5 miles away and some towers may be visible
 27 from up to 15 miles. However, the IFTs would not be visible from SR 86, the main vehicular
 28 access routes through the Tohono O’odham Nation. Based on observations made of existing
 29 towers and the minimalistic structure of the proposed towers, the impacts on the region’s visual
 30 and aesthetic quality from the IFTs would be negligible beyond an observation point of 15 miles
 31 with the exception of the two existing towers located along SR 85. These towers are readily
 32 visible from SR 85 and the proposed upgrade activities would produce a minor temporary impact
 33 on the visual and aesthetic quality in the immediate proximity due to the presence of construction
 34 equipment; however, modifications to these existing towers would be minor and would pose
 35 little or no additional long-term visual or aesthetic impacts.
 36

37 Temporary visual and aesthetic impacts during the construction phase of the project would occur
 38 at the IFT sites. Generally, these temporary impacts would involve the presence of construction
 39 equipment on the landscape and temporary ground disturbances. Post-construction revegetation
 40 with native species and surface contouring would be utilized to minimize and reduce these
 41 temporary impacts.
 42

43 **3.15.3 Alternative 3**

44 Alternative 3 would result in aesthetic and visual impacts similar to those described for the
 45 Proposed Action.
 46

1 **3.16 HAZARDOUS MATERIALS**

2
3 Environmental due diligence documentation was conducted for each IFT site in accordance with
4 CBP's due diligence policy. These assessments were performed to evaluate any potential
5 environmental risk associated with the lease of the property by CBP for construction and
6 operation of the proposed IFTs. Each assessment included a search of Federal and state records
7 of known hazardous waste sites, potential hazardous waste sites, and remedial activities and
8 included sites that either are on the National Priorities List or are being considered for the list.
9 No evidence of hazardous materials or recognized environmental conditions was detected at any
10 of the IFT sites during the site inspections conducted June 3 through 14, 2013, and on June 24
11 and 25, 2013, or during the review of state and Federal records. Potential use of hazardous
12 materials and disposal of hazardous waste are discussed under the Alternatives below.
13

14 **3.16.1 Alternative 1: No Action Alternative**

15 Under the No Action Alternative, no impacts associated with the use of hazardous materials
16 would be expected.
17

18 **3.16.2 Alternative 2: Proposed Action**

19 The proposed IFT sites are owned by the Tohono O'odham Nation. As such, the Tohono
20 O'odham Nation's Environmental Protection Agency should be contacted prior to any
21 construction at the proposed sites. Additionally, the Tohono O'odham Nation's Solid Waste
22 Management Office would be contacted for any Tohono O'odham Nation-specific guideline
23 criteria for solid waste disposal.
24

25 All hazardous and regulated wastes, materials, and substances generated during construction of
26 the proposed IFTs would be collected, characterized, labeled, stored, transported, and disposed
27 of in accordance with all applicable Federal, state, local, and tribal laws and regulations,
28 including proper waste manifesting procedures. All other hazardous and regulated materials
29 would be handled according to materials safety data sheet instructions and would not affect
30 water, soils, vegetation, wildlife, or human safety. BMPs, as provided in Section 5.0, would be
31 implemented such that hazardous and regulated materials and substances would not impact the
32 public, groundwater, or the general environment.
33

34 Operation of the IFTs would not use hazardous materials or generate hazardous wastes. If
35 equipped, generators are anticipated to use propane fuel, which does not have the potential for
36 contamination if spilled.
37

38 **3.16.3 Alternative 3**

39 Under Alternative 3, impacts would be the same as those described for the Proposed Action.
40

41 **3.17 RADIO FREQUENCY ENVIRONMENT**

42
43 The RF environment considers the effect of EM radiation on humans and animals. RF radiation
44 are radio and microwave signals having frequencies from about 3 kilohertz to 300 gigahertz,
45 which are typically used for communications systems such as radio and TV, and radar.
46

1 The FCC is responsible for licensing frequencies and ensuring that the approved uses would not
2 interfere with television or radio broadcasts or substantially affect the natural or human
3 environments. The FCC adopted recognized safety guidelines for evaluating RF exposure in the
4 mid-1980s (OET 1999). Specifically, in 1985, the FCC adopted the 1982 American National
5 Standards Institute (ANSI) guidelines to evaluate exposure due to RF transmitters that are
6 licensed and authorized by the FCC (OET 1999). In 1992, ANSI adopted the 1991 Institute of
7 Electrical and Electronics Engineers (IEEE) standard as an American National Standard (a
8 revision of its 1982 standard) and designated it as ANSI/IEEE C95.1-1992 (OET 1999). The
9 FCC proposed to update its rules and adopt the new ANSI/IEEE guidelines in 1993, and in 1996
10 the FCC adopted a modified version of the original proposal (47 C.F.R. §§ 1.1310, 2.1093).
11 IEEE updated these standards in 2005 with IEEE C95.1-2005 and amended that standard in
12 2010.

13
14 The FCC's guidelines are also based on the National Council of Radiation Protection (NCRP)
15 and Measurements exposure guidelines. The NCRP and ANSI/IEEE exposure criteria identify
16 the same threshold levels at which harmful biological effects may occur. The whole-body
17 human absorption of RF energy varies with the frequency of the RF signal. The most restrictive
18 limits on exposure are in the frequency range of 30 to 300 megahertz where the human body
19 absorbs RF energy most efficiently when exposed in the air field of an RF transmitting source
20 (ANSI/IEEE C95.1-1992).

21
22 There are two tiers of exposure limits: occupational ("controlled") and general ("uncontrolled").
23 Occupational exposure occurs when people are exposed to RF fields as a part of their
24 employment and they have been made fully aware of the potential exposure and can exercise
25 control over their exposure. General exposure occurs when the general public is exposed or
26 when persons employed are not made fully aware of the potential for exposure or cannot exercise
27 control over their exposure.

28
29 In order for a transmitting facility or operation to be out of compliance with the FCC's RF
30 guidelines in an area where levels exceed Maximum Permissible Exposure (MPE) limits, it must
31 first be accessible to the public. The MPE limits indicate levels above which people may not be
32 safely exposed regardless of the location where those levels occur.

33
34 Adverse biological effects associated with RF energy are typically related to the heating of tissue
35 by RF energy. This is typically referred to as a "thermal" effect, where the EM radiation emitted
36 by an RF antenna passes through and rapidly heats biological tissue, similar to the way a
37 microwave oven cooks food. The Health Physics Society indicates that numerous studies have
38 shown that environmental levels of RF energy routinely encountered by the general public are
39 typically far below levels necessary to produce significant heating and increased body
40 temperature and are generally only associated with workplace environments near high-powered
41 RF sources used for molding plastics or processing food products. In such cases, exposure of
42 human beings to RF energy could be exceeded, thus requiring restrictive measures or actions to
43 ensure their safety (Kelly 2007).

44
45 There is also some concern that signals from some RF devices could interfere with pacemakers
46 or other implanted medical devices. However, it has never been demonstrated that signals from

1 a microwave oven are strong enough to cause such interference (OET 1999). Nonetheless, EM
2 shielding was incorporated into the design of modern pacemakers to prevent RF signals from
3 interfering with the electronic circuitry in the pacemaker (OET 1999). Currently, CBP and other
4 law enforcement agencies use 2-way radios as part of their daily operations in the project area.
5 Further, these agencies operate and maintain radio repeaters within the ROI. A description of RF
6 and EM impacts on wildlife is provided in Section 3.5.

8 **3.17.1 Alternative 1: No Action Alternative**

9 Under the No Action Alternative, the IFT sites would not be installed or operated. Daily radio
10 operations by CBP and local law enforcement would continue within the ROI. There would be
11 no impacts on the existing RF environment or effects on the human or natural environments.

13 **3.17.2 Alternative 2: Proposed Action**

14 With the implementation of the Proposed Action, IFTs equipped with radio and microwave
15 communications systems, as well as radar systems, would be installed for use by CBP. As with
16 any RF transmitter, all of these systems would emit RF energy and EM radiation; therefore, a
17 potential for adverse effects could occur. However, any adverse effects on human health would
18 likely be negligible due to the minimal exposure limits associated with both the type of
19 equipment used and the height at which they would be positioned on the towers. The IFT sites
20 would also be fenced for security, making human and terrestrial wildlife exposure to RF emitting
21 equipment even less likely. Communication and radar systems on the proposed IFTs would be
22 installed a minimum of 20 feet above the ground and would exceed the minimum safe operating
23 distance for these systems (Kelly 2007). Thus, maintenance and operational personnel working
24 within the secure IFT site would not be exposed to any RF energy that exceeds MPE limits set by
25 the FCC. As described in Section 3.5.2, although greater research is required to have a better
26 understanding of the effects of RF energy, the potential effects on wildlife from RF energy is
27 expected to be minor.

28
29 All frequencies used by CBP would be coordinated through the FCC and NTIA as required by
30 NTIA regulations. Therefore, the RF environment created by the installation, operation, and
31 maintenance of the communications and radar systems on IFTs would have a long-term,
32 negligible adverse impact on observatories and human health.

