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C.H. HUCKELBERRY
County Administrator

July 8, 2019

I-11 Tier 1 EIS Study Team
c/o ADOT Communications
1655 West Jackson Street
Mail Drop 126 F
Phoenix, Arizona

Email to: I-11ADOTSTUDY@hdrinc.com

Re: Interstate 11 Corridor Draft Tier 1 Environmental Impact Statement Review and Comments by Pima County

Dear I-11 Tier 1 EIS Study Team:

Pima County appreciates the opportunity to review and comment on the Interstate 11 (I-11) Corridor Draft Tier 1 Environmental Impact Statement (EIS). Given the importance of I-11 as a trade corridor, the no-build alternative is unacceptable and should be rejected. Notwithstanding, both corridor alignments, the one using the existing Interstate 10 (I-10) and the Avra Valley alignment, have significant impacts and will require extensive mitigation.

The I-10 alternative impacts relate mainly to adverse urban impacts associated with residential and commercial displacement, as well as noise and disruption of existing transportation utility systems. The Avra Valley route has mostly environmental impacts. Extensive mitigation will be required for both routes and the required mitigation should meet local standards, ordinances and requirements.

To assist in developing mitigation obligations, Pima County has prepared detailed written comments. The County's comments primarily relate to the Avra Valley alternative where the County has jurisdiction. Other impacts associated with the I-10 alternative have been provided by the City of Tucson. Many of our comments are also applicable to urban dislocation and impacts to historic and cultural places that will occur as a result of the I-10 alternative.

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**Re: Interstate 11 Corridor Draft Tier 1 Environmental Impact Statement Review and
Comments by Pima County**

July 8, 2019

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Attachment 1 is a detailed 14-page memorandum that comments on the Draft Tier 1 EIS. Our comments are contained within the July 5, 2019 memorandum from Pima County Transportation Director Ana Olivares. In addition, Attachment 2 is a more detailed environmental mitigation analysis prepared by Pima County staff regarding the mitigation obligations associated with the Avra Valley route or an intermountain west corridor. These comments and studies are designed to assist you in your deliberations of this matter and selection of a preferred corridor.

The County will object to any Avra Valley alternative I-11 corridor that does not adequately mitigate environmental, historic, archeological, and urban form impacts to the standards set forth in our detailed list of comments in Attachment 1 and our environmental mitigation analysis found in Attachment 2.

These mitigation standards are intended to ensure complete compliance with the locally adopted and nationally recognized Sonoran Desert Conservation Plan and to prevent an intermountain trade corridor such as I-11 from becoming a catalyst to promote urban sprawl and commercialization along the corridor.

We appreciate the opportunity to provide this review and comment on the I-11 Corridor Draft Tier 1 Environmental Impact Statement.

Sincerely,



C.H. Huckelberry
County Administrator

CHH/anc

Enclosure

c: The Honorable and Chairman and Members, Pima County Board of Supervisors
Carmine DeBonis, Jr., Deputy County Administrator for Public Works
Ana Olivares, Director for Transportation Department

ATTACHMENT 1

DATE: July 5, 2019



FROM: Ana M. Olivares, P.E.
Director

TO: C.H. Huckelberry
County Administrator

SUBJECT: RE: I-11 Corridor Draft Tier 1 Environmental Impact Statement Comments

The Department of Transportation appreciates the opportunity to review and comment on the Draft Tier 1 Environmental Impact Statement (EIS) for the Interstate 11. We have circulated the Draft Tier 1 EIS to the Public Works Departments and compiled all comments received. We continue to support the environmental impact study process including full disclosure of all impacts and mitigation measures for all alternatives. We understand that any alternative for a major new interstate freeway is going to have impacts that must be carefully evaluated and weighed against each other. We also understand that the National Environmental Policy Act (NEPA) process requires full disclosure of all potential impacts and recommended mitigation measures to address those impacts. To this point, we are concerned that not all potential impacts have been adequately disclosed, nor adequate mitigation proposed.

Specifically, we agree with the particular findings of the Draft Tier 1 EIS that the Recommended Alternative through Avra Valley negatively impacts natural and cultural resources, but we do not believe that these impacts have been adequately evaluated. We also have concerns about the evaluation of impacts of the I-10/I-19 alternative or “orange” route. The remainder of this memorandum will address the following major concerns as well as minor comments and corrections:

1. The Draft Tier 1 EIS does not acknowledge potential impacts to the thousands of acres owned and/or managed by Pima County as part of the Conservation Lands System (CLS).
2. We disagree with the “net benefit” programmatic evaluation of the Tucson Mitigation Corridor (TMC) and insist that an individual 4(f) evaluation be conducted for the proposed use of the TMC. We believe this requires a revision to the Draft Preliminary Section 4(f) Evaluation.
3. We have significant concerns regarding the analysis methods, data integrity and accuracy of the information presented in Section 3.7 Archeological, Historical and Cultural Resources. Therefore, we believe the results presented in Section 3.7 and Chapter 4 are grossly inadequate for the purposes of a comparative analysis between alternatives.
4. Pima County’s Preserve System must be considered an “affected resource” and potential impacts must be assessed and mitigation strategies must be presented.
5. Information on the Pima County’s Multi-species Conservation Plan (MSCP) is incorrect and incomplete.

1. Conservation Lands System Impacts and Mitigation

The agencies must consider Pima County’s CLS an “Affected Resource,” assess likely impacts to it, and mitigate those impacts based on established CLS ratios. The Draft EIS includes no discussion of Pima County’s Maeveen Marie Behan CLS. This is a significant oversight when assessing I-11’s impacts to biological resources and planned land use in Pima County.

Developed with the assistance of the Bureau of Reclamation (BOR), U.S. Fish and Wildlife Service (FWS), and many other agencies, scientists, and land managers, the CLS is a key element of the County’s award-winning Sonoran Desert Conservation Plan (SDCP). It identifies areas where conservation should be prioritized as well

as areas more suitable for development, along with mitigation goals that help the region grow while maintaining and improving landscape-level connectivity, which is the foundational objective of the CLS. It has guided County land use planning since it was first integrated into Pima County's Comprehensive Land Use Plan in 2001, and it has been included in each subsequent update including the 2015 update, *Pima Prospers*.

The CLS was used as a foundation for the County's MSCP, and it provides a federally approved landscape-level framework for mitigating the effects of development. It identifies and maps areas where priority biological resources occur within Pima County, categorizes those resources based on their relative values for biodiversity, and establishes landscape-level conservation goals for each category. The most biologically sensitive categories are also assigned project-specific mitigation ratios specifying the amount of mitigation necessary to offset disturbances in that category. These categories include:

- *Important Riparian Areas*: Landscape-level goal is to conserve at least 95 percent of the lands within this designation; project-specific mitigation determined via compliance with Pima County's *Watercourse and Riparian Habitat Protection and Mitigation Requirements* ordinance (Pima County Zoning Code Title 16.30).
- *Biological Core Management Areas*: Landscape-level goal is to conserve at least 80 percent of the lands within this designation; project-specific mitigation ratio is four conserved acres for each acre disturbed (4:1).
- *Special Species Management Areas*: Landscape-level goal is to conserve at least 80 percent of the lands within this designation; project-specific mitigation ratio is four conserved acres for each acre disturbed (4:1).
- *Multiple Use Management Areas*: Landscape-level goal is to conserve at least 66 ⅔ percent of the lands within this designation; project-specific mitigation ratio is two conserved acres for each acre disturbed (2:1).

Complete information on CLS categories and associated conservation guidelines can be found in Pima County's General Plan, [*Pima Prospers, Chapter 3.4 – Use of Land; Environmental Element*](#).

Pima County has made extraordinary investment in securing property (fee title) and property interests (grazing leases, conservation easements, etc.) to conserve biologically diverse and culturally rich lands across the region. In many cases, these property interests also serve to fulfill the County's long-term mitigation obligations under our MSCP and Section 10 Incidental Take Permit, which was issued by the FWS in July 2016.

The green and purple alternatives (or any combination of the two) running through Avra Valley will have broad impacts on multiple CLS categories; the orange alternative will likely have far fewer impacts. These impacts, wherever they occur, will require mitigation based on each category's established mitigation ratio as described above.

Recommendation: **The agencies must mitigate CLS impacts based on established mitigation ratios; it is estimated that approximately 11,000 acres would be required to mitigate CLS impacts in Avra Valley.** Understanding that more detailed assessments will be conducted in the Tier 2 analysis, the Tier 1 EIS must consider the CLS an "Affected Resource" and generally assess both the likely impacts to this resource and potential mitigation strategies, just like the document does for other "Affected Resources."

We conducted a preliminary assessment of potential impacts to the CLS if I-11 is routed through Avra Valley [See Attachment 1]. We estimate that, based on established CLS mitigation ratios, the amount of lands necessary to mitigate those impacts will be approximately 11,000 acres. This estimate and the potential costs associated with it need to be considered in the Tier 1 EIS in order to "to provide sufficient information for the public, agencies, and Tribes to comment on the analysis of the alternatives and the Recommended Alternative," the stated objective of the Draft EIS.

We also recommend that the following mitigation actions be taken if I-11 is routed through Avra Valley to address the significant impacts this project will have on landscape connectivity, which is the foundational objective of the CLS:

- Minimize or eliminate interstate entrance and exit points (interchanges) in Avra Valley;
- Acquire mitigation lands adjacent to the I-11 route to forestall future commercial and urban expansion in the Avra Valley;
- Establish additional wildlife movement corridors in Avra Valley via acquisition or other means; and
- Establish protected wildlife movement corridors north of Avra Valley between the Picacho Mountains/Durham-Coronado Plain area and the Ironwood Forest National Monument via acquisition or other means.

2. TMC and Draft Preliminary Section 4(f) Evaluation

Several separate but related comments, enumerated A through F, and recommendations are provided relating to the TMC.

A. The agencies must conduct an individual 4(f) evaluation of the TMC.

The “net benefit” programmatic evaluation of the TMC provided in the Draft EIS is not applicable to this project’s proposed use of the TMC. The federal regulations governing 4(f) evaluations state that programmatic evaluations are to only be used “for certain minor uses of Section 4(f) property.” (23 CFR 774.3(d); emphasis added.) The use at issue here is the routing of a new interstate highway through the entire length of a 2,500-acre property set aside specifically to facilitate wildlife movement. It is critical to remember that the reason this property is considered a 4(f) property is because it currently serves as mitigation for the significant impacts to wildlife connectivity that resulted from a previous linear project – the Central Arizona Project (CAP) canal. To categorize a use that will almost certainly impair the ability of this specific property to continue to serve that important function as “minor” is simply not defensible.

The use of the “net benefit” programmatic evaluation is also inappropriate because in order for it to apply, the “net benefit” must be realized on the 4(f) property at issue. According to Federal Highway Administration guidance, “A “net benefit” is achieved when the transportation use, the measures to minimize harm and the mitigation incorporated into the project results in an overall enhancement of the Section 4(f) property... A project does not achieve a “net benefit” if it will result in a substantial diminishment of the function or value that made the property eligible for Section 4(f) protection.”¹

Here, regardless of the type and scope of measures implemented off-site to mitigate impacts to the TMC, this project will undoubtedly result in a substantial diminishment of the TMC property itself, as well as substantial diminishment of its value in facilitating wildlife movement and its ability to continue to serve as mitigation for the CAP canal’s impacts.

Recommendation: The agencies must conduct an individual 4(f) evaluation for the proposed use of the TMC. This evaluation must be supported with sufficient information regarding the proposed use of the TMC and the associated impacts to the property to allow decision-makers and the public to make an informed choice between the alternatives presented.

¹ “Section 4(f) Evaluation and Approval for Transportation Projects that Have a Net Benefit to a Section 4(f) Property.” Federal Highway Administration Environmental Review Toolkit. https://www.environment.fhwa.dot.gov/legislation/section4f/4f_netbenefits.aspx. Accessed June 12, 2019 (emphases added).

B. Pima County must agree to any future development within the TMC property.

As detailed in a letter dated April 13, 2018, Pima County has decision-making authority regarding developments within the TMC [See Attachment 2]. In 1990, the BOR's acquisition of the TMC was authorized under 16 U.S.C. 663, which directs that "such properties shall continue to be used for such purposes, and shall not become the subject of exchange or other transactions if such exchange or other transaction would defeat the initial purpose of their acquisition." (Emphasis added.) These regulations also require that the use of such lands "shall be in accordance with general plans approved jointly" by the BOR, the Secretary of Interior, and other agencies that administer the resources at issue. (16 U.S.C. 663(b).)

After the BOR acquired the TMC property, the Department of Interior entered into the *Cooperative Agreement for the Use of Project Lands for Wildlife and Plant Conservation and Management, TMC, Central Arizona Project* with Pima County, the Arizona Game and Fish Department (AGFD), and the FWS. The *Cooperative Agreement* provided that Pima County would manage TMC as part of the Tucson Mountain Park system in accordance with the *Master Management Plan* that was attached to that agreement. The *Master Management Plan* was also attached to the 2002 *Cooperative Agreement* which replaced the 1990 agreement.

The *Master Management Plan* explicitly requires that BOR "prohibit any future developments within the area other than existing wildlife improvements, management, or developments agreed to by [BOR], [AGFD], [FWS], and Pima County." (Section II.2.) After several extensions the 2002 *Cooperative Agreement* was terminated in 2009; however, the *Master Management Plan's* Section II "Management Goals" and "Management Actions" survived the 2009 termination and stands as the jointly approved plan required under 16 U.S.C. 663(b). This means that BOR is obligated to prohibit any future developments within the TMC unless jointly agreed to by all parties to *Master Management Plan*, including Pima County.

Recommendation: The Draft EIS needs to acknowledge Pima County's authority over the use of the TMC property. The agencies should begin engaging with Pima County directly regarding the use of this property, as was previously requested in the County's April 13, 2018 letter [See Attachment 2].

C. The agencies must revise the entire Draft Preliminary Section 4(f) Evaluation to include sufficient information for informed decision-making, and it must be recirculated for public comment.

As we have explained above, the "net benefit" programmatic evaluation cannot be applied to the TMC; instead, an individual 4(f) evaluation must be done for this property. Because it overwhelmingly relies on the incorrect assumption that a "net benefit" can be achieved for the TMC, the entire *Draft Preliminary Section 4(f) Evaluation* is fatally flawed. The assumption that a "net benefit" will be achieved for the TMC supplanted a true examination of potential impacts to that property, and that omission now precludes any meaningful comparison of the alternatives and their potential use of 4(f) properties. This renders moot virtually every finding that supports the evaluation's least overall harm assessment and summary of findings.

The agencies have an overarching responsibility under the NEPA to obtain the information necessary to evaluate significant environmental impacts when such information is "essential to a reasoned choice among alternatives," and to take a "hard look" at the environmental consequences of this proposed action. (40 C.F.R. 1502.22; *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)). The Draft EIS fails to do either, as virtually all of the information provided in the Draft Preliminary Section 4(f) evaluation is woefully insufficient in this regard, rendering the entire so inadequate as to preclude meaningful analysis.

Recommendation: The agencies must revise the Draft Preliminary Section 4(f) Evaluation and recirculate it for public comment. The *Draft Preliminary Section 4(f) Evaluation* must be redone once the individual evaluation for the TMC is completed, and it must provide sufficient information for all 4(f) properties to allow for a proper evaluation of the significant impacts and so that decision-makers and the public can make a reasoned choice among the alternatives presented. Once completed, the revised draft must be recirculated for public comment before being finalized.

D. The Draft EIS provides no assurances that sufficient resources will be available to implement the measures required to mitigate impacts to the TMC.

According to the Council for Environmental Quality guidelines for the “Appropriate Use of Mitigation and Monitoring” published in January 2011, “Agencies should not commit to mitigation measures considered and analyzed in an EIS or EA if there are insufficient legal authorities, or it is not reasonable to foresee the availability of sufficient resources, to perform or ensure the performance of the mitigation.” We understand that at the Tier 1 Draft EIS stage, the discussion of mitigation measures is focused on planning-level efforts. However, the I-11 Tier 1 EIS and Record of Decision (ROD) will make the final determination on whether the Build Corridor will run through the TMC property or not. If the decision is made to route I-11 through the TMC and that decision is rationalized by the promised implementation of mitigation measures to offset impacts to the TMC, then those measures must be discussed in more detail at this stage. That discussion should include at least some consideration of whether the legal authority and funding necessary to perform the promised mitigation measures exist now and/or will exist in the future.

Given the long planning horizon for future studies and design of I-11, there are legitimate questions about whether these mitigation commitments will actually be implemented in light of the lack of commitment or funding to stabilize the future of private and state trust lands that may potentially serve as mitigation for this project. In fact, it is likely that much of the potential land suitable for mitigation will be developed in advance of any construction and will thus be unavailable for use as mitigation. Most of the private lands will be exchanged on the market in coming years, and there is no agent who will buy mitigation land absent an agreement to do so with the federal agencies. Additionally, because the mission of the Arizona State Land Department is to manage State Trust Lands in a way that optimizes economic return for the Trust beneficiaries, there are no assurances that these lands will be made available for purchase as mitigation in the future. The agencies need to consider these important issues before deciding whether the Build Corridor will be routed through the TMC; if that decision is ultimately founded on mitigation commitments that cannot be implemented, the agencies may be forced to redo their NEPA analysis.

Recommendation: The agencies must discuss proposed mitigation measures for the TMC in more detail, including where and how potential land acquisitions will occur. Because the I-11 Tier 1 EIS and ROD will make the final determination of whether the Build Corridor will run through the TMC, the mitigation measures proposed to offset impacts to the TMC must be discussed in more detail at this stage in order to meaningfully inform that decision. Meaningful mitigation must include substantial land acquisition if an Avra Valley route is chosen. The agencies must consider the current and future availability of private and state lands that will be necessary to set aside in order to provide adequate mitigation for use of the TMC, and they must provide more information regarding whether and how the agencies will ensure these lands will be available to serve as mitigation in the future. Without a partnership with Pima County, how will this be achieved?

E. General Comments on the *Preliminary Draft Section 4(f) Evaluation*. The agencies need to consider the following when revising the Preliminary Draft 4(f) Evaluation:

- 1. The determination that the Ironwood Forest National Monument is not protected by Section 4(f) is incorrect and needs to be reassessed.** It is demonstrably false to assert that the Ironwood Forest National Monument (IFNM) “does not function as or is not designated within its BLM Resource Management Plan as a “significant park, recreation area, or wildlife and waterfowl refuge.” (DEIS p. 4-12.) The IFNM was absolutely designated for its habitat values and wildlife connectivity. The June 9, 2000, presidential proclamation establishing the IFNM talks extensively about the significant diversity of wildlife species found there and cites this “richness of species” as a primary reason for its establishment. It was also clearly established for its cultural landscape that includes numerous archaeological and historic sites. It is also clearly managed for recreational purposes, as outlined in its Resource Management Plan. In light of this, the determination that IFNM is not protected by Section 4(f) must be reassessed.

2. **The imbalance of available data for the alternatives in Section 3.7 and Chapter 4 renders the results grossly inadequate for comparative analysis.** It is very telling that there are essentially no historic properties identified as potential 4(f) properties within the build corridors for the green and purple alternatives. It is disingenuous to compare the alternatives as if the available data for each of the alternatives were of an equivalent level of reliability. The imbalance of available data for the alternatives make the results grossly inadequate for the purposes of a comparative analysis of potential effects between alternatives. Moreover, given the 2,000-foot wide corridor, many more impacts are posited for the existing I-10 route through urban Tucson than would ever occur.

3. **The assumption (stated on pages 6-6 and 4-102) that impacts to historic properties are “unmitigable” is incorrect and contrary to federal law.** It is untrue that impacts to historic properties in the urban Tucson alternative are “unmitigable,” and the statement is contrary to the federal process outlined in Section 106. Funds for adaptive reuse and rehabilitation of historic district buildings in areas adjacent to the interstate would serve to both enhance these historic properties and mitigate impacts from the improvements.

4. **The assumption that all 4(f) properties are equally significant is incorrect and contrary to federal law requirements.** The agencies are statutorily required to consider the relative significance of each Section 4(f) property (*see* 23 C.F.R. 774.3(c)(1)(iii).) Additionally, the Arizona Department of Transportation’s *Section 4(f) Evaluation Guidance and Requirements* published in April 2019 states that when considering the properties’ relative significance, agencies should “Discuss the significance of each of the Section 4(f) properties used by the project. Not all Section 4(f) properties are created equal in their value.” (p. 8-10; emphasis added.) To provide a single sentence asserting that “none of the properties has been determined through this evaluation to be of different value” completely negates this statutory requirement and renders it meaningless, violating the spirit and letter of the law, as well as Arizona Department of Transportation guidelines.

F. The agencies’ proposal to compromise lands that serve as key mitigation for a previous project undermines public trust in the agencies’ mitigation commitments moving forward.

The primary purpose of the TMC is to mitigate impacts resulting from the Central Arizona Project (CAP) canal. In fact, protection of the TMC was critical to the approval of the CAP and it was a key part of the mitigation mandated in that project’s own EIS. As the AGFD states in its letter to FHWA dated February 1, 2017, the acquisition of the TMC as mitigation was “[t]he key commitment of [Bureau of Reclamation (BOR)] as mitigation for the CAP aqueduct severing wildlife movement... As stated by the FWS, without the acquisition of the TMC, the other mitigation measures were “grossly inadequate” and would have likely resulted in FWS withdrawal of support for BOR’s preferred West Side Plan.” (Emphasis added.)

Here, the agencies are proposing to significantly impact the TMC, which would compromise that property’s ability to continue to serve as mitigation for the CAP. In light of this, obvious questions arise regarding the credibility of mitigation promises being made in this Draft EIS. As the AGFD points out in its “Initial Scoping Comments for the I-11 Tier 1 EIS” dated July 8, 2016, “if such a commitment can be made in an EIS and later be broken by a subsequent project, what does that mean for the commitment being made here?” The agencies need to address this issue directly; otherwise, there is a significant risk of undermining the public trust when developing mitigation measures for projects such as this.

Recommendation: The agencies must provide assurances that mitigation promises will be kept. Considering the agencies are proposing to significantly impact the TMC which was previously set aside to serve as mitigation for the CAP canal, the agencies must provide assurances that the mitigation promised for this project will not suffer the same fate, and will actually be implemented and maintained into the future for as long as it is necessary to offset impacts. Pima County is an essential partner in any such efforts.