34 **3.17.3 Alternative 3**

35 Under Alternative 3, impacts on the radio frequency environment would be similar to those
36 discussed under the Proposed Action.

38 **3.18 SUMMARY OF IMPACTS**

39
40 Table 3-16 is provided to summarize the impacts of the No Action Alternative, Proposed Action,
41 and Alternative 3 on each of the elements discussed in this section (Affected Environment).

Table 3-16. Summary Matrix of Potential Impacts

Affected Environment	Alternative 1 (No Action Alternative)	Alternative 2 (Proposed Action)	Alternative 3
Land Use	No direct impacts would occur.	The Proposed Action would have a permanent, negligible impact on land use. Up to 223.00 acres of undeveloped land would be permanently converted to a developed land use and up to 6.06 acres would be temporarily converted to a developed land use.	Impacts on land use would be similar to those described for the Proposed Action.
Soils	No direct impacts would occur.	The Proposed Action would have a direct, minor impact on soils. The Proposed Action would permanently impact up to 223.00 acres of undisturbed soil. In addition, up to 6.06 acres of undisturbed soil would be temporarily disturbed during tower construction. Temporary impact areas would be revegetated using native plant seeds, nursery plantings, and/or allowed to revegetate naturally.	Impacts on soils would be similar to those described for the Proposed Action.
Vegetative Habitat	No direct impacts would occur.	The Proposed Action would permanently remove up to 223.00 acres and temporarily alter up to 6.06 acres of Sonoran desertscrub and grassland habitat. The plant community associated with the IFT sites is both locally and regionally common, and the permanent loss of vegetation would not adversely affect the population viability of any plant species in the region. Temporary impact areas would be revegetated using native plant seeds, nursery plantings, and/or allowed to revegetate naturally. BMPs would be implemented to prevent the spread of invasive species.	Impacts on vegetative habitat would be similar to those described under the Proposed Action.
Wildlife Resources	No direct impacts would occur.	The Proposed Action would have a long-term, minor impact on wildlife resources. The Proposed Action would permanently remove up to 223.00 acres and temporarily impact up to 6.06 acres of Sonoran desertscrub and grassland habitat.. The permanent loss of wildlife habitat would not adversely affect the population viability or fecundity of any wildlife species in the region. There is a possibility that the proposed communication towers could pose hazards to migratory birds and even bird mortality; however, since the towers would not use guy wires and would be less than 200 feet high, the potential for adverse impacts is greatly reduced. In addition, EM radiation may affect wildlife in various ways. BMPs could be used to discourage nesting or perching at the tower sites. The Proposed Action would have a permanent, minor effect on migratory birds.	Alternative 3 would result in impacts on wildlife and wildlife habitat similar to those described for the Proposed Action.
Protected Species and Critical Habitats	No direct impacts would occur.	The Proposed Action may affect, but is not likely to adversely affect, the Sonoran pronghorn, jaguar, lesser long-nosed bat, and yellow-billed cuckoo. No designated or proposed critical habitat is present within the project's action area. ESA Section 7 consultation with USFWS is currently ongoing.	Impacts on protected species and critical habitat would be similar to those discussed for the Proposed Action.

Table 3-16 (cont.)

Affected Environment	Alternative 1 (No Action Alternative)	Alternative 2 (Proposed Action)	Alternative 3
Groundwater	No direct impacts would occur.	The withdrawal of water could have a temporary, minor impact on groundwater resources.	Impacts on groundwater would be similar to those described for the Proposed Action.
Surface Waters, including Waters of the U.S.	No direct impacts would occur.	Surface water quality could be temporarily impacted during construction activities as a result of erosion and sedimentation. However, SWPPPs would be prepared and roadwork within potential waters of the United States would be authorized under NWP 14. BMPs would be implemented to ensure minimum degradation to water quality.	Impacts on surface water and waters of the U.S. would be similar to those described for the Proposed Action.
Floodplains	No direct impacts would occur.	There are no designated flood zones or flood hazard areas within the project area. Impacts on floodplains would not be anticipated for tower construction.	Impacts on floodplains would be similar to those described for the Proposed Action.
Air Quality	No direct impacts would occur.	Temporary and minor increases in air pollution would occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction of IFTs and access roads and the maintenance and repair of approach roads. Negligible impacts would result from the operation of the towers.	Under Alternative 3, impacts on air quality would be similar to those described for the Proposed Action.
Noise	Noise emissions associated with cross-border violator off-road travel and consequent law enforcement actions would be long-term and minor, and would continue.	Temporary and negligible increases in noise would occur during construction of IFTs and access roads and maintenance and repair of approach roads. Permanent noise level increases associated with tower operations would be negligible.	Noise emissions associated with construction and operational activities would be similar to those described under the Proposed Action.
Cultural Resources	No direct impacts would occur.	Based on the archaeological surveys, archival research results, Native American Tribal consultation to date, and implementation of BMPs, CBP has determined that there would be no adverse effects on any NRHP-eligible architectural or aboveground resources, TCPs, or sacred sites. Previously recorded and unidentified cultural resource sites located within the project area and regionally would receive increased protection from disturbance as a result of enhanced surveillance capabilities and improved operational efficiency. NHPA Section 106 consultation with the Tohono O’odham Nation THPO is ongoing.	Impacts would be similar to those described for the Proposed Action, with one exception. IFT TCA-CAG-0444 would be constructed as an alternate to TCA-CAG-04436. Impacts associated with IFT TCA-CAG-0436 would not occur. No sites were observed at TCA-CAG-0444.

Table 3-16 (cont.)

Affected Environment	Alternative 1 (No Action Alternative)	Alternative 2 (Proposed Action)	Alternative 3
Utilities and Infrastructure	No direct impacts would occur.	Negligible demands on power utilities would be required as a result of the Proposed Action.	Under Alternative 3, impacts would be similar to those described for the Proposed Action.
Roadways and Traffic	No direct impacts would occur.	Construction activities and staging for towers and roads would have a temporary, minor impact on roadways and traffic within the region. The increase of vehicular traffic would occur to supply materials and work crews at each tower IFT site during construction. Tower maintenance would also require vehicle travel to each IFT site for propane delivery, maintenance, and operations of the proposed towers. Approximately 416 vehicle trips per year are anticipated for tower maintenance and refueling under the Proposed Action. These trips would have a long-term, negligible impact on roadways and traffic.	Impacts would be similar to those described for the Proposed Action.
Aesthetics and Visual Resources	No direct impacts would occur.	The Proposed Action would have a long-term, moderate, direct impact on aesthetic and visual qualities within the project area. Most towers would be visible up to 5 miles away from the tower and some may be visible from up to 15 miles. Temporary aesthetic and visual impacts during the construction phase of the project would occur at the IFT sites, and these impacts would include the aesthetic and visual impacts of construction equipment.	Impacts would be similar to those described for the Proposed Action.
Hazardous Material	No direct impacts would occur.	The Proposed Action would not result in the exposures of the environment or public to any hazardous materials. The potential exists for minor releases of petroleum, oil, and lubricant during construction or operational activities. BMPs would be implemented to minimize any potential contamination at the IFT sites during construction activities and tower operation.	Impacts would be similar to those described for the Proposed Action.
Radio Frequency Environment	No direct impacts would occur.	The proposed towers would emit radio frequency energy and EM radiation; therefore, some minor potential for adverse effects could occur. However, any adverse effects on human safety would be negligible due to the minimal exposure risk and the elevated locations in which the communications equipment would be positioned.	Impacts on the radio frequency environment would be similar to those discussed under the Proposed Action.

SECTION 4.0
CUMULATIVE IMPACTS



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4.0 CUMULATIVE IMPACTS

This section of the EA defines cumulative impacts, identifies past, present, and reasonably foreseeable projects relevant to cumulative impacts, and analyzes the potential cumulative impacts associated with the implementation of the Proposed Action and other projects/programs planned within the ROI, which comprises the USBP's Ajo and Casa Grande Stations' AORs.

4.1 DEFINITION OF CUMULATIVE IMPACTS

The CEQ defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 C.F.R. § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, or local) or individuals. CEQ guidance on cumulative effects requires the definition of the scope of the other actions and their interrelationship with the Proposed Action (CEQ 1997). The scope must consider geographic and temporal overlaps with the Proposed Action and all other actions occurring within the ROI. Informed decision-making is served by consideration of cumulative impacts resulting from activities that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future activities affecting any part of the human or natural environment impacted by the Proposed Action. Activities were identified for this analysis by reviewing CBP and USBP documents, news/press releases, and published media reports, and through consultation with planning and engineering departments of local governments and state and Federal agencies.

4.2 PAST IMPACTS WITHIN THE REGION OF INFLUENCE

The ecosystems within the ROI have been substantially impacted by historical and ongoing activities such as ranching, livestock grazing, mining, agricultural development, climate change, and cross-border violator activity and resulting law enforcement actions. All of these actions have, to a greater or lesser extent, contributed to several ongoing threats to the ecosystem, including loss and degradation of habitat for both common and rare wildlife and plants and the proliferation of roads and trails due to cross-border violator activity and resulting law enforcement actions. Although activities that occurred on Federal lands (DOI and BLM) were regulated by NEPA, the most substantial impacts of these activities within the ROI such as ranching, livestock grazing, and cross-border violator activity and resulting law enforcement actions, were not or are not regulated by NEPA and did not include efforts to minimize impacts.

4.3 CURRENT AND REASONABLY FORESEEABLE CBP PROJECTS WITHIN AND NEAR THE REGION OF INFLUENCE

USBP has conducted law enforcement actions along the border since its inception in 1924 and has continuously transformed its methods as new missions, modes of operations of cross-border

1 violators, agent needs, and National enforcement strategies have evolved. Development and
 2 maintenance of training ranges, station and sector facilities, detention facilities, roads, and fences
 3 have impacted thousands of acres, with synergistic and cumulative impacts on soil, wildlife
 4 habitats, water quality, and noise. Beneficial effects have also resulted from the construction and
 5 use of these roads and fences, including, but not limited to, increased employment and income
 6 for border regions and its surrounding communities; protection and enhancement of sensitive
 7 resources north of the border; reduction in crime within urban areas near the border; increased
 8 land value in areas where border security has increased; and increased knowledge of the
 9 biological communities and prehistory of the region through numerous biological and cultural
 10 resources surveys and studies.

11
 12 With continued funding and implementation of CBP's environmental conservation measures,
 13 including use of biological monitors, wildlife water systems, and restoration activities, adverse
 14 impacts due to future and ongoing projects would be avoided or minimized. Recent, ongoing,
 15 and reasonably foreseeable proposed actions would result in cumulative impacts; however, the
 16 cumulative impacts would not be significant. CBP is currently planning, is conducting, or has
 17 completed several projects in the USBP's Ajo and Casa Grande Stations' AORs, including the
 18 following:

- 19
- 20 • Installation and maintenance of permanent vehicle barriers (PVB) at the U.S./Mexico
- 21 border within the Tohono O'odham Nation, creation of a 2-track primitive trail parallel to
- 22 the PVBs, turn-arounds to facilitate construction and maintenance of the PVBs, and
- 23 improvement and maintenance of the existing patrol road near the border
- 24 • Construction, operation, and maintenance of a new Ajo Station
- 25 • Construction, operation, and maintenance of a new Ajo Station Forward Operating Base
- 26 (FOB)
- 27 • Construction, operation, and maintenance of communication towers under the Secured
- 28 Border Initiative-Network (SBInet) program for Tucson Sector. The Tucson West
- 29 project was located within Tucson Station's AOR immediately east of the Tohono
- 30 O'odham Nation (CBP 2008) and the Ajo-1 project within Ajo Station's AOR
- 31 immediately west of the Tohono O'odham Nation (CBP 2009).
- 32 • Road Improvement on the Pozo Nuevo Road in Cabeza Prieta National Wildlife Refuge
- 33 (CPNWR)
- 34 • Expansion of the San Miguel LEC (CBP 2013b)
- 35 • Expansion of the Papago Farm FOB
- 36 • Restoration of Unauthorized Vehicle Roads within CPNWR and OPCNM
- 37 • Remote Video Surveillance Systems upgrade for Ajo Station's AOR (CBP 2012d)
- 38 • Construction of a vehicle bridge or high-water crossing over the Vamori Wash in the
- 39 vicinity of where the existing Traditional Northern Road traverses the wash
- 40 • Maintenance and repair of roads on the Tohono O'odham Nation. Maintenance and
- 41 repair of roads within that project area would consist of filling potholes, regrading road
- 42 surfaces, implementing improved water drainage measures, applying soil stabilization
- 43 agents, controlling vegetation, removing debris, and adding lost road surface material to
- 44 reestablish intended surface elevation needed for adequate drainage.

1 In addition, ADOT and the Tohono O’odham Nation are currently planning or conducting
2 several projects on the Tohono O’odham Nation, which include the following:
3

- 4 • Improvements to 4 miles of SR 86 between San Pedro and Viopuli Road (Mile Post [MP]
5 137 and MP 141). The project includes expanding the roadway shoulders for enhanced
6 safety, applying a new, smooth driving surface and installing drainage features (Tohono
7 O’odham Nation 2012a).
- 8 • Improvements to pedestrian access along SR 86 through Sells (Tohono O’odham Nation
9 2012b). Three miles of ADOT right of way along SR 86 through the town of Sells is
10 being considered.

11
12 A summary of the anticipated cumulative impacts relative to the Proposed Action is presented
13 below. The discussion is presented for each of the resources described previously.
14

15 **4.4 ANALYSIS OF CUMULATIVE IMPACTS**

16
17 Impacts on each resource were analyzed according to how other actions and projects within the
18 ROI might be affected by the assessed alternatives. Impacts can vary in degree or magnitude
19 from a slightly noticeable change to a total change in the environment. For the purpose of this
20 analysis, the intensity of impacts is classified as negligible, minor, moderate, or major. These
21 intensity thresholds were previously defined in Section 3.1. Due to the similarity of the action
22 alternatives for this project when analyzed for cumulative impacts, the impacts would be similar
23 for the two action alternatives (Alternative 2 [Proposed Action] and Alternative 3). A summary
24 of the anticipated cumulative impacts on each resource is presented below. All impacts would be
25 adverse unless otherwise stated.
26

27 **4.4.1 Land Use**

28 A vast majority of the project area is currently undeveloped scrub and brush rangeland located in
29 a rural area. Under No Action Alternative, land use would not change. However, cross-border
30 violator activities would continue to impact land use in the project area. Although the Proposed
31 Action would permanently convert up to 223.00 acres of undeveloped land to a developed use,
32 the Proposed Action and other CBP actions would not initiate an increase of development in the
33 immediate vicinity of the projects. The restoration of Unauthorized Vehicle Roads within
34 CPNWR and OPCNM would return the associated land to its original use. Therefore, the
35 Proposed Action, when combined with past and proposed actions in the region, would not be
36 expected to result in a major cumulative effect.
37

38 **4.4.2 Soils**

39 Modification of soils would not occur under the No Action Alternative; however, soils would
40 continue to be impacted due to cross-border violator activity in the area of tower coverage. The
41 Proposed Action and other CBP actions would not reduce Prime Farmland soils or agricultural
42 production regionally, as much of the land developed by CBP has not been previously used for
43 agricultural production. Pre- and post-construction SWPPP measures would be implemented to
44 control soil erosion. There may be an indirect beneficial impacts due to the deterrence of cross-
45 border violator activity within the area of tower coverage resulting in a reduction in soil
46 disturbances. The permanent disturbance of 223.00 acres of previously undisturbed soil from the

1 Proposed Action, when combined with past and proposed actions in the region, would not be
2 considered a major cumulative effect.
3

4 **4.4.3 Vegetative Habitat**

5 Since the proposed IFTs and associated road construction and improvements would not occur
6 under the No Action Alternative, vegetative habitat would not be disturbed or removed.

7 However, long-term direct and indirect impacts on vegetation communities would continue as a
8 result of cross-border violator activities that create unauthorized roads and trails, damage
9 vegetation and promote the dispersal and establishment of nonnative invasive species.

10 Approximately 2 million acres of desertscrub rangeland occur within the Tohono O’odham
11 Nation. Therefore, the potential, permanent disturbance of 223.00 acres of desertscrub habitat, in
12 conjunction with other past, ongoing, and proposed regional projects, would not create a major
13 cumulative effect on vegetative habitat in the region.
14

15 **4.4.4 Wildlife Resources**

16 Under the No Action Alternative, no direct impacts on wildlife or wildlife habitats would occur.

17 However, off-road cross-border violator activity and required interdiction actions would continue
18 to degrade wildlife habitat through a loss of cover, forage, nesting, or other opportunities and
19 potentially a loss of suitable habitat over large areas. Approximately 2 million acres of
20 desertscrub rangeland occur within the Tohono O’odham Nation. Therefore, due to the potential,
21 permanent disturbance of 223.00 acres of habitat, in conjunction with other past, ongoing, and
22 proposed regional projects, the amount of habitat potentially removed would be minor on a
23 regional scale. Thus, the Proposed Action would not create a major cumulative effect on wildlife
24 populations in the region.
25

26 **4.4.5 Threatened and Endangered Species**

27 Under the No Action Alternative, there would be no direct impacts on threatened or endangered
28 species or their habitats as no construction activities would occur. However, the direct and long-
29 term impacts of illegal border activities throughout the project area and surrounding areas would
30 continue due to the creation of trails, damage to vegetation, and the promotion of the dispersal
31 and establishment of invasive species. The Proposed Action may affect, but is not likely to
32 adversely affect, the Sonoran pronghorn, jaguar, lesser long-nosed bat, and yellow-billed cuckoo.
33 There is no designated critical habitat within the project area. As discussed in Section 3.2, both
34 the Sonoran pronghorn and jaguar are not known to occupy suitable habitat in the project area.
35 BMPs, which limit potential impacts on these species, would be in place during the construction
36 of the Proposed Action and would continue to be in place once the IFTs are operational. Thus,
37 when combined with other existing and proposed actions in the region, the Proposed Action
38 would not result in major cumulative impacts on protected species or designated or proposed
39 critical habitats. Any indirect, cumulative impacts on protected species and their critical habitats
40 would be negligible to minor.
41