3. Section 3.7 Archaeological, Historical, Cultural Resources - Analysis Methods, Data Integrity and Accuracy

- A. Several important historic contexts overlooked in this analysis should be considered.** Several important historic contexts may have been overlooked in this analysis, namely reflecting two Diasporas, African Americans and Chinese Americans. Further, the dislocation and resettlement of the Yaqui at the turn of the twentieth century does not appear to be included. To accurately assess the potential impacts of the alternatives, these contexts should be acknowledged and provided the same level of consideration as those that were identified in the analysis.
- B. Cemeteries are inconsistently classified as structures or sites in the Class I reports.** Therefore, it is unclear how these properties are being quantified in the Tier 1 analysis, based on National Park Service (NPS) guidelines which classify all cemeteries as sites and not structures.
- C. Conclusions on impacts to cultural resources are based on incomplete and incorrect data.** Conclusions regarding the measure of impacts to cultural resources as presented for each alternative are drawn from computational estimates that are assembled from incomplete and often inaccurate datasets. Further, it is problematic to project estimates by grouping all archaeological sites types by all time periods given the noted deficiencies in datasets. The selection of resource types that are cited in analysis are also inconsistent between datasets. More transparency in the methods used to estimate sites and for that matter, districts, is requested.
- D. The Draft 1 EIS fails to consider changing professional standards in the analysis.** Professional standards for cultural resources surveys have changed over the years, and while it appears that the year of the survey was documented in the spatial data provided, this information is not weighted in the resulting analysis. For example, survey and site recordings that did not have the ability of using a GPS-device provide entirely less accurate data than a modern day survey/site recording (State Historic Preservation Office (SHPO) guidance point No. 5 [2004]).
- E. National Register of Historic Places (NRHP) eligibility recommendations and determinations by SHPO are highly variable.** Eligibility recommendations and determinations can change over time based on several variables, including but not limited to: 1) whether the entire area of an archaeological site/historic resource was documented, as opposed to a portion; 2) a change in condition of the property, e.g. increase in the quantity of and type of artifacts/features observed on the surface at the time of recording; 3) opinion of the recorder at the time of recording; 4) new information/research methods at the time of recording.
- F. No information is provided to explain why the downtown Tucson segment of I-10 would need to be dramatically expanded.** Section 3.7.4, page 3.7-17 and Section 4, page 4-73 states that six miles of I-10 from the I-19 interchange to Prince Road will require “four to six additional lanes” and “120 feet wide” of additional right of way to accommodate a co-located I-11, expanding I-10 from 8 lanes to 12 to 14 lanes. What is the justification for this statement and what are the projected traffic volumes for this section of I-10?

4. Recommended Alternative

The imbalance of available data precludes the meaningful analysis required to identify a recommended alternative.

As discussed above, the imbalance of available data for the alternatives make the results presented in Section 3.7 and Chapter 4 grossly inadequate for the purposes of a comparative analysis between alternatives. This

general observation should be extended to the methods employed to identify the Recommended Alternative. Beyond the issues surrounding data integrity and accuracy, the quantity of known NRHP-eligible or potentially eligible resources in the orange alternative, passing through the urban core of Tucson, is a result of the volume of development activities that caused these resources to be identified over several decades as compared to the purple or green alternatives which remain rural, undeveloped and certainly under-studied. The indirect and cumulative impacts that are posited concerning cultural resources cannot be extended to the proposed alternatives west of the urban core of Tucson as there is not sufficient baseline data to offer any conclusion.

Lastly, the statement asserting that impacts to historic districts and structures in the orange alternative through Tucson's urban core are unmitigable (pages 6-6 and 4-101) could further be assessed as an inequitable valuation favoring the built environment over all other historic property types (buildings, districts, objects, sites, and structures), whether known, or yet to be identified and evaluated for NRHP-eligibility, in the other alternatives. Impacts to the built environment in urban Tucson may occur should the orange alternative be constructed; however, the Tier 1 analysis should acknowledge that an updated assessment of all properties within affected NRHP-districts or individually NRHP-eligible buildings and structures in the orange alternative should be undertaken to understand current integrity before impacts can be scored as "high". NRHP nomination forms are not cited, the number of contributing properties affected are not consistently presented and if Historic Property Inventory Forms exist for any of the affected properties, these are not included in the analysis.

Recommendation: Additional and updated inventories for all build corridor alternatives are required before impacts can be assessed and applied comparatively between alternatives. The significant oversights discussed above, taken with all other comments concerning cultural resources, underscore the inadequacy of the analysis in selecting the Recommended Alternative. Without additional inventory in the Recommended Alternative and updated inventories for the whole of the build corridor alternatives, adverse effects—direct, indirect, and cumulative—cannot be assessed and applied comparatively between alternatives.

5. Pima County Preserve System

The agencies must consider Pima County's Preserve System an "Affected Resource" likely to be impacted by this project and must consider mitigation for those impacts. Over the last two decades, Pima County has been actively acquiring lands specifically for conservation purposes, primarily through the use of open space bonds approved by voters in 1997 and 2004. The County has recorded restrictive covenants for these lands requiring that they are managed for conservation purposes in perpetuity. Much of this County Preserve System will serve as mitigation required under the Multi-species Conservation Plan (MSCP).

According to the Draft EIS, the "Land Management and Special Designated Lands" Section (3.3.1) "discusses major land management in the Study Area and special designated lands, such as wildernesses, national monuments, areas of critical environmental concern (ACECs), designated roadless areas, and *other deeded properties*." (p. 3.3-8; emphasis added.) However, Pima County's preserve system, the bulk of which are *deeded properties* specifically acquired and designated for conservation, are not included for consideration. Despite this omission, this project has the potential to impact several County-owned preserves, including Canoa Ranch, Diamond Bell Ranch, and Pima County floodplain preserves.

Recommendation: The Tier 1 EIS must consider the Pima County Preserve System an "Affected Resource" and generally assess potential impacts and mitigation strategies. Understanding that more detailed assessments will be conducted in the Tier 2 analysis, the Tier 1 EIS must, at a minimum, consider the Pima County Preserve System an "Affected Resource" and assess both the likely impacts and potential mitigation strategies, just like the document does for other "Affected Resources." In future analyses, Pima County expects the agencies to conduct a detailed assessment of impacts to County-owned preserves and propose mitigation for those impacts consistent with the CLS mitigation ratios discussed above, which are essential to provide meaningful levels of mitigation.

6. **Specific Comments on Sections 3.7 and Section 3.14**

A. **Section 3.7 – Archaeological, Historic, Architectural, Cultural Resources.** This section of the Draft EIS must be corrected to consider and include the following information:

1. Page 3.7-1, Line 16: Should “highways” be “buildings”?
2. Page 3.7-2, Lines 1-10: TCPs should be expanded to allow for and include groups other than Tribes. For example, in Tucson and Pima County, there are several places of traditional importance to living communities other than Tribes. From Archaeological Sites and Historic Structures Class I appendix, Pg. 15, Lines 5-8, “Studies to support the Tier 1 level of conceptual planning involved FHWA and ADOT consultation with agencies, Tribes, and other interested parties, as well as collection and analysis of data compiled by prior archaeological and historical studies.” How were “other interested parties” selected?
3. Page 3.7-2, Lines 23-26: It is noted that a preliminary GIS model was built using environmental factors in order to estimate the potential for unrecorded archaeological sites and historic structures in the alternatives that have not been surveyed for cultural resources. What type of model was derived? How were the parameters of the model chosen, what data were they based on, what were the individual parameters selected for each of the identified variables? The results of this analysis do not appear to have been made available, and furthermore, the results of the data analysis provided in 3.7-2, particularly the “Estimated Total of Resources” appear limited to the following equation: Total Sites/Structures x Average Density of Recorded Resources/Mile.
4. Page 3.7-7, Lines 10-22: AZSITE is deficient both qualitatively and quantitatively, as it has known errors associated with misplotted spatial data, and is missing data that is held by the Archaeological Records Office (ARO) of the Arizona State Museum. Because the discrepancy of data between ARO and AZSITE has yet to be resolved, AZSITE should only have been used as a reference, however, ARO should have been the primary source of data for the Tier 1 analysis.
5. Page 3.7-7, Lines 19-22: Additional resources should have been investigated and contacted. For example, Pima County operates multiple databases that contain information not available in AZSITE. Pima County tracks data for both archaeological sites and historic buildings and structures on private land that often never makes it in to AZSITE. Lastly, Pima County has authored several local environmental planning documents, most notably, the Sonoran Desert Conservation Plan, which contains an archaeological sensitivity model for all of eastern Pima County and identifies a list of Priority Cultural Resources that should be targeted for preservation during local and regional planning efforts. These types of documents were not utilized in this analysis.
6. Page 3.7-7, Lines 23-27: Based on the noted problems with the integrity of the analyzed data stated above, all conclusions on estimations for low, moderate and high potential levels of impact on archaeological sites and historic structures are drawn in question.
7. Page 3.7-7, Line 28: There should be some acknowledgement considering additional types of historic districts or aspects of the built environment, for example rural historic landscapes (NPS bulletin 30), historic designed landscapes (NPS bulletin 18) or cemeteries (NPS bulletin 41).
8. Page 3.7-7, Lines 35-39: Why was Pima County not contacted, as SHPO A) does not typically sponsor survey projects, B) does not have a comprehensive database of survey projects within County, Municipal and Private (Local) jurisdictions, as local projects are not subject to compliance with the AZ State Historic Preservation Act, and thus SHPO consultation is not mandated, unless such projects involve State funding or State land.
9. Page 3.7-7, Lines 43-45: Google imagery does not provide adequate information for assessing historic integrity and architectural significance for many reasons. Among them is that Google Street

View is not available for every assessed parcel, and therefore it is assumed the assessment is based solely on an aerial view. The effective construction date found in the Assessor's records is not always accurate in listing build out dates and materials used in building constructions. Additionally, the analysis weighted identifying "potential districts" over buildings but did not consistently consider objects or structures. The sources cited in this analysis are not appropriate for employing this method. Lastly, the analysis makes no mention of consulting plat maps, property record cards held on the Pima County Assessor's website, or other resources that would provide critical information needed for evaluating properties under Criteria A, B or C to "link" individual resources together under a unifying Criterion of significance, and thus analyze a district as a whole that may be eligible, despite each individual resource being individually not eligible.

10. Page 3.7-8, Lines 3-12: See above for issues surrounding limiting research to Google Imagery. The classification system of "not NRHP eligible, possibly eligible, or likely eligible" based solely on Google imagery raises significant questions as to the integrity/adequacy of the analysis.

11. Page 3.7-8, Lines 14-20: Why were Tribes the only parties consulted with regard to identifying TCPs and the potential I-11 impacts?