42 **4.4.6 Groundwater, Surface Water, Waters of the United States, and Floodplains**

43 Under the No Action Alternative, no impacts on water resources would occur because the
44 construction of the proposed IFTs and associated access roads and maintenance and repair of
45 approach roads would not occur. Groundwater withdrawals from the San Simon Wash Basin are
46 below the natural recharge rate, and drainage patterns of surface water sources would not be

1 impacted by the project proposed within the USBP's Ajo and Casa Grande Stations' AORs.
2 Water quality in the San Simon Wash Basin would remain unchanged under the Proposed
3 Action. Specific erosion and sedimentation controls and other BMPs would be in place during
4 construction as standard operating procedures and roadwork would be permitted under NWP 14.
5 Therefore, the Proposed Action, in conjunction with other past, ongoing, and proposed regional
6 projects, would not create a major cumulative effect on water resources in the region.
7

8 **4.4.7 Air Quality**

9 No direct impacts on air quality would occur due to construction activities under the No Action
10 Alternative; however, fugitive dust emissions created by illegal off-road vehicle traffic and
11 resulting law enforcement actions, as well as vehicle traffic on authorized roads, would continue.
12 The emissions generated during the construction of the IFT sites, and all associated road
13 construction, repair, and improvement would not exceed Federal *de minimis* thresholds and
14 would be short-term and minor. Generator emissions would be intermittent and would not
15 exceed Federal *de minimis* thresholds. There would be no long-term increase in vehicular traffic
16 in the region's airshed. Approximately 416 annual vehicle trips would be required to maintain
17 the IFTs. Since the average daily traffic count along stretches of SR 86 ranges from 750 to 1800
18 vehicles per day, the 416 trips per year to maintain the IFTs would be negligible in comparison.
19 Therefore, the Proposed Action, when combined with other past, ongoing, and proposed actions
20 in the region, would not result in major cumulative impacts.
21

22 **4.4.8 Noise**

23 Under the No Action Alternative, the sensitive noise receptors and wildlife near the proposed
24 IFT sites and associated roads would not experience construction or operational noise associated
25 with the towers; however, noise emissions associated with cross-border violator off-road travel
26 and consequent law enforcement actions would be long-term and minor, and would continue
27 under the No Action Alternative. Most of the noise generated by the Proposed Action would
28 occur during IFT construction, road construction, road improvement, and road maintenance.
29 These activities would be temporary and would not contribute to cumulative impacts on ambient
30 noise levels. Thus, the noise generated by the Proposed Action, when considered with the other
31 existing and proposed actions in the region, would not result in major cumulative impacts.
32

33 **4.4.9 Cultural Resources**

34 Although no impacts on cultural resources would occur from construction activities under the No
35 Action Alternative, potential adverse impacts on cultural resources could continue to occur due
36 to cross-border violator traffic within the area of tower coverage. The Proposed Action would
37 not affect cultural resources or historic properties but may, in time, provide increased protection
38 from disturbance due to the deterrence of cross-border violator traffic within the area of tower
39 coverage. Therefore, the Proposed Action, when combined with other existing and proposed
40 actions in the region, would not result in major cumulative impacts on cultural resources or
41 historic properties. Additionally, beneficial impacts in the form of increased knowledge of the
42 past, including site density and distribution, are realized as a result of surveys conducted as part
43 of the Proposed Action, and other past, ongoing, and proposed actions in the region.
44

1 **4.4.10 Utilities and Infrastructure**

2 The proposed IFTs would not be constructed under the No Action Alternative, so the availability
3 of utilities would not be affected. Four of the new IFTs would potentially connect to existing
4 commercial grid power infrastructure. The use of commercial grid power would not require
5 greater utilities or infrastructure than can be provided since the IFT sites are located near existing
6 commercial grid power infrastructure. The remainder of the IFT sites would be powered by self-
7 contained power systems (i.e., dual power systems as described in the Proposed Action) and
8 would have no effect on existing utilities. Therefore, when combined with past, ongoing, or
9 proposed actions in the region, no major cumulative adverse effect on utilities or infrastructure
10 would occur as a result of the Proposed Action.

11
12 Previous USBP lighting projects in the region have required mitigation such as shielding to
13 prevent light trespass. Potential lighting associated with the Proposed Action would be equipped
14 with shields to prevent light trespass. Therefore, when combined with past, ongoing, or
15 proposed actions in the region, no major cumulative adverse effects on ambient or atmospheric
16 light is anticipated.

17 **4.4.11 Roadways and Traffic**

18 Under the No Action Alternative, impacts on roadways and traffic would remain status quo. The
19 roads in the vicinity of the IFT sites are very lightly travelled and construction activities for the
20 Proposed Action would be limited in duration, and maintenance trips would be minimal. Road
21 improvements on SR 86 would create short-term minor impacts on daily traffic. Therefore,
22 when combined with past, ongoing, or proposed actions in the region, no major cumulative
23 adverse effect on roadways and traffic would occur as a result of the Proposed Action.

24 **4.4.12 Aesthetics and Visual Resources**

25 Aesthetics and visual resources would not be directly affected by the No Action Alternative
26 because no towers would be constructed, however, discarded debris, trash, increases in illegal
27 roads, graffiti, and general vandalism resulting from cross-border violator activity would be
28 expected to continue and would increasingly detract from the visual quality of the project area.
29 No major impacts on aesthetic and visual resources would occur from construction of the
30 proposed IFT sites and road construction, repair, or improvements. However, the proposed IFTs
31 would be readily visible from 3 to 5 miles and may be visible up to 15 miles depending on the
32 location and elevation of an observer. The Proposed Action, in conjunction with other past,
33 ongoing, and proposed actions in the region, would result in moderate adverse cumulative
34 impacts on the region's visual resources.

35 **4.4.13 Hazardous Materials**

36 Under the No Action Alternative, no impacts associated with the use of hazardous materials
37 would be expected. Only minor increases in the use of hazardous substances would occur as a
38 result of the Proposed Action. BMPs would be implemented to minimize the risk from
39 hazardous materials during construction and daily operations at the IFT sites. No health or safety
40 risks would be created by the Proposed Action. The effects of the Proposed Action, when
41 combined with other past, ongoing, and proposed actions in the region, would not be considered
42 a major cumulative effect.

1 **4.4.14 Radio Frequency (RF) Environment**

2 Under the No Action Alternative, daily radio operations by CBP and other law enforcement
3 would continue; however the IFT sites would not be installed or operated. There would be no
4 impacts on the existing RF environment or effects on the human or natural environment. The
5 communications and sensor equipment proposed as part of the Proposed Action would emit EM
6 and RF; however, the equipment proposed by CBP would be certified safe for humans and
7 wildlife at normal exposure levels. CBP would seek NTIA certification for communications
8 equipment. No other known actions would affect the EM and RF environment within the project
9 area; thus, the Proposed Action would not be considered a major cumulative effect.

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SECTION 5.0
BEST MANAGEMENT PRACTICES



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5.0 BEST MANAGEMENT PRACTICES

This chapter describes those measures that would be implemented to reduce or eliminate potential adverse impacts on the human and natural environments. Many of these measures have been incorporated as standard operating procedures by CBP on past projects. BMPs are presented for each resource category that would be potentially affected. It should be emphasized that these are general BMPs. Specific BMPs would be developed for certain activities implemented under the action alternatives. Proposed BMPs will be coordinated through the appropriate agencies and land managers/administrators, as required.

It is Federal policy to reduce adverse impacts through the sequence of avoidance, minimization, and, finally, compensation. Compensation varies and includes activities such as restoration of habitat in other areas, acquisition of lands, etc., and is typically coordinated with USFWS and other appropriate Federal and state resource agencies.

5.1 GENERAL PROJECT PLANNING CONSIDERATIONS

1. Tohono O’odham Nation’s Environmental Protection Agency should be contacted prior to any construction at the proposed sites.
2. If security lights are necessary, only low-sodium bulbs that are both shielded and motion-activated will be used.
3. If required, night-vision-friendly strobe lights necessary for CBP operational needs will use the minimum wattage and number of flashes per minute necessary to ensure operational safety.
4. Avoid lighting impacts during the night by conducting construction and maintenance activities during daylight hours only. If night lighting is unavoidable 1) use special bulbs designed to ensure no increase in ambient light conditions; 2) minimize the number of lights used; 3) place lights on poles pointed down toward the ground, with shields on lights to prevent light from going up into the sky or out laterally into the landscape; and 4) selectively place lights so they are directed away from all native vegetative communities.
5. Towers no longer in use or determined to be obsolete will be removed within a reasonable time period following cessation of use.

5.2 SOILS

1. Clearly demarcate the perimeter of all new areas to be disturbed using flagging or temporary construction fencing. Do not allow any disturbance outside that perimeter.
2. Areas that will be disturbed later in the construction period will be used for staging, parking, and equipment storage.