B. Section 3.14.1.3 – Biological Resources; Local Ordinances and Plans. The Draft EIS reflects outdated and incomplete information about Pima County's local ordinances that protect biological resources. Section 3.14.1.3 must be corrected to consider and include the following information:

1. Pima County's Multi-species Conservation Plan (MSCP): The Draft EIS needs to correct its description of the MSCP to include information regarding the associated federally authorized permit under Section 10(a)(1)(B) of the Endangered Species Act, which has already been issued to Pima County. In July 2016, the FWS approved the MSCP and issued Pima County a Section 10 permit, which allows the County to move forward on development activities in full compliance with the ESA in exchange for implementing the conservation commitments outlined in the MSCP. These commitments include implementing various County conservation ordinances and policies, and conserving in perpetuity lands acquired to serve as mitigation for the MSCP. Restrictive Covenants have already been placed on these lands to restrict future land uses to only those that are consistent with those commitments.

2. The Pima County Comprehensive Land Use Plan and Conservation Land System (CLS): While the Draft EIS implicitly references the CLS when describing how the County's 2001 Comprehensive Land Use Plan "incorporated land use concepts, policies, and principles of conservation that were identified in the draft Preliminary SDCP" (p. 3.14.3), the Draft EIS must reference the CLS explicitly in light of its importance in conserving biological resources. The CLS, which is discussed in more detail above, is specifically designed to preserve the contiguity of habitat at the landscape level and retain the connectivity of natural open space reserves with functional wildlife corridors. The Draft EIS should also note that the CLS has been formally adopted as part of each County Comprehensive Land Use Plan update since 2001, including the 2015 *Pima Prospers*, and also serves as a foundation for the federally approved MSCP.

3. Pima County Floodplain Management Ordinance Title 16.30 – Watercourse and Riparian Habitat Protection and Mitigation Requirements: the Draft EIS should include information regarding this ordinance when considering biological resources and local ordinances in Pima County. The goal of this ordinance is to protect riparian habitat and ensure the long-term stability of natural floodplains, which allows for the survival of plants and animals indigenous to Pima County. It outlines the process for developing property containing riparian habitat, provides guidance for mitigating impacts, and requires mitigation for disturbances to riparian habitat that exceed 1/3 acre.

7. Pima County Regional Flood Control District Comments

The following general comments and preferences are with respect to the Recommended Alternative alignment and are organized from north to south in Pima County.

- A. Regarding the Santa Cruz River crossing near Marana, the Recommended Alternative alignment runs parallel to the Santa Cruz and will be both expensive and extremely disruptive to the floodplain. Crossing the Santa Cruz River perpendicular to flow (purple alternative) is the traditional design method for roadway crossing and would be far less disruptive.
- B. Regarding the Brawley Wash area, the Recommended Alternative alignment crosses the Brawley Wash where the watercourse is a wide sheetflow floodplain. This alignment would be expensive and disruptive to the floodplain. The purple alternative is preferred as it avoids crossing this large sheet flooding area.
- C. Black Wash, south of Shuck Toak Farms, the Recommended Alternative alignment attempts to by-pass SAVSARP through the Black Wash in an area with significant riparian resources. Replacing Sandario Road with an all-weather road would reduce the environmental impact and provide more reliable access to the residents in the area.
- D. Sierrita Mountains, south of Ajo Highway, the Recommended Alternative alignment in this location is the least disruptive to drainage. The Recommended Alternative alignment should connect to Ajo Hwy at the Sandario Road alignment and continue along Sandario Road.
- E. The following comments are specific to the pages and sections identified.
 - 1. Page ES23, after line 5: Minimizing impacts to floodplains, especially distributary flow floodplains where flow diversions and roadway embankments may create new backwater areas and increase sediment deposits.
 - 2. Page E23, line 7: Please add Pima County Regulated Riparian Habitat.
 - 3. Page 2-40, Section 2.5.5: The District supports use of solar technologies because of their potential to reduce demand on water resources for power generation and to reduce carbon footprint. Both reductions benefit habitat, water quality and groundwater resources. All of these benefits support floodplain health and sustainability.
 - 4. Page 3.13-4, line 8: Revise to: "All county Flood Control Districts and incorporated jurisdictions' floodplain managers require a Floodplain Use Permit (FPUP) when a project is within a regulatory floodplain. In Pima County, Federal Emergency Management Agency (FEMA) floodplains and other floodplains associated with 1% chance storm event peak discharges greater than 100 cfs are regulatory for permitting purposes. Other jurisdictions may require permitting in floodplains associated with another storm event category.
 - 5. Page 3.13-4, line 8: In unincorporated Pima County, disturbance of mapped Regulatory Riparian Habitat may be subject to FPUPs and mitigation measures. Because riparian habitat generally is associated with watercourses, at a planning level, mapped habitat indicates where watercourses, even though not yet mapped as floodplains, impact the project corridor.
 - 6. Page 3.13-4, line 8: During Tier 2, local studies floodplain information will be provided. In rural areas, often, little floodplain information is available, and this project will assess needed analyses during Tier 2."

7. Page 3.13-4, after line 18: Add Town of Sahuarita, City of Tucson, Town of Oro Valley and Town of Marana.
8. Page 3.13-5, lines 22 and Page 3.13-15, line 23: Please add Sopori Wash.
9. Page 3.13-15, line 34: Please revise last sentence: "Some of these areas may be mapped as approximate depth or shaded Zone X FEMA Special Flood Hazard Zones, while sheet flooding has not been mapped in many areas, especially more rural regions. Defining these floodplains, determining the optimal locations for cross drainage within sheet flood areas and minimizing upstream ponding potential is more complex than evaluating the same constraints in riverine flow regimes. Sediment transport further complicates design and maintenance in sheet flooding areas. These areas can be expected along the project limits where the steeper slopes of higher elevations transition to a low gradient."
10. Page 3.13-16, upper right corner: Revise title to FEMA FLOODPLAINS; Add to ** 500-year floodplains have not been identified for all FEMA floodplains; Add additional note: FEMA has not mapped all floodplains. Flood Control Districts and Jurisdictions will provide additional floodplain information which has been determined locally.
11. Page 3.13-19, Table 3.13-1: Please revise the last sentence of the Floodplains bullet: "Placement of fill within a floodplain generally increases base flood elevation upstream. If the fill is associated with a cross drainage structure, downstream velocities and erosion could increase in the project corridor."
12. Page 3.13-20, line 14: Consider adding after "...other Build Corridor Alternatives." Reconstruction along the Purple and Green Alternatives alignment through the Town of Sahuarita provides opportunities to improve known historic floodplain impacts of the existing highways.
13. Page 3.13-22, line 26: The District supports use of permanent BMP's to slow stormwater runoff from impervious surfaces and to maximize capture of stormwater runoff for supplemental irrigation of landscaping and native vegetation.
14. Page 3.14-2, Section 3.14.1.3: Please add: ***Pima County Floodplain and Erosion Hazard Management Ordinance 2010***. Chapter 16.30, Watercourse and Riparian Habitat Protection and Mitigation Requirements, specifies avoidance and mitigation criteria for habitat included on the riparian classification maps adopted by the Pima County Board of Supervisors (BOS). Justification for non-avoidance of this habitat shall be provided when disturbance is proposed. Proposed disturbance may require a permit from the Pima County Regional Flood Control District and a mitigation plan.
15. Page 3.14-10, Section 3.14: Consider adding Pima County Mapped Regulated Riparian Habitat to an exhibit. Include text indicating that the Pima County Regional Flood Control District owns and manages approximately X acres of floodprone land which often coincides with Important Riparian Area, areas providing critical watershed and water resources management functions, along the Santa Cruz River and its major tributaries. While the Draft EIS describes Biological Resources and Water Resources separately, both are integrally related and co-dependent. The District attempts to regulate both together to support the vital relationship between the two resources.
16. Page 3.14-10, after line 23: Consider adding Pima County Classifications:
 - A. *Hydroriparian*. Riparian habitats generally associated with perennial watercourses and/or springs. Plant communities are dominated by obligate or preferential wetland plant species such as willow and cottonwood.

B. *Mesoriparian*. Riparian habitats generally associated with perennial or intermittent watercourses or shallow groundwater. Plant communities may be dominated by species that are also found in drier habitats (e.g., mesquite); but contain some preferential riparian plant species such as ash or netleaf hackberry.

C. *Xeroriparian*. Riparian habitats generally associated with an ephemeral water supply. These communities typically contain plant species also found in upland habitats; however, these plants are typically larger and/or occur at higher densities than adjacent uplands. Xeroriparian habitat is further divided into four subclasses for Class A, B, C, and D habitat as defined in the mitigation standards approved by the BOS as maintained by the Floodplain Administrator. Mitigation in xeroriparian habitat is to be determined based at least on total vegetative volume (TVV) as provided within the mitigation standards as adopted by the BOS as well as replacement of other lost riparian habitat functions necessary to sustain riparian habitat.

D. *Important Riparian Areas*. Important Riparian Areas occur along the major river systems and provide critical watershed and water resources management functions as well as providing a framework for landscape linkages and biological corridors. Important Riparian Areas are valued for their higher water availability, vegetation density, and biological productivity, compared to adjacent uplands. Important Riparian Areas are essential for floodplain management and every effort should be made to protect, restore, and enhance the structure and functions of these areas including hydrological, geomorphological, and biological functions.

17. Page 4.82, after line 13: Consider obtaining concept level floodplain mapping for the project corridor for non-FEMA floodplains. Pima County and Maricopa County can provide maps. Regression equations or other approximate hydrology methods can provide important information on the expected 1 percent chance storm flows and extent.

8. Additional Comments

- a. Chapter 6, page 6-6, lines 29-31: We disagree with the conclusion that the Recommended Alternative and green alternative each “facilitate efficient mobility for emergency evacuation...” While this may be true from a regional or interstate perspective, neither Avra Valley routes provide efficient evacuation routes for the nearly 3/4 million persons living in greater Tucson/Pima County which would have no other option but to use I-10. For this centrally located population, a widened I-10 would provide the most efficient emergency evacuation route.
- b. Chapter 6, page 6-7, lines 19-20: We disagree with the analysis and conclusion that Avra Valley and Picture Rocks communities do not contain low-income or minority populations. Pima County’s Community Development & Neighborhood Conservation Department identifies both as Community Development Target Areas (CDTA), eligible for Housing and Urban Development project grant funding. Other CDAs through which the Recommended Alternative alignment passes include Robles Junction and Helmet Peak.
- c. Chapter 6, page 6-7, lines 19-20: The Recommended Alternative alignment passes through two Pima County 2010 Census Tracts designated low income: 004313 and 004424 (on the south and north side of State Hwy 86 at the junction of State Hwy 286, Robles Junction).
- d. Chapter 6, page 6-7, lines 37-39: We disagree with the statement that the Recommended Alternative through Avra Valley “would serve the aerospace, defense, manufacturing, and logistics industries in the region’s two largest employment areas: Tucson International Airport and the University of Arizona Tech Park.” On the contrary, these employment areas as well as Davis-Monthan Air Force Base,

C.H. Huckelberry, County Administrator

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Aerospace Parkway, and Port of Tucson are located much closer to Alternative B along the I-19/I-10 corridor, so that route would better serve these employment areas.

- e. Page 2-32, Table 2-7: Under Alternatives, Purple column, text should read “emerging” instead of “emergency”.
- f. Page 4-108, Table 4-9: Pima County is mis-identified as a municipality, instead of a county agency.

Pima County again appreciates the opportunity to comment on the Draft Tier 1 EIS.