- 1 3. The area of disturbance will be minimized by limiting deliveries of materials and
2 equipment to only those amounts needed for effective project implementation.
3
- 4 4. Within the designated disturbance area, grading or topsoil removal will be limited to
5 areas where this activity is needed to provide the ground conditions necessary for
6 construction or maintenance activities.
7
- 8 5. Only those roads necessary for construction of tower sites will be constructed, improved,
9 maintained, or repaired.
10
- 11 6. Road repairs shall avoid making windrows with the soils once grading activities are
12 completed, and any excess soils will be used on-site to raise and shape the tower site or
13 road surface as applicable.
14
- 15 7. Roads will be properly designed and located. The widening of existing or created
16 roadbed beyond the design parameters will be avoided or minimized.
17
- 18 8. Properly design and locate roads such that the potential for roadbed erosion into
19 Federally listed species habitat will be avoided or minimized.
20
- 21 9. Rehabilitation will include revegetating or the distribution of organic and geological
22 materials (i.e., boulders and rocks) over the disturbed area to reduce erosion while
23 allowing the area to naturally revegetate.
24
- 25 10. Vehicular traffic associated with the construction activities and operational support
26 activities will remain on established roads to the maximum extent practicable.
27

28 **5.3 BIOLOGICAL RESOURCES**

29

- 30 1. The removal of native vegetation and disturbance of soil will be minimized. The removal
31 of roadside vegetation will be limited to only those portions of plants necessary to allow
32 the passage of vehicles, material, and equipment. All removed mesquite that has a
33 diameter of 4 inches or more will be salvaged.
34
- 35 2. Removal of nonnative plants will be done in coordination with the Tohono O'odham
36 Nation WVMP. All removed plants will be bagged and disposed of in construction-
37 related debris bins. Herbicides can be used according to label directions if they are not
38 toxic to Federally listed species that may be in the area. If herbicides are used, the plants
39 will be pulled out after systematic absorption.
40
- 41 3. All chemical applications, including Herbicides, on the Tohono O'odham Nation will be
42 coordinated with the Tohono O'odham Nation's Environmental Protection Office and the
43 affected Tohono O'odham Nation districts to ensure accurate reporting.
44
- 45 4. Materials used for on-site erosion control will be free of nonnative plant seeds and other
46 plant parts to limit potential for infestation.

- 1 5. Identify any fill material, sandbags, hay bales, straw, and mulch brought in from outside
2 the project area by its source location. These materials will be free of nonnative plant
3 seeds and other plant parts to limit potential for infestation.
4
- 5 6. Native seeds or plants, which are compatible with the enhancement of protected species,
6 will be used to revegetate temporarily disturbed areas. USFWS and the Tohono
7 O’odham Nation will be provided the opportunity to review seed and plant lists proposed
8 to be used for revegetation.
9
- 10 7. Design and construction or improvements of the tower and roads will avoid impacting
11 columnar cacti to the maximum extent practicable. If impacts are not avoidable,
12 columnar cacti 10 feet or less in height are eligible for relocation or replacement with a
13 nursery stock at a 3:1 ratio in an area proximate to the project area. Prior to the initiation
14 of construction within the range of this species, a qualified biologist will conduct a
15 survey to identify and flag all columnar cacti to be avoided.
16
- 17 8. As part of tower construction, the contractor will be responsible for developing a
18 Vegetation Management Plan in order to minimize or avoid impacts to existing
19 vegetation, including columnar and barrel cacti.
20
- 21 9. Vegetation targeted for retention will be flagged for avoidance to reduce the likelihood of
22 being treated or removed.
23
- 24 10. Obtain materials such as gravel, topsoil, or fill from existing developed or previously
25 used sources that are compatible with the project area and are from legally permitted
26 sites. Do not use materials from undisturbed areas adjacent to the project area.
27
- 28 11. Soil cement may be used to stabilize low-water crossings. Avoid applying soil-binding
29 agents in or near surface waters (e.g. wetlands, perennial streams, intermittent streams, or
30 washes) during the monsoon season or periods of heavy rain. Only apply soil-binding
31 agents to areas that lack any vegetation.
32
- 33 12. The number of vehicles traveling to and from the project site and the number of trips per
34 day will be minimized to reduce the likelihood of disturbing animals in the area or
35 injuring animals on the road.
36
- 37 13. Construction and maintenance vehicle speed limits will not exceed 35 miles per hour
38 (mph) on major unpaved roads (i.e., graded with ditches on both sides) and 25 mph on all
39 other unpaved roads. During periods of decreased visibility (e.g., night, poor weather,
40 curves), do not exceed speeds of 25 mph.
41
- 42 14. To prevent entrapment of wildlife species, ensure that excavated, steep-walled holes or
43 trenches are either completely covered by plywood or metal caps at the close of each
44 workday or provided with one or more escape ramps (at no greater than 1,000-foot
45 intervals and sloped less than 45 degrees) constructed of earthen fill or wooden planks.
46

- 1 15. Each morning before the start of construction or maintenance activities and before such
2 holes or trenches are filled, ensure that they are thoroughly inspected for trapped animals.
3 Ensure that any animals discovered are allowed to escape voluntarily (by escape ramps or
4 temporary structures), without harassment, and before construction activities resume, or
5 are removed from the trench or hole by a qualified person and allowed to escape
6 unimpeded.
7
- 8 16. If hollow bollards, fence posts, vent pipes, or other hollow items are necessary, cover
9 hollow items to prevent wildlife from entrapment. Deploy covers (and ensure that they
10 remain fully functioning) when the posts or hollow bollards arrive on the site and are
11 unloaded, until they are filled with reinforcing material or are permanently capped.
12
- 13 17. Do not permit pets owned or under the care of the contractor or USBP Sector personnel
14 inside the project boundaries, adjacent native habitats, or other associated work areas.
15 This BMP does not apply to law enforcement working animals, such as USBP working
16 dogs and horses.
17
- 18 18. Initial mechanical and chemical vegetation clearing and subsequent mechanical
19 vegetation control should be timed to avoid the migration, breeding, and nesting time
20 frame of migratory birds (February 1 through September 1). When initial mechanical and
21 chemical vegetation control must be implemented during February 1 through September
22 1, a survey for nesting migratory birds will be conducted immediately prior to the start of
23 activities. If an active nest is found, a buffer zone will be established around the nest and
24 no activities will occur within that zone until nestlings have fledged and abandoned the
25 nest.
26
- 27 19. A survey for migratory birds will be conducted by qualified personnel prior to all
28 activities that involve removing vegetation or ground disturbance during the nesting
29 period (February 1 through September 1) in areas where migratory birds might be
30 nesting. If an active nest is observed within the project area during construction or
31 maintenance activities, the contractor will notify personnel with the Tohono O'odham
32 Nation WVMP prior to performing these activities.
33
- 34 20. If construction or maintenance is scheduled during the migratory bird-nesting season
35 (February 1 through September 1), take steps to prevent migratory birds from
36 establishing nests in the potential impact area. These steps could include covering
37 equipment and structures and use of various excluders (e.g., noise). Birds can be
38 harassed to prevent them from nesting on the site. Once a nest is established, they cannot
39 be harassed until all young have fledged and left the nest site. If nesting migratory birds
40 are found during the supplemental survey, defer intrusive construction and maintenance
41 activities until the birds have left the nest. Confirmation that all young have fledged
42 should be made by qualified personnel.
43
- 44 21. A Fire Management Plan will be developed by the construction contractor as part of
45 tower construction. For post-construction fire management, the maintenance contractor
46 will either adopt the construction-related Fire Management Plan or develop a new Fire

1 Management Plan to address fire management during post-construction activities. Both
 2 plans will be developed in coordination with the Nation's Fire Management Office.
 3 Clearing of vegetation using herbicides within each tower site and up to a 30-foot buffer
 4 beyond the perimeter fencing will be performed to achieve an adequate reduction of fire
 5 potential. The type of herbicide(s) and application will be approved by the Tohono
 6 O'odham Nation's Environmental Protection Office prior to use.

7
 8 22. Recommendations of the Avian Power Line Interaction Committee and USFWS (2000
 9 and 2008) for any required aboveground lines, transformers, or conductors will be
 10 implemented.

11
 12 23. Construction equipment will be cleaned at the staging areas, in accordance with BMPs,
 13 prior to entering and departing the project corridor to minimize the spread and
 14 establishment of non-native invasive plant species.

15 16 **5.4 PROTECTED SPECIES**

- 17
 18 1. All contractors, work crews (including military personnel), and CBP personnel in the
 19 field performing construction and maintenance activities will receive environmental
 20 awareness training. At a minimum, environmental awareness training will include the
 21 following information: maps indicating occurrence of potentially affected and Federally
 22 listed species; the general ecology, habitat requirements, and behavior of potentially
 23 affected Federally listed species; the BMPs listed here and their intent; reporting
 24 requirements; and the penalties for violations of the ESA. It will be the responsibility of
 25 the project manager(s) to ensure that their personnel are familiar with general BMPs, the
 26 specific BMPs presented here and other limitations and constraints. Photographs of
 27 potentially affected Federally listed species will be incorporated into the environmental
 28 awareness training and posted in the contractor and resident engineer's office where they
 29 will remain through the duration of the project, and copies will be made available that can
 30 be carried while conducting proposed activities. In addition, training in identification of
 31 nonnative invasive plants and animals will be provided for contracted personnel engaged
 32 in follow-up monitoring of construction sites. USFWS and the Tohono O'odham Nation
 33 will have an opportunity to review environmental awareness training material.
 34
 35 2. Biological monitors will be present at each area of construction activity.
 36
 37 3. Biological monitors will be able to communicate the purpose of all BMPs and will be
 38 able to consult project managers on appropriate actions.
 39
 40 4. Biological monitors will survey habitats potentially occupied by Federally listed species
 41 prior to the arrival of construction equipment or vehicles.
 42
 43 5. Following this initial survey, the biological monitor will be in sight of all construction
 44 equipment, vehicles, and personnel during all construction activities.
 45

- 1 6. Duties of the biological monitor will include ensuring that activities stay within
2 designated project footprints, evaluating the response of Federally listed species that
3 come near the project site, and implementing appropriate response actions.
4
- 5 7. Biological monitors will notify the construction manager of any activities that may harm
6 or harass an individual of a Federally listed species. Upon such notification, the
7 construction manager shall temporarily suspend all project activities and notify the
8 Tohono O’odham Nation WVMP, the Contracting Officer, the Administrative
9 Contracting Officer, and the Contracting Officer’s Representative of the suspension so
10 that the key personnel can be notified and apprised of the situation and the potential
11 conflict can be resolved.
12
- 13 8. If an individual of a Federally listed species is found in the designated project area, work
14 will cease in the area of the species until either a qualified specialist (an individual,
15 agency personnel, or personnel with the Tohono O’odham Nation WVMP with permits to
16 handle the species) can safely remove the individual, or it moves away on its own.
17
- 18 9. Individual animals found in the project area will be relocated by a qualified specialist (an
19 individual or agency personnel with permits to handle the species) to a nearby safe
20 location in accordance with accepted species handling protocols. Information on the
21 appropriate protocols will be coordinated with USFWS.
22
- 23 10. Biological monitors will check visible space underneath all vehicles and heavy
24 equipment for listed species and other wildlife prior to starting or moving vehicles and
25 equipment at the beginning of each workday and after vehicles have idled for more than
26 15 minutes.
27
- 28 11. Biological monitors will document the use of BMPs, any actions not compliant with
29 BMPs, and any incidence of harm or harassment of Federally listed species. A list of
30 species observed during monitoring will be included in the monitoring reports.
31
- 32 12. Reports from the biological monitor will be used for development of the post-
33 construction report, a copy of which will be provided to the Tohono O’odham Nation and
34 USFWS.
35

36 Sonoran Pronghorn

- 37 13. Notify the Tohono O’odham Nation WVMP if a Sonoran pronghorn is observed within
38 or near the project area during construction-related activities, decrease vehicle speeds to
39 10 to 15 mph until the vehicle or animal safely passes. Suspend construction activities
40 and wait for Sonoran pronghorn to relocate if Sonoran pronghorn are observed in
41 proximity to the tower sites during tower construction.
42
43
44
45
46

1 Lesser Long-nosed Bat (Post-construction Maintenance and Repair Activities)

- 2 14. Prior to conducting any maintenance or repair activity outside of the existing disturbed
3 footprint of tactical infrastructure within the range of the lesser long-nosed bat, a
4 qualified biologist will conduct a survey to identify and flag all columnar cactus (i.e.,
5 saguaro and organ pipe cactus) to be avoided.
6
- 7 15. No maintenance and repair activities will be conducted within 0.5 mile of any known
8 lesser long-nosed bat roost from mid-April through mid-September. CBP will contact
9 USFWS and the Tohono O’odham Nation for updated maps of known lesser long-nosed
10 bat roosts prior to implementing the action.
11
- 12 16. For maintenance and repair activities that will take place greater than 0.5 mile and less
13 than 5 miles from any known lesser long-nosed bat roost, CBP will contact USFWS and
14 the Tohono O’odham Nation for updated maps of known lesser long-nosed bat prior to
15 implementing the action.
16
- 17 17. Construction and maintenance activities will be limited to daylight hours. If night
18 lighting is unavoidable, (1) minimize the number of lights used; (2) place lights on poles
19 such that they are pointed down toward the ground, with shields on lights to prevent
20 light from going up into sky, or out laterally into landscape; and (3) selectively place
21 lights so they are directed away from native vegetation.
22

23 Yellow-billed Cuckoo

- 24 18. CBP will contact USFWS and the Tohono O’odham Nation for updated maps of known
25 yellow-billed cuckoo breeding and foraging areas prior to implementing the action.
26
- 27 19. Avoid performing maintenance and repair of the Traditional Northern Road through the
28 Vamori Wash during the yellow-billed cuckoo’s breeding season (mid-May through
29 September). If maintenance and repair of the Traditional Northern Road cannot be
30 avoided during the yellow-billed cuckoo’s breeding period, minimize the duration and
31 frequency of these activities to the greatest extent possible, and use noise abatement
32 technology, including dampeners.
33
- 34 20. No more than a minor amount of mesquite will be removed for maintenance and repair of
35 the Traditional Northern Road within the Vamori Wash.
36
- 37 21. If CBP improves the Traditional Northern Road within the Vamori Wash, CBP will
38 conduct two years of post-construction monitoring for yellow-billed cuckoo in
39 accordance with accepted guidelines and protocols. A baseline survey may need to occur
40 prior to these improvements.
41

42 Sonoran Desert Tortoise

- 43 22. Do not take, possess, or harass wild Sonoran desert tortoises. Biological monitors will
44 alert construction vehicle drivers and where necessary and practicable temporarily flag
45 occupied Sonoran desert tortoise’s habitat along approach and access roads during tower
46 construction.

- 1
- 2 23. Avoid impacts to occupied desert tortoise burrows. If impacts cannot be avoided, consult
- 3 with the Tohono O’odham Nation WVMP.
- 4
- 5 24. Follow the guidelines identified in Arizona Game and Fish Department, *Guidelines for*
- 6 *Handling Sonoran Desert Tortoises Encountered on Development Projects* (Revised Oct.
- 7 2007), where practicable.
- 8

9 **5.5 CULTURAL RESOURCES**

- 10
- 11 1. Archaeological monitors and Tohono O’odham tribal representatives will be present at
- 12 each area of construction activity and when road maintenance, repair, or improvement is
- 13 identified within 0.25 miles of any known NRHP eligible site (recommended and
- 14 determined), ineligible site, or site of undetermined eligibility. Archeological monitors
- 15 will meet the Secretary of the Interior standards (36 C.F.R. Part 800) and will be familiar
- 16 with, and have previous experience conducting, archeological work in the State of
- 17 Arizona.
- 18
- 19 2. Vehicular traffic associated with the construction and operational support activities will
- 20 remain on established roads to the maximum extent practicable.
- 21
- 22 3. NRHP eligible sites and sites of undetermined eligibility will be avoided and demarked
- 23 with painted lath and flagging tape. Avoidance measures include no ground disturbance
- 24 in areas of cultural materials and the use of stakes and flagging to keep equipment and
- 25 vehicles within the existing road footprint in known sites. Where possible, the qualified
- 26 archeologist will provide at least a 10 meter buffer around the mapped perimeter of the
- 27 site, where the site intersects any road, and ensure that no activities occurs within the
- 28 flagged boundaries of the site, excluding the footprints of existing roads. Flagging will
- 29 be removed upon completion of activities in the vicinity of the cultural resources.
- 30
- 31 4. Ground disturbance will not occur in any situation where roadwork is required within a
- 32 roadbed that traverses any NRHP-eligible site or site of undetermined eligibility. The
- 33 road may be repaired by the import of fill or material and mechanically compacted to
- 34 restore the road surface and provide for proper drainage across the site.
- 35
- 36 5. CBP will provide notification to the Tohono O’odham Nation THPO at least ten days
- 37 prior to executing project-related activities.
- 38
- 39 6. The qualified archeologist will provide a training session for the contractor regarding
- 40 how to minimize potential impacts on cultural resources. This training will be developed
- 41 in coordination with the Tohono O’odham Nation THPO.
- 42
- 43 7. During construction and maintenance activities, the archaeologist will be positioned so
- 44 that he or she has a clear view of the activities and can observe any unanticipated cultural
- 45 resources if they are uncovered. Monitoring will consist of the observation and
- 46 inspection of all ground disturbances conducted near archaeological sites. This will

1 include the visual inspection of any back dirt for culturally significant materials. All
2 surface and subsurface exposures will be examined for cultural features and natural
3 stratigraphy.
4