AMO:KS:pm

Attachments

- c: Carmine DeBonis, Deputy County Administrator for Public Works
Yves Khawam, PhD, Assistant County Administrator
Dr. John Moffatt, Director, Economic Development Office
Linda Mayro, Director, Office of Sustainability and Conservation

ATTACHMENT 2

The Intermountain West Corridor through Avra Valley

An Environmental Mitigation Analysis

Draft Report



June 2014

Study Need and Purpose

Pima County has a key location in the path of a number of national and international infrastructure projects, including new pipelines for transporting fossil fuels, improvements to the Western U. S. electrical grid, opening of the Port of Tucson, and additions to major transportation networks. One such project is the Intermountain West Corridor, which is at present includes “[high-level visioning](#)” for a north-south transportation corridor extending from Phoenix south to Mexico.

This report is needed because Pima County’s previous experience with national infrastructure projects is that the proponents seldom fully mitigate effects on the local communities (Huckelberry 2013). Project proponents seldom propose mitigation measures that are consistent with local practice and needs, in part because dialogue with the local community is too little and too late, and federal agencies have limited authority or in some cases lack the knowledge of the local situation to direct the proponent’s selection of mitigation measures. A good example is the recent Kinder-Morgan pipeline through Avra and Altar Valleys, which will result in a myriad of costs and impacts that will be borne by local ranch owners and managers of protected lands. While mitigation was provided, none of the local parties believe it will be sufficient to offset the impacts.

This study seeks early identification of some of the environmental impacts that would be associated with a proposed route through Avra Valley. This study builds upon the initial Pima County conceptual alignment described in the report *Intermountain West Corridor in Pima County; A Preliminary GIS-Based Roadway Alignment and Impact Study*, dated June 21, 2013. This study also proposes mitigation strategies to address several environmental impacts including impacts to the county’s Conservation Land System. This study does not identify all environmental impacts and further study is required to determine if such a route is feasible and if so, the full extent of impacts that could be expected with various alignment alternatives. The corridor alignment assumed in this report is simply one alternative that is used to identify and develop avoidance, minimization and mitigation strategies at the earliest possible opportunity. This will inform future dialogue about alternatives and mitigation measures.

Any state or federal planning process for the Intermountain West Corridor would evaluate and compare a full range of alternative routes, including the county’s proposed Avra Valley alignment, the Interstate 10/19 alternative, and the no-build alternative. Such a planning process would be much broader than this report, and it would look at multiple alignment options through Avra Valley. This report only examines one Avra Valley alignment and only considers some of the environmental impacts that should be studied through a state or federal planning process. For example, this report does not address social impacts, neighborhood impacts, access impacts and many other impacts. Many of these impacts would be better understood when state or federal planning is undertaken for the Mexico-to-Phoenix segment of the Intermountain West Corridor.

Study Background and Methods

Corridor Location and Description

This corridor extends from Interstate 19 at El Toro Road in the Town of Sahuarita west and northward through Avra Valley to the Pima/Pinal County line as shown in Figure 1. This route was located to traverse undeveloped State Trust Lands as much as possible and to minimize impacts to populated areas. The route avoids Ironwood National Forest, Saguaro National Park, and the Town of Marana. The 56-mile long

corridor was analyzed with a 400-foot wide right-of-way, which is typical for an interstate facility. The corridor encompasses 2,640 acres of land.

The corridor route traverses through almost 60 miles of Pima County, passing through a variety of landscapes. From the interchange at I-19, the route passes by a large mining district and skirts around the undeveloped foothills of the Sierrita Mountains and the San Xavier District of the Tohono O’odham Nation. The corridor passes through low elevation desert, ranch lands, and scattered areas of rural development. The route enters Avra Valley as it crosses Ajo Highway. Here, the landscape is relatively low and flat and characterized by the floodplains of the Black and Brawley washes. The route passes through areas of undeveloped desert scrub, low density rural development, Tucson’s groundwater recharge facilities, former and active agricultural fields.

Study Methodology

The corridor was mapped and analyzed using the Pima County Geographic Information System (GIS), which provides numerous types of geographic spatial data, including environmental data such as conservation lands, floodplains and floodways, wildlife crossings, riparian habitat, and other data. No field studies were conducted and a full inventory and analysis of environmental conditions and impacts is not within the scope of this study and report. The resulting maps and summary data are presented in the remainder of the report. Pima County staff from several departments also contributed to this report. The following key statistics summarize the environmental impacts:

Summary of Draft Alignment #1 Impacts

- 2700 acres ROW needed for an interstate highway, 4800 acres with 2 interchanges
- 2600-4600* acres of Conservation Lands System impacted
- 1000-2000* acres of State Trust land impacted
- 900-2100* acres high risk floodplains impacted, at a cost of up to \$80-\$100 million
- 600-1200* acres of private land impacted
- 600-700* acres of City of Tucson land impacted
- 200-600* acres of Agricultural land impacted
- 80 acres of Important Riparian Areas impacted
- 24 acres of Tohono O’odham Nation lands impacted

*Low number roadway only, high number includes 2 interchanges

Right of Way Challenges

The most significant physical challenge to locating an interstate roadway facility through southern Avra Valley is the lack of available right of way along Sandario Road in particular. As shown in the map below, the initially proposed route runs between the Tohono O'odham Nation (Garcia Strip) to the west, the Bureau of Reclamation (BOR) Wildlife Mitigation Corridor to the east, and through the middle of the City of Tucson's Southern Avra Valley Storage and Recovery Project (SAVSARP). The route also passes through portions of Central Avra Valley Storage and Recovery Project (CAVSRP). CAVSRP and SAVSARP are the principal groundwater storage sites for City of Tucson water. The Tucson Water Department has indicated that a route through SAVSRP is not feasible due to the existing and planned infrastructure and the significant expenditure of public investment in Tucson's water supply. The Garcia Strip is approximately 2.5 miles wide north to south and 13 miles long east to west and is part of the Tohono O'odham Nation. The BOR Wildlife Mitigation Corridor is a 4.25 square mile conservation area that was established in 1990 as mitigation for environmental impacts caused by the Central Arizona Project (CAP) and it is managed by Pima County.

Sandario Road runs north-south between the Garcia Strip and the BOR Mitigation Corridor, but the existing roadway right of way is only 80 feet wide. The route is shown running along portions of Sandario Road, but additional right of way would be required for a typical 400-wide interstate right of way. The route could potentially be elevated, but additional right of way may still be needed, and the costs would be significantly higher than if the route is at grade. If a new freeway alignment is to be found through this region, it will require negotiations with many stakeholders including the Nation, the Bureau of Reclamation, the City of Tucson, Arizona State Land Department, and others to determine if it is feasible or not.

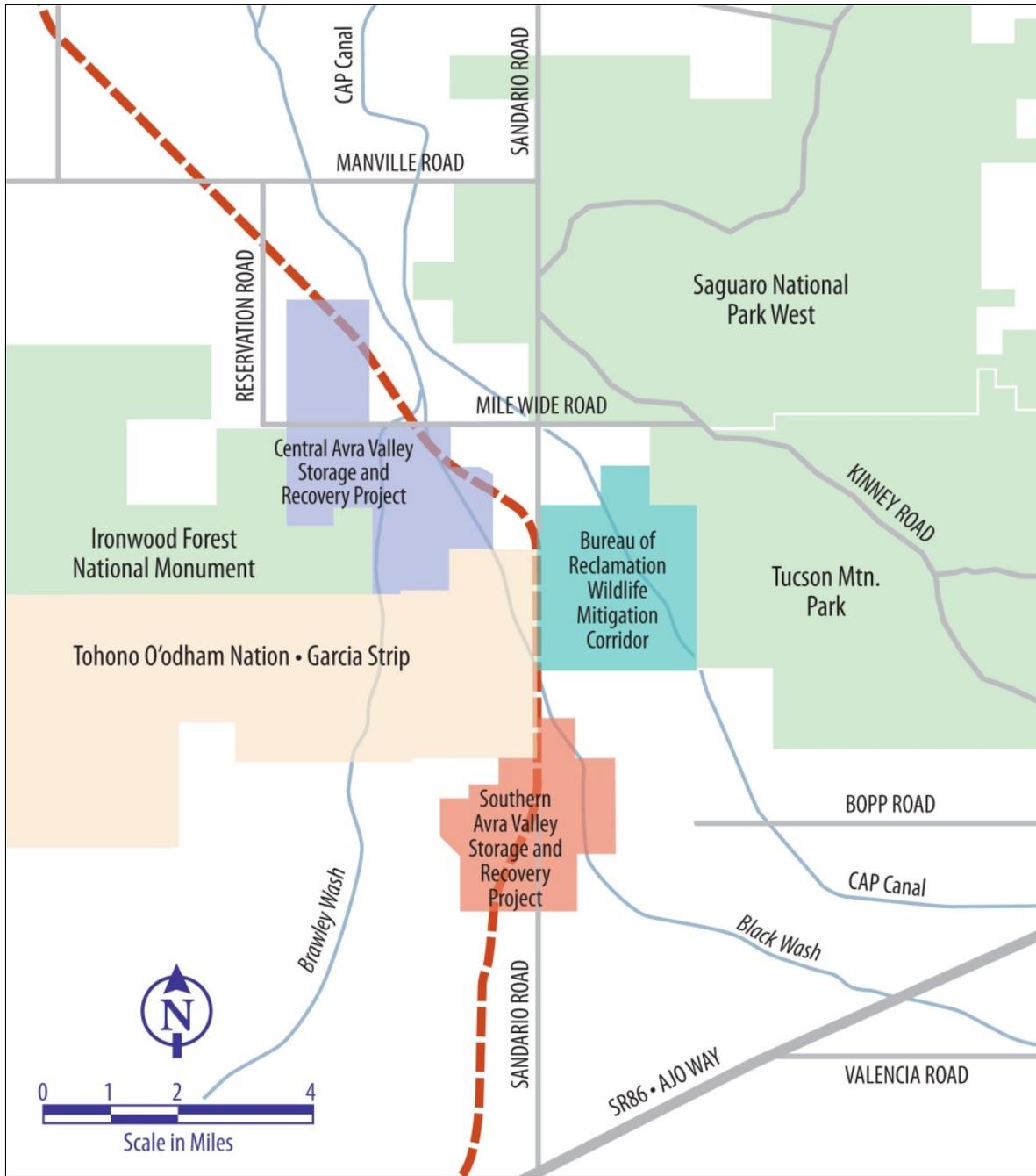


Figure 1. The proposed draft alignment runs through the Tohono O'odham Nation Garcia Strip, Bureau of Reclamation Wildlife Mitigation Corridor, and Central and Southern Avra Valley Storage and Recovery Projects.

Environmental Impacts and Mitigation Measures

This report discusses some of the ways to minimize and mitigate the effects of an interstate highway through Avra Valley. Each type of impact is discussed, along with quantitative information if available, followed by potential minimization and mitigation measures. Where possible, the siting of mitigation measures is also discussed. The potential for completely avoiding impacts through design measures or relocation of the route is also discussed. This is followed by a summary of some infrastructure issues that could arise as a consequence of a freeway constructed along the Corridor.