- 5 8. In the event that unanticipated archaeological resources are discovered during
6 construction or any other project-related activities, or should known archaeological
7 resources be inadvertently affected in a manner that was not anticipated, the following
8 procedures would be implemented:
9
- 10 a. The project proponent or contractor shall immediately halt all activities in the
11 immediate area of the discovery and take steps to stabilize and protect the discovered
12 resource until it can be evaluated by a qualified archaeologist.
13
- 14 b. CBP or the contractor shall immediately notify the Tohono O’odham Nation THPO
15 and BIA Western Regional Office (WRO) Regional Archaeologist to document and
16 preliminarily assess the find and formulate a recommendation regarding whether the
17 discovery is National Register-eligible or a tribal sacred object and merits further
18 consideration. The assessment shall address the following factors:
19
- 20 • The nature of the resource, such as the number and kinds of artifacts, presence or
21 absence of archaeological features, or sacred to the Tohono O’odham.
 - 22 • The spatial extent of the resource.
 - 23 • The nature of the deposits in which the discovery was made.
 - 24 • The contextual integrity of the resource, damage related to the initial discovery,
25 and potential impacts of the continued activity that resulted in the discovery.
26
- 27 c. If the preliminary evaluation concludes that the find is not a NRHP-eligible property
28 or tribal sacred object, nor a contributing element of an historic property or its
29 documentation has exhausted the information potential, this conclusion and
30 accompanying documentation shall be transmitted by CBP or the contractor to the
31 THPO and BIA/WRO. If THPO and BIA/WRO agree within five calendar days of
32 receipt, CBP may authorize resumption of the activity that resulted in the discovery.
33
- 34 d. If the preliminary evaluation concludes that the find is a NRHP-eligible property, a
35 contributing element of an historic property, a tribal sacred object, or that its
36 documentation has not exhausted the information potential, this conclusion and
37 accompanying documentation shall be transmitted by CBP and/or the contractor to
38 the THPO with a Treatment Plan. If the THPO and BIA/WRO determine that the
39 Treatment Plan is acceptable, the THPO and BIA/WRO shall ensure that the plan is
40 implemented to resolve the adverse effects. CBP shall not resume the activity that
41 resulted in the discovery until the THPO, in consultation with the BIA/WRO, has
42 determined that the adverse effect has been resolved and authorizes resumption of the
43 activity.
44
- 45 e. If human remains or associated funerary items are identified as a result of
46 construction or related activities, all work will stop immediately. The Pima County

1 Sheriff's Office and Tohono O'odham Police Department may be contacted if the
 2 remains are potentially recent and forensic in nature. The cultural resources
 3 contractor will immediately notify the THPO of the discovery. No photos of the
 4 discovery will be taken at any time by any individuals. Remains and objects will be
 5 treated with respect and dignity at all times. The construction crews will be relocated
 6 to another area of the project to avoid additional damage or disturbance. Remains or
 7 objects that are unequivocally prehistoric or historic O'odham will be assessed in situ
 8 by the THPO or a representative of the Cultural Affairs Office. The THPO will
 9 determine if the remains and any associated objects can be avoided and protected
 10 from additional impact. If the remains and associated objects are sufficiently
 11 disturbed or cannot be avoided with complete surety, the THPO may request that the
 12 human remains and associated objects be excavated. All excavation would be
 13 conducted by a qualified archaeologist using hand tools appropriate for burials and all
 14 soils would be screened through 1/8 inch mesh or window screen. Natural materials
 15 (e.g., paper bags, cotton batting, and cardboard boxes) would be used for collection
 16 and recovery of all remains and materials. The remains and associated items would
 17 be completely excavated and returned to a representative of the Tohono O'odham
 18 Nation Cultural Affairs Office within 24 hours for repatriation.

20 **5.6 AIR QUALITY**

- 21
- 22 1. BMPs will include the placement of flagging and construction fencing to restrict traffic
 23 within the construction limits in order to reduce soil disturbance. Soil watering will be
 24 utilized to minimize airborne particulate matter created during construction activities.
 25 Bare ground may be covered with hay or straw (see 5.3, paragraph 5) to lessen wind
 26 erosion during the time between tower construction and the revegetation of temporary
 27 impact areas with a mixture of native plant seeds, nursery plantings, and/or allowed to
 28 revegetate naturally. All construction equipment and vehicles will be kept in good
 29 operating condition to minimize exhaust emissions.

31 **5.7 WATER RESOURCES**

- 32
- 33 1. Wastewater is to be stored in closed containers on-site until removed for disposal.
 34 Wastewater is water used for project purposes that is contaminated with construction
 35 materials or from cleaning equipment and thus carries oils or other toxic materials or
 36 other contaminants as defined by Federal or state regulations.
- 37
- 38 2. Avoid contamination of ground and surface waters by collecting concrete wash water in
 39 open containers and disposing of it off-site.
- 40
- 41 3. Avoid contaminating natural aquatic and wetland systems with runoff by limiting all
 42 equipment maintenance, staging, and laydown and dispensing hazardous liquids, such as
 43 fuel and oil, to designated upland areas.
- 44
- 45 4. Cease work during heavy rains and do not resume work until conditions are suitable for
 46 the movement of equipment and materials.
- 47

- 1 5. Erosion control measures and appropriate BMPs, as required and promulgated through
2 site-specific SWPPPs and engineering designs, will be implemented before, during, and
3 after soil-disturbing activities.
4
- 5 6. Areas with highly erodible soils will be given special consideration when preparing a
6 SWPPP to ensure incorporation of various erosion control techniques, such as straw
7 bales, silt fencing, aggregate materials, wetting compounds, and rehabilitation, where
8 possible, to decrease erosion.
9
- 10 7. All construction and maintenance contractors and personnel will review the CBP-
11 approved spill protection plan and implement it during construction and maintenance
12 activities. Petroleum contaminated soil will be properly managed in accordance with
13 applicable state, local, and tribal rules and regulations.
14
- 15 8. Except for emergency repairs required to protect human life, limit work within drainages
16 to dry periods to reduce effects on downstream water quality.
17
- 18 9. Prevent runoff from entering drainages by placing fabric filters, sand bag enclosures, or
19 other capture devices around the work area. Empty or clean out the capture device at the
20 end of each day and properly dispose of the wastes.
21
- 22 10. Wastewater from pressure washing must be collected. A ground pit or sump can be used
23 to collect the wastewater. Wastewater from pressure washing must not be discharged
24 into any surface water.
25
- 26 11. If soaps or detergents are used, the wastewater and solids must be pumped or cleaned out
27 and disposed of in an approved facility. If no soaps or detergents are used, the
28 wastewater must first be filtered or screened to remove solids before being allowed to
29 flow off-site. Detergents and cleaning solutions must not be sprayed over or discharged
30 into surface waters.
31
- 32 12. Road maintenance will be designed and implemented so that the hydrology of streams,
33 ponds, and other habitat is not altered.
34
- 35 13. Properly design and locate roads such that the potential for entrapment of surface flows
36 within the roadbed due to grading will be avoided or minimized.
37
- 38 14. Water tankers that convey untreated surface water will not discard unused water within 2
39 miles of any aquatic or marsh habitat.
40
- 41 15. Storage tanks containing untreated water will be of a sufficient capacity that if a rainfall
42 event were to occur, the tank (assuming open) will not be overtopped and cause a release
43 of water into the adjacent drainages.
44
- 45 16. Water storage on the project area will be in on-ground containers located on upland areas
46 and not in washes.

1
2 **5.8 NOISE**
3

- 4 1. All generators will have an attached muffler or use other noise-abatement methods in
5 accordance with industry standards.
6
7 2. Avoid noise impacts during the night by conducting construction and maintenance
8 activities during daylight hours only. If construction or maintenance must occur during
9 non-daylight hours, minimize the duration and frequency of these activities to the greatest
10 extent possible.
11
12 3. All Occupational, Safety, and Health Administration (OSHA) requirements will be
13 followed. To lessen noise impacts on the local wildlife communities, construction will
14 only occur during daylight hours, whenever possible. All motor vehicles will be properly
15 maintained to reduce the potential for vehicle-related noise.
16

17 **5.9 SOLID AND HAZARDOUS WASTES**
18

- 19 1. The Tohono O’odham Nation’s Solid Waste Management Office will be contacted for
20 any Tribal Nation-specific solid waste disposal guideline criteria.
21
22 2. Where handling of hazardous and regulated waste or materials is required, all fuels, waste
23 oils, and solvents will be collected and stored in clearly labeled tanks or drums within a
24 secondary containment system that consists of an impervious floor and bermed sidewalls
25 capable of containing the volume of the largest container stored therein.
26
27 3. Implement proper and routine maintenance of all vehicles and other maintenance
28 equipment such that emissions are within the design standards of all maintenance
29 equipment. The refueling of machinery will be conducted following accepted industry
30 guidelines, and all vehicles will have drip pans during storage to contain minor spills and
31 drips.
32
33 4. Nonhazardous waste materials and other discarded materials, such as construction waste,
34 will be contained until removed from the construction and maintenance sites.
35
36 5. Do not pressure wash more than the area to be painted or treated (e.g., for graffiti
37 removal) each day. Operate pressure-washing equipment according to manufacturer’s
38 recommendations.
39
40 6. Minimize site disturbance and avoid attracting predators by promptly removing waste
41 materials, wrappers, and debris from construction site. Any waste that must remain on-
42 site more than 12 hours should be properly stored in closed containers until disposal. All
43 food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed
44 of in closed containers and removed daily from the project site.
45