Conservation Land System

Avra Valley includes a high percentage of biologically important conservation lands that are identified in the Sonoran Desert Conservation Plan (SDCP). These lands are associated with the Brawley and Black Washes and generally represent habitat that is valuable to the conservation of biological diversity based on numerous SDCP studies. Much of the Corridor would pass through the Maeveen Marie Behan Conservation Lands System (CLS), a reserve system designed to protect biodiversity and provide land use guidelines consistent with the SDCP. The CLS land categories include Special Species Management Areas, Biological Core Management Areas, Important Riparian Areas, Multiple-Use Management Areas and Agricultural Inholdings.

Most of the corridor (91%) impacts one or more categories of the Conservation Land System (CLS). The largest impacts are to the Multiple-Use Management Area (61%) followed by the Biological Core Management Area (13%), Special Species Management Area (9%), and Important Riparian Area (2%). Adjustments to the route could reduce, but not eliminate, direct impacts to some of the Biological Core and Important Riparian Areas. As shown in Table 1, over 11,000 acres of other conservation lands would be necessary to mitigate for direct impacts to the CLS.

Table 1: County Conservation Land System (CLS) Impacts

Conservation Land Category	Acres	Percent	Multiplier	Mitigation Acres
Multi-Use Management Area	3132	61%	2	6264
Special Species Management Area	447	9%	4	1788
Biological Core Management Area	677	13%	4	2708
Agricultural inholdings	307	6%	NA	0
Outside Conservation Land System	459	9%	NA	0
Important Riparian Area	80	2%	4	320
TOTAL	5102	100%		11080

Conservation Land System - Special Elements

The Sonoran Desert Conservation Plan identified unique landscape features known as Special Elements. These special elements were a critical component in the development of the Conservation Lands System. The draft alignment passes through several of these landscape features, including *mesquite woodland*, *ironwood desert scrub*, and a small area of *limestone outcrops* near El Toro Road. From 2012 orthophoto imagery, the limestone outcrops appear to have been mined, or are in the process of being mined.

The *mesquite woodland* landscape occurs in a widespread area near Ajo Highway and Sandario Road and the proposed route passes through several stands of this special element. Mesquite woodlands have historically suffered disproportionate loss through urban and agricultural development throughout Pima County. The SDCP has set a target value of 1,000 restored acres of mesquite woodland to offset historic and future losses, in addition to mitigation efforts related the County's Multi-Species Habitat Conservation Plan. Possible mitigation measures for impacted mesquite woodlands include avoidance, bridging over, and riparian restoration.

The proposed route passes through a small section of mapped ironwood desert scrub near Sandario and Mile Wide Roads. Ironwood trees have immense ecological value in the Sonoran Desert and are considered keystone species, harboring and supporting hundreds of plant and animals. Possible mitigation measures include avoidance, bridging over, and riparian restoration.

Regulated Riparian Habitat

The Pima County Floodplain and Erosion Hazard Mitigation Ordinance includes provisions that seek to preserve continuous and connected corridors of riparian habitat, coexistent with floodplain areas, which provide stable environments for wildlife, slow down flooding and reduce erosion, and increase natural groundwater recharge potential. The ordinance recommends that development avoid or minimize riparian habitat and it requires mitigation if development disturbs more than 1/3 acre of habitat. Mitigation options include planting replacement riparian habitat, preserving other offsite riparian parcels, or paying a fee in-lieu of performing on-site mitigation.

Public highways, roads and streets are exempt from the Floodplain Management Ordinance, but reducing the proposed highway impacts to floodplains and riparian habitat would reduce project costs, minimize Conservation Land System impacts, and reduce riparian and CLS mitigation costs.

The proposed interstate alignment impacts 377 acres of riparian habitat regulated through the Floodplain Management Ordinance. Over half of the impacts (187 acres) are to Xero-riparian C habitat which contains moderate to low-density riparian vegetation. The following chart shows that some of the impacted riparian habitat is also classified as Important Riparian Areas, which are areas designated in the County Comprehensive Plan for the importance as wildlife habitats and linkages for wildlife movement.

The best mitigation option would be to avoid and minimize as much riparian habitat as possible. A second strategy would be to replace any impacted habitat by planting new habitat. A third approach would be to purchase and preserve other riparian habitat off-site, but along the corridor. The fourth measure would be to pay a fee in-lieu of the other mitigation measures. The cost of such an in-lieu fee would be over \$8.1 million as shown in the chart below.

It may be possible to reduce these impacts through route selection that would minimize impacts, especially those associated with the Important Riparian Areas. If the mitigation strategy were to use to the money for compensatory land acquisition, then we estimate that 2,000 to 4,000 acres could be acquired at today's market prices with this amount of funding. However, there are also opportunities to restore riparian habitat through restoring floodplain functions with the funding that will be discussed in the wildlife portion of this report.

Riparian Classification	Acres of Disturbance	In-Lieu Fee
Xero-riparian B	37.3	\$ 597,280
Xero-riparian C	186.7	\$ 2,613,100
Xero-riparian D	1.2	\$ 14,760
Hydromesoriparian	72.2	\$ 2,888,800
IRA w/ Xeroriparian B	4.2	\$ 117,600
IRA w/ Xeroriparian C	51.2	\$ 1,279,250
IRA w/ Xeroriparian D	18.2	\$ 401,280
IRA w/ Hydromesoriparian Area	6.1	\$ 242,000
TOTAL	377.1	\$ 8,154,070

*IRA = Important Riparian Area

Floodways and Floodplains

The draft freeway alignment through Avra Valley generally runs parallel to a very wide and complex floodplain associated with the Brawley and Black washes that flow north along the valley. The floodplain varies in width from 1 to 5 miles wide throughout the corridor. The draft alignment crosses this floodplain at several locations, most notably between Mile Wide Road and Manville Road for a distance of approximately 4 miles. Throughout the floodplain, the draft alignment also crosses the main channels and administrative floodway of the Black Wash (at Sandario Road), at its confluence with Brawley Wash (at Mile Wide Road), and the Brawley and Los Robles Wash confluence (just south of Silverbell Road). At the Pinal/Pima County line, the draft alignment crosses the Santa Cruz River floodway and floodplain as it merges with the Black, Brawley, and Los Robles washes. These floodplain and floodway features present significant constraints and challenges and associated costs to designing and building a new interstate facility in this valley.

The Federal Emergency Management Agency (FEMA) identifies “floodways” and high risk flooding areas known as “special flood hazard areas”. When development (including roadways) is proposed within a floodway, FEMA generally requires that it must not increase the water surface elevation, and/or it must show that it does not cause adverse impact to any structures in the floodplain. The implications for the proposed Avra Valley freeway are:

1. The freeway would need to be built up and out of the floodplains.
2. The freeway would require multiple bridges over the Black Wash, Brawley Wash, Robles Wash, and Santa Cruz River floodway.
3. Portions of Black Wash, Brawley Wash, Robles Wash and the Santa Cruz River could need to be stabilized.
4. Significant drainage structures, channels and retention/detention basins could be required along the corridor to address FEMA floodplain requirements.

In addition to the requirement that limits the rise in the water surface elevation to 1 foot, Interstate freeways are required to be designed and built to accommodate the 50-year flood to provide all-weather

access. This would mean that significant portions of the freeway would need to be elevated (essentially a bridge) over floodways and floodplains. It also means that portions of the Black, Brawley, and Los Robles washes and the Santa Cruz River could require bank stabilization and other flood controlling design features to minimize impacts to the freeway corridor and adjacent property. Based on the current alignment, the following washes are crossed along the corridor and would require bridges for the larger more complex floodplains, and box culverts or corrugated steel culverts for the smaller washes and overbank flows, as well as other potential improvements.

Wash Crossings in the Study Area

Wash Name	Location	Discharge Size (cubic feet/second)	Estimated Span Length (ft)	Planning Cost Estimate
Santa Cruz River	South of Pinal County line	> 10,000	2000	\$ 16,000,000
Brawley/Los Robles Washes	South of Silverbell Road	> 10,000	2000	\$ 16,000,000
Black/Brawley Washes	Across Sandario Road	> 10,000	1800	\$ 14,400,000
Black/Brawley Washes	North of Mile Wide Road	> 10,000	1000	\$ 8,000,000
West Branch Brawley Wash	East of Reservation Road	5,000-10,000	500	\$ 4,000,000
Unnamed Wash #1	South of Trico Marana Road	Unknown	200	\$ 1,600,000
Unnamed Wash #2	East of Amway Road	> 2,000	200	\$ 1,600,000
Unnamed Wash #3	South of Mile Wide Road	2,000 - 5,000	100	\$ 800,000
Unnamed Wash #4	Across Sandario Road	5,000 - 10,000	100	\$ 800,000
Unnamed Wash #5	Along Snyder Hill Road	> 2,000	50	\$ 400,000
Unnamed Wash #6	Along Tara Lane	> 2000	50	\$ 400,000
Unnamed Wash #7	North of Ajo Way	2,000 - 5,000	200	\$ 1,600,000
Unnamed Wash #8	North of Ajo Way	> 2,000	50	\$ 400,000
Unnamed Wash #9	North of Ajo Way	2,000 - 5,000	200	\$ 1,600,000
Unnamed Wash #10	South of Ajo Way	2,000 - 5,000	100	\$ 800,000
Unnamed Wash #11	South of Ajo Way	> 2,000	100	\$ 800,000
Unnamed Wash #12	South of Ajo Way	> 2,000	100	\$ 800,000
<i>Additional washes s. of Ajo Way</i>				
TOTAL				\$ 70,000,000

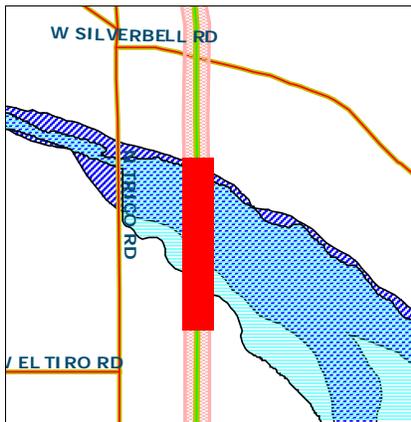
Mitigation Measures

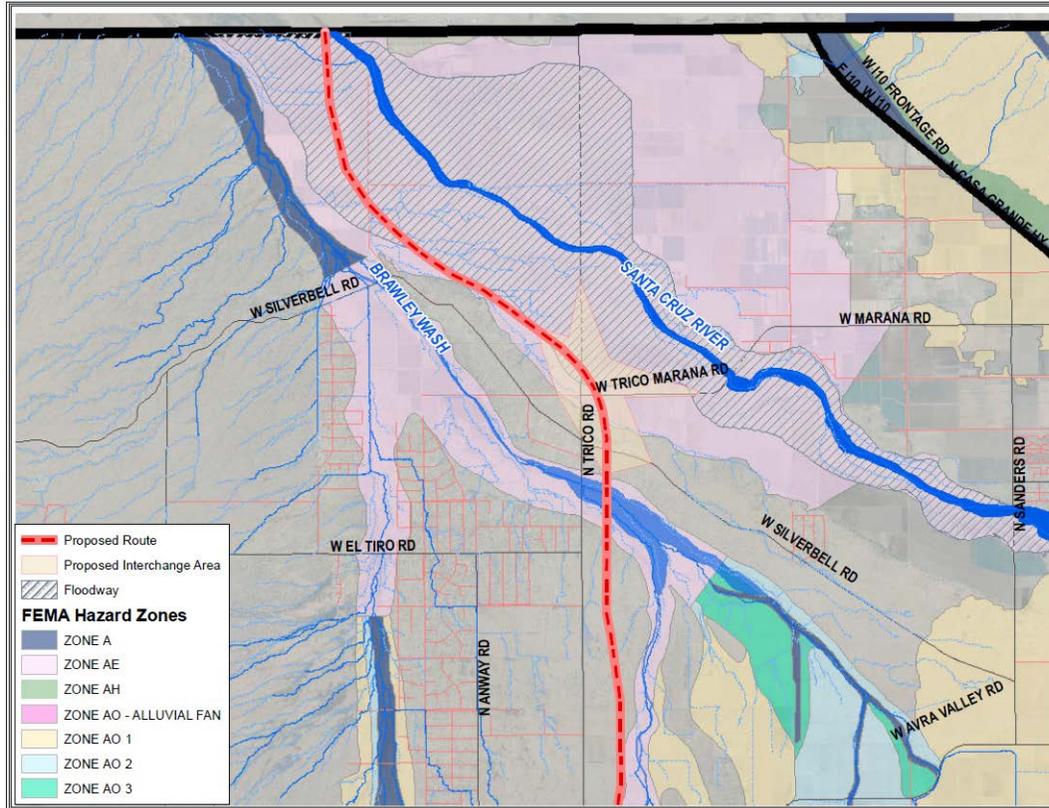
The proposed freeway and any potential traffic interchange(s) should avoid major washes to the greatest extent possible. Where wash crossings are unavoidable, the alignment should be moved to cross the watercourse where the floodplain and floodway is at its narrowest, if possible.

Historic Berms and Channels

Throughout portions of Avra Valley, numerous historic agricultural infrastructure were constructed that have real but unquantified impacts on floodplain functions and riparian habitat. These improvements, typically berms or channels, were constructed before floodplain regulations existed and were intended to protect farm fields from flooding. The alignment of the highway could take advantage of these relic structures by augmenting the existing infrastructure, avoiding locations where flow paths have been created as a result, or by removing some the infrastructure to restore natural flows and reduce the impact the highway would have. The use or modification of these relic structures could be part of the environmental mitigation strategy. To better determine where these opportunities exist better floodplain mapping would be necessary for the Brawley Wash through Avra Valley. The current mapping, done by FEMA, is approximate and does not take into account localized drainage features, small elevation changes, or the agricultural improvements. Due to the broad shallow nature of the Black/Brawley/Los Robles wash floodplains, all of these features have significant impacts on the extent and duration of flooding. The use of newly available two-dimensional modeling is recommended prior to or during any future location and floodplain analysis to best take advantage of these features.

Example inset map showing potential bridge over Brawley/Los Robles wash:





Drainage and Clean Water Act Impacts

If and when an environmental assessment or environmental impact statement of the proposed route is conducted, the U.S. Army Corps of Engineers (Corps) would review all wash crossings along the proposed route. The Corps would determine which of the washes are under its jurisdiction and a Clean Water Act Section 404 Permit would be required for each affected wash. Mitigation requirements would be determined at that time. The Corps requires that practicable steps must first be taken to avoid and minimize impacts to aquatic resources at all possible steps in the design process. Methods of providing compensatory mitigation include aquatic resource restoration, establishment, enhancement, and in certain circumstances, preservation. The Corps is ultimately responsible for determining the appropriate form and amount of compensatory mitigation required. Several of the washes crossings throughout the draft corridor would likely require a Section 404 Permit.

Biological Resources

Impacts to Species

Habitat Loss, fragmentation, and degradation. Habitat loss and fragmentation are the most important drivers of species decline (Fahrig 2003; Stuart et. al. 2004). Direct loss and fragmentation of habitat from the construction and maintenance of the road corridor would impact a number of species and their habitats. Important areas with respect to species is the wash/bajada system near the confluence of the Brawley and Black washes. Another key site of concern is at the north end of the planning area where the highway runs west of—and parallel to—the Santa Cruz River. Undoubtedly home to riparian species, the roadway is in the floodplain and thus could impact riparian species that live in that spatially restricted zone.

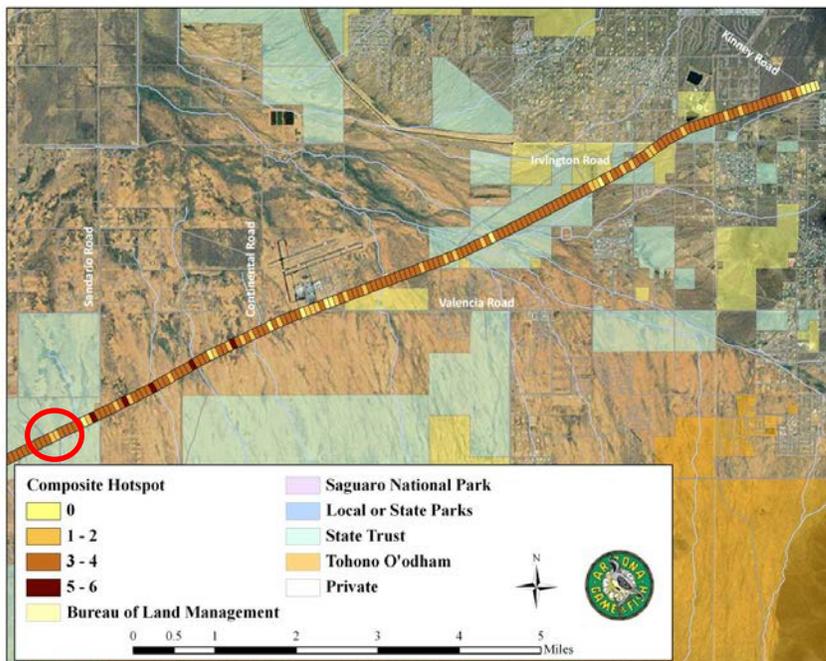
Most of the road corridor through the Sierrita and Altar valleys passes through areas with typical desert vegetation communities. As noted earlier, the corridor contains no Special Elements nor wetlands and mesic riparian areas that may harbor regionally rare or sensitive species. Provided here is an overview of plant and animal species and groups of species that are likely to be impacted by the corridor and/or might not be present. This is not a comprehensive evaluation. The number of acres in parentheses is from a GIS analysis of the proposed route; all the figures are for Priority Conservation Areas for the species unless otherwise noted.

- **Plants:** Habitat of two species of interest to Pima County's Multi-species Conservation Plan (MSCP): Pima pineapple cactus (702 acres) and Tumamoc globeberry (1,842 acres of modeled habitat);
- **Invertebrates:** No known populations of sensitive species. No habitat for talus snails would be impacted;
- **Fish:** None along route;
- **Birds:** Impacts on MSCP species are possible for the cactus ferruginous pygmy owl (930 acres), Swainson's hawk (853 acres), rufous-winged sparrow (862 acres), Abert's towhee (56 acres), and especially the western burrowing owl (1,377 acres; the route follows closely this species' habitat). In general, the corridor contains a rather unremarkable bird community (Powell 2007);
- **Reptiles and amphibians:** The Avra Valley, in particular, has high diversity and abundance of lizards, snakes, and Anuran toads (Lowe and Holm 1991; Flesch et. al. 2007). Species of interest to the Pima County MSCP that would be impacted include: lowland leopard frog habitat (545 acres), Sonoran desert tortoise (537 acres; south of Highway 86, but not north), Tucson shovel-nosed snake (610 acres), and ground snake (267 acres);
- **Mammals:** There is a chance for four MSCP covered species to occur along the corridor: lesser long-nosed (507 acres), Mexican long-tongued bat (238 acres), western red bat (174 acres), and pale Townsend's big-eared bats (161 acres). The bajada areas of Avra Valley contain high diversity of rodents and species of state concern such as kit fox, American badger (Swann and Powell 2007). Concerns over the impact of the Central Arizona Project Canal on mule deer and mountain lions led to the creation of mitigation lands there. The highway corridor adds to concerns for these and other highly mobile, terrestrial species.

The direct loss of habitat resulting from the construction of the corridor is a critical consideration in determining impacts of the project on species. It is also important to consider the long-term impacts of road, which are considered one of the leading causes of decline for wildlife populations in North America (Forman and Alexander 1998). In fact, road impacts are so wide ranging that the study of roads on their impact on nature has become an entire area of study, known as *road ecology*. The three most

important impacts of the corridor project on wildlife are the loss of habitat, direct mortality of animals by vehicles, and the loss of an animal's ability to move across the highway to adjacent habitat. These challenges can be mitigated to various degrees (more on that in the following section), but below is a brief overview of potential impacts, particularly for the species/groups of species noted above.

Direct mortality from vehicles is considered to be the most significant direct cause of wildlife injury and death in the United States (Forman and Alexander 1998). The problem of wildlife mortality is particularly acute in desert environments, where most reptiles seek the warmth of roads after sunset during the warm months. In one study of snakes along State Route 85 in western Pima County, Rosen and Lowe (1994) calculated that as many as 4,000 snakes are killed per mile per year. In the Avra and Altar valleys, mortality of Anuran toads are likely to be high in low-lying areas during the monsoon season. Lowery et al. (2011) found that areas of relatively high mortality of a host of species (birds, mammals, reptiles and amphibians) occurred along wash crossing along Highway 86 (Figure below). Wildlife collisions along the length of the road corridor are similarly expected to be greatest where the road crosses washes and in areas of the bajada and valley bottoms with the highest abundance of reptiles, amphibians, and small mammals occur. Within Avra Valley, wildlife corridors follow the West Branch of the Brawley Wash, the Santa Cruz River basin, and broad areas of lowlands that connect the Tucson Mountains to the Ironwood National Monument and mountain ranges west and south of Avra Valley. Wildlife corridors are most often associated with large washes, but for larger animals, areas away from housing developments can also be important crossing points. These important areas include near to the CAP Wildlife Mitigation Corridor and just north of there where there are CAP land bridges (e.g., near where Mile-wide Road intersects the CAP and corridor). These areas are near to the confluence of the Black and Brawley washes, areas that are also problem sites from sheet flooding and land/ownership and siting concerns.



Wildlife mortality along Highway 86. Red circle is the approximate location of the IWH. From Lowery et al. (2011). Note the areas of highest composite scores (5-6) and how they align with areas of relatively high diversity.

In addition to direct loss of habitat and mortality of individuals, the highway would also cause edge effects that would further degrade wildlife habitats adjacent to the highway by way of invasive species, illegal dumping and highway trash, lights, and noise. The relative impact of each of these elements would vary. A key design feature of this highway is the relatively low number of access and entry points onto the highway, which would reduce the secondary developments that inevitably cluster around access ramps. Those development activities have not figured into this analysis.

Species Mitigation Approaches

The proposed project would have significant impacts on plant and animal species along the proposed corridor. Yet mitigation of some of these impacts is possible by implementing a host of actions, from avoiding problem areas to off-site mitigation activities.