- 1 7. Herbicide and pesticide applications must be made under the supervision of a licensed
2 applicator. A log of the chemical used, amount used, and specific location must be
3 maintained.
4
- 5 8. Use water-based paints instead of oil-based paints where practicable. Look for the words
6 “Latex” or “Cleanup with water” on the label. Do not rinse into natural drainages (e.g.,
7 intermittent streams, creeks, irrigation canals, wetlands) or storm drains.
8
- 9 9. All paints and cleaning materials should be approved by the appropriate land manager.
10
- 11 10. Use a ground cloth or an oversized tub for paint mixing and tool cleaning. Properly
12 dispose of the wastes offsite, at an approved facility, in accordance with Federal, State,
13 local, and tribal laws and regulations.
14
- 15 11. Clean paintbrushes and tools covered with water-based paints in sinks plumbed to a
16 sanitary sewer or in portable containers that can be dumped into sanitary sewer drains.
17 Never clean such tools in a natural drainage or over a storm drain.
18
- 19 12. Brushes and tools covered with non-water-based paints, finishes, thinners, solvents, or
20 other materials must be cleaned over a tub or container and the cleaning wastes must be
21 disposed of or recycled at an approved facility. Never clean such tools in a natural
22 drainage or over a storm drain.
23

24 **5.10 ROADWAYS AND TRAFFIC**

- 25
- 26 1. Construction vehicles will travel and equipment will be transported on established roads
27 with proper flagging and safety precautions.
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SECTION 6.0
IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

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6.0 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

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2
3 NEPA requires that Federal agencies identify “any irreversible and irretrievable commitments of
4 resources which would be involved in the Proposed Action should it be implemented” (42 U.S.C.
5 § 4332). An irreversible commitment of resources occurs when the primary or secondary
6 impacts of an action result in the loss of future options for a resource. Usually, this is when the
7 action affects the use of a nonrenewable resource or it affects a renewable resource that takes a
8 long time to renew. An irretrievable commitment of resources is typically associated with the
9 loss of productivity or use of a natural resource (e.g. loss of production or harvest).

10
11 Most impacts for this project are short term and temporary or, if long term, are negligible. An
12 irreversible commitment of resources includes the commitments of labor, energy/fossil fuels, and
13 construction materials (e.g. sand, gravel, steel, aluminum, etc.). However, not all this material
14 would be irreversibly committed because some of it may be recovered and recycled later. An
15 irreversible commitment of resources would also include the commitment of land and natural
16 resources, such as soils and vegetation, located within the project area. However, not all of this
17 would be irreversible because much of the land could be converted back to prior use at a future
18 date. A loss of agricultural land (land used for grazing and farming) would result in irretrievable
19 impacts to agricultural production during construction and operation of the tower sites though.
20 The accidental or unintentional removal or disturbance of previously unidentified cultural
21 resources could result in the irretrievable and irreversible loss of data. However, monitors and
22 other BMPs decrease the likelihood of this occurring. No irreversible or irretrievable impacts to
23 Federally protected species or their habitat is anticipated.

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SECTION 7.0
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SECTION 8.0
ACRONYMS/ABBREVIATIONS



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8.0 ACRONYMS/ABBREVIATIONS

1		
2		
3	AADT	Annual Average Daily Traffic
4	ABSTP	Arizona Border Surveillance Technology Plan
5	ACHP	Advisory Council on Historic Preservation
6	A.D.	<i>Anno Domini</i>
7	ADEQ	Arizona Department of Environmental Quality
8	ADWR	Arizona Department of Water Resources
9	ADOT	Arizona Department of Transportation
10	AGFD	Arizona Game and Fish Department
11	amsl	Above Mean Sea Level
12	ANHP	Arizona Natural Heritage Program
13	ANSI	American National Standards Institute
14	AOR	Area of Responsibility
15	APE	Area of Potential Effect
16	ASM	Arizona State Museum
17	AZ CCAG	Arizona Climate Change Advisory Group
18	BANWR	Buenos Aires National Wildlife Refuge
19	B.C.	Before Christ
20	bgs	Below Ground Surface
21	BIA	Bureau of Indian Affairs
22	BLM	Bureau of Land Management
23	BMP	Best Management Practice
24	C2	Command and Control
25	CALTRANS	California Department of Transportation
26	CBP	U.S. Customs and Border Protection
27	CEQ	Council on Environmental Quality
28	C.F.R.	Code of Federal Regulations
29	CH ₄	Methane
30	CO	Carbon Monoxide
31	CO ₂	Carbon Dioxide
32	CWA	Clean Water Act
33	dB	Decibel
34	dBA	A-weighted Decibel
35	DHS	Department of Homeland Security
36	DNL	Day-Night Sound Level
37	DOI	U.S. Department of the Interior
38	DPS	Distinct Population Segment
39	EA	Environmental Assessment
40	EIS	Environmental Impact Statement
41	EM	Electromagnetic
42	EMF	Electromagnetic Field
43	EO	Executive Order
44	ESA	Endangered Species Act
45	FAA	Federal Aviation Administration
46	FCC	Federal Communications Commission

1	FEMA	Federal Emergency Management Agency
2	FHWA	Federal Highway Administration
3	FOB	Forward Operating Base
4	FONSI	Finding of No Significant Impact
5	FR	Federal Register
6	GHG	Greenhouse Gases
7	GIS	Geographic Information System
8	GPS	Global Positioning System
9	GSRC	Gulf South Research Corporation
10	HFC	Hydrofluorocarbons
11	HUD	U.S. Department of Housing and Urban Development
12	IEEE	Institute of Electrical and Electronics Engineers
13	IFT	Integrated Fixed Tower
14	IO	Isolated Occurrence
15	IoI	Items of Interest
16	IRR	Indian Rural Route
17	LEC	Law Enforcement Center
18	MP	Mile Post
19	MPE	Maximum Permissible Exposure
20	mph	miles per hour
21	NAAQS	National Ambient Air Quality Standards
22	NCRP	National Council on Radiation Professionals
23	NEPA	National Environmental Policy Act
24	NHPA	National Historic Preservation Act
25	N ₂ O	Nitrous Oxide
26	NO _x	Nitrogen Oxides
27	NO ₂	Nitrogen Dioxide
28	NOA	Notice of Availability
29	NRCS	Natural Resources Conservation Service
30	NRHP	National Register of Historic Places
31	NTE	Not to Exceed
32	NTIA	National Telecommunications and Information Administration
33	NVG	Night Vision Goggles
34	NWP	Nationwide Permit
35	O ₃	Ozone
36	OET	Office of Engineering and Technology
37	OPCNM	Organ Pipe Cactus National Monument
38	OSHA	Occupational, Safety, and Health Administration
39	OTIA	Office of Technology Innovation and Acquisition
40	PM-2.5	Particulate Matter Less than 2.5 Microns
41	PM-10	Particulate Matter Less than 10 Microns
42	PVB	Permanent Vehicle Barriers
43	RF	Radio Frequency
44	ROI	Region of Influence
45	ROW	Rights of Way
46	SHPO	State Historic Preservation Officer

1	SO ₂	Sulfur Dioxide
2	SR	State Route
3	SST	Self-standing Tower
4	SWPPP	Stormwater Pollution Prevention Plan
5	TCP	Traditional Cultural Properties
6	THPO	Tribal Historic Preservation Officer
7	U.S.	United States
8	USACE	U.S. Army Corps of Engineers
9	USBP	U.S. Border Patrol
10	U.S.C.	U.S. Code
11	EPA	U.S. Environmental Protection Agency
12	USFWS	U.S. Fish and Wildlife Service
13	USIBWC	U.S. Section, International Boundary and Water Commission
14	VOC	Volatile Organic Compounds
15	WRO	Western Regional Office
16	WVMP	Wildlife & Vegetation Management Program (Tohono O'odham Nation)

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SECTION 9.0
LIST OF PREPARERS



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9.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this EA.

Name	Agency/ Organization	Discipline/ Expertise	Experience	Role in Preparing EA
Paul Schmidt	CBP OTIA	Biology	Over 30 years NEPA project management	Program Manager – EA review
Elizabeth Kimmerly	CBP OTIA	Environmental Resources Planner	24 years environmental management and NEPA	EA review
Timothy Smith	CBP FM&E EED	Environmental Protection Specialist	12 years environmental	EA review
John Pitcher	CBP OTIA (Contractor), ManTech	Environmental Engineer	20 years environmental	EA review
George Gorman	CBP OTIA (Contractor), ManTech	NEPA/Legal	6 years environmental planning and compliance	Project Manager – EA preparation and review
Taylor Houston	CBP OTIA (Contractor), ManTech	Biology/Ecology	20 years biology and NEPA	EA preparation
Molly Rodriguez	CBP OTIA (Contractor), ManTech	GIS	10 years GIS/graphics	EA preparation
Chris Ingram	GSRC	Biology/Ecology	37 years EA/EIS studies	EA review
Sherry Ethell	GSRC	Biology	24 years environmental and NEPA	Project Manager – EA preparation and review
Steve Kolian	GSRC	Environmental Science	13 years natural resources	EA preparation
Rob Nixon	GSRC	Biology	19 years biology	EA preparation
John Ginter	GSRC	Biology	25 years biology	EA preparation
Dave Hart	GSRC	Archaeology	18 years professional archaeology/cultural resources	EA preparation
Kreg Ellzey	GSRC	Archaeology	10 years cultural resources	EA preparation
Sharon Newman	GSRC	GIS/Graphics	22 years GIS/graphics	GIS/graphics

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