Avoidance actions. As noted in the previous section, there are a number of sites that would be ideal to avoid by rerouting the alignment, if possible. Those problem areas include:

- Confluence of the Black and Brawley washes and adjacent to the Wildlife Mitigation Corridor. These nearby areas likely contains a number of important species of concern (e.g., Abert's towhees, Anuran frogs, etc), but more importantly, they are likely important for wildlife movement. A preferred alternative for largely avoiding the Brawley Wash would be to put the road through the Garcia Strip.
- Parallel to the Santa Cruz River. Putting the alignment in the floodplain increases habitat loss and fragmentation for important riparian species. Suggest running road perpendicular to river by crossing at Trico Road.

Minimization actions. Minimization is an area that would have significant benefits for all species impacted. Key among these design features is to:

- Reduce the number of access ramps, which would, in turn, reduce the chance for urban sprawl.
- Incorporate wildlife features. These feature could include bridges, elevated road surfaces (over sheet flooding areas such as at the confluence of the Black and Brawley washes), box culverts, and even a wildlife overpasses. Fences could be used extensively to discourage wildlife from entering the road, which would reduce wildlife mortality and increase human safety.
- Restore former agricultural lands throughout the valley to restore flood flows (see Page 11). Much of this restoration potential is on City of Tucson HCP mitigation lands.

Off-site Setasides. Off-site mitigation in the form of conserved lands should be in an area with similar or better environmental assets as the area being impacted (Bull et. al. 2013), and for this, using the CLS provides a valuable approach. Also, mitigation lands should be located in a geographic area that is as near as possible to those lands being impacted (McKenney and Kiesecker 2010). A few areas that would be ideal to focus off-site mitigation include:

- Near to the CAP canal land bridges to ensure no new development on key sites.
- Protection of lands in the Sierrita Mountains;
- Buffers around Ironwood National Monument, Saguaro National Park
- Additional flood-prone lands along the Brawley Wash.

Air Quality Impacts and Mitigation

Potential impacts on air quality in Pima County associated with a proposed freeway through Avra Valley would include short and long term impacts due to air emissions along the corridor from construction activities during construction and from highway traffic once the corridor is complete and in use. It is anticipated that some traffic would shift from the current Interstate 10 (I-10) route through Tucson to the new corridor through Avra Valley. Short-term increases in emissions could occur during the construction of the freeway; these air emissions would include emissions from construction vehicles and fugitive dust emissions from construction activities. The most favorable option for reducing short-term impacts would be to use the lowest emitting construction equipment available.

Long-term air quality impacts could include increased air pollution from vehicles traveling along the freeway and at interchanges with planned services. However, air emissions also could decrease along I-10 through Tucson if many of the commercial trucks transporting goods would utilize the new highway for transport rather than I-10. The best measure for reducing long-term impacts would be to eliminate or limit the number of interchanges along the corridor. If interchanges are included, they should provide options to limit truck idling including truck stop electrification. Consideration should also be given to installing charging equipment for electric vehicles.

Pima County operates air quality monitors to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). The NAAQS are standards set for six criteria pollutants: particulate matter (10 micrometers or less and 2.5 micrometers or less), ozone, carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide. Pima County is currently in attainment for all NAAQS (with a maintenance plan for carbon monoxide, and two areas on nonattainment for particulate matter that are under the jurisdiction of the Arizona Department of Environmental Quality); however, the NAAQS for ozone is currently undergoing revisions by the US Environmental Protection Agency. If the NAAQS for ozone is lowered and levels of ozone remain similar to climatological levels in Pima County, the county could be reclassified to nonattainment for ozone. A nonattainment classification would require the evaluation and adoption of effective emission control strategies which may affect vehicles and fuels.

Light Pollution Impacts and Mitigation

The proposed highway could directly and indirectly impact the quality of astronomical research at Kitt Peak and the preservation of a naturally-dark environment in the Ironwood National Forest and Saguaro National Park. At its closest point, the proposed corridor alignment is approximately 20 miles from the summit of Kitt Peak and approximately 30 miles from the summit of Mt. Hopkins both of which are economically important astronomical research facilities. This places the corridor within the most restrictive special areas (E1b and E1c) designated by the Pima County Outdoor Lighting Code to minimize lighting and ensure a naturally dark environment. The corridor also comes within about 1 mile from the most sensitive and restrictive zone (E1a) which includes both Ironwood National Forest and Saguaro National Park. In this zone, the preservation of a naturally-dark environment, both in sky and in the visible landscape, is considered of paramount concern and unshielded lighting is not allowed. The Code restricts illumination levels (total lumen output) and curfew times, regulates light color temperature, and requires shielding to minimize light pollution.

To mitigate light impacts, the proposed interstate should not be lighted, but light impacts from vehicle headlights would not be able to be mitigated. Impacts would be more significant at any interchanges and with any associated roadside commercial development. More importantly, any future land development that occurred as a result of the new freeway would contribute to light degradation along the corridor and

within the impact areas of both Kitt Peak and Mt. Hopkins. Mitigation measures to discourage and limit development along the corridor are discussed in more detail later in this report.

Prime and Unique Farmland and Mitigation

Avra Valley has historically been an important agricultural area in Pima County, producing mostly cotton but also alfalfa hay and other crops. Pima County ranks 5th in the state for barley production, 6th for cotton and 7th for alfalfa hay¹. Significant areas of active farmland remain at the north end of Avra Valley and especially east of the draft alignment within the Town of Marana. The Garcia Strip portion of the Tohono O'Odham Nation also remains irrigated and under agricultural production. In central and southern Avra Valley, the City of Tucson acquired nearly 20,000 acres of former farmland and has developed recharge basins and associated infrastructure to recharge CAP water into underground aquifers for Tucson's potable water supply.

The proposed interstate corridor has the potential to affect some prime and unique farmland, especially at the north end of Avra Valley. Such determination would typically be made by the U.S. Department of Agriculture, Natural Resources Conservation Service, at the request of Federal Highway Administration. Significantly, none of the local jurisdictions has policies to protect or conserve prime and unique farmland in the area of the corridor, however the 1981 Farmland Protection Policy Act (FPPA) is intended to minimize the impact that federal programs, including highways, have on the unnecessary and irreversible conversion of farmland to nonagricultural uses.

Mitigation methods to preserve farmland could include set-asides in proportion to the amount of farmland impacted, purchase of agricultural conservation easements, and transfer of development rights. These methods are similar to those that could be used to conserve wildlife habitat and environmentally sensitive lands and to discourage development along and near to the corridor.

Federal and Local Preserve Impacts and Mitigation

The proposed freeway corridor impacts several federal and local parklands and preserves, including Ironwood National Forest, Saguaro National Forest, Tucson Mountain Park, and the Bureau of Reclamation Wildlife Mitigation Corridor. Also impacted are Tucson Water's Wildlife Mitigation Lands, the City of Tucson's proposed Avra Valley Habitat Conservation Plan, the Tumamoc Globerry Preserve, and Diamond Bell Ranch. The following sections discuss impacts to each preserve in more detail.

Ironwood National Forest and Saguaro National Park

The draft corridor would impact Ironwood National Forest, Saguaro National Park, and Tucson Mountain Park. The alignment does not cross any of these park lands, but it is located within 1 mile of each at several locations and would impact each. The potential impacts include noise, air quality, lights, views, and impacts to wildlife and plants through habitat loss and fragmentation. Additional development - including any interchanges - that might occur as a result of the interstate corridor being built would further impact these park lands. Construction activities would also impact and disrupt wildlife breeding and movements for a period of years. Identifying all the impacts to these parklands and potential mitigation measures is beyond the scope of this report, but these agencies would be consulted as part of any federally-required environmental assessment or impact statement.

¹ Arizona Farm Bureau

Bureau of Reclamation Wildlife Mitigation Corridor

The draft corridor impacts the federally-designated Wildlife Mitigation Corridor (WMC), a 4.25 square mile preserve which straddles the CAP Aqueduct between Sandario Road and Tucson Mountain Park. The WMC contains both endangered and candidate species of plants and wildlife and provides habitat and wildlife corridors over CAP aqueduct. The draft alignment currently follows Sandario Road, which runs along the 2-mile western boundary of the WMC. Even if sufficient right of way to build a freeway (400 ft) could be obtained from the Tohono O’Odham Nation and/or the Department of the Interior, the wildlife habitat and corridor functions of the WMC would be compromised and the Bureau of Reclamation and other agencies would need to be consulted.

The WMC was established to allow free plant and wildlife movement back and forth across the CAP aqueduct, and between the Tucson Mountains to the east and the Ironwood National Forest and Roskrige Mountains to the west. Maintaining wildlife movements would likely require that the proposed freeway, if approved, be either raised up as a bridge overpass or sunken below grade and covered with land bridge(s) to allow wildlife to cross freely. Noise and other impacts would also likely need to be mitigated. It is important to note that previous proposed roadway planning efforts that potentially impacted the Wildlife Mitigation Corridor have been reviewed, rejected and opposed by the Bureau of Reclamation, Arizona Game and Fish, Pima County Board of Supervisors, Saguaro National Monument and local landowners.

Tucson Water Wildlife Mitigation Lands

The draft corridor cuts through environmental mitigation lands associated with the Tucson Water Central Avra Valley Storage and Recharge Project (CAVSARP). The alignment also impacts existing and planned recharge basins, wells and pipelines but these impacts are discussed in later sections of this report. The Tucson Water mitigation lands, including designated wildlife corridors between the basins, were established to provide for wildlife habitat and movement. These mitigation lands are encumbered by restrictive covenants enacted by the Environmental Protection Agency in consultation with the US Fish and Wildlife Service (USFWS) to mitigate against impacts from CAVSARP on the Cactus Ferruginous Pygmy Owl, a federally endangered species. The draft corridor bisects portions of this 473 acre conservation preserve (Figure W-1, dark green area). Because the proposed freeway would reduce the size and impact the function of this conservation habitat, consultation with USFWS would be required. It is unknown whether USFWS would allow impacts to this mitigation preserve area, or if they would recommend that the corridor be moved, most likely along San Joaquin Road. Using San Joaquin Road as the alignment for the freeway could minimize impacts to wildlife and habitat, but it would impact residential properties and require new roadways to provide for local access.

Avra Valley Habitat Conservation Plan

The draft corridor cuts through portions, including “priority areas”, of the City of Tucson’s proposed Avra Valley Habitat Conservation Plan (HCP). The HCP is proposed to minimize and mitigate the impacts of its water recharge facilities and infrastructure on listed and sensitive species and their habitats in Avra Valley. The HCP will help protect seven species including the federally listed Lesser Long-nosed Bat, the candidate Western Yellow-billed Cuckoo, and rare and/or sensitive species including the Cactus Ferruginous Pygmy-owl, Western Burrowing Owl, Desert Tortoise, Pale Townsend’s Big-eared Bat, and the Tucson Shovel-nosed Snake (Figure 2). Use of any of this land for the freeway would likely require approval by City of

Tucson and consultation by the US Fish and Wildlife Service and other federal agencies. While specific properties and restoration projects are not discussed within the draft HCP, the need to remove drainage/channelization structures that preclude sheet flow, braiding, and sediment deposition within the Brawley Wash system is recognized.

Tumamoc Globerry Preserve

The draft freeway corridor is located within 250 feet of the Tumamoc Globerry Preserve, an 80 acre site purchased by the Bureau of Reclamation where globerry plants in the path of the Central Arizona Project Tucson Aqueduct were transplanted. This preserve is located just east of the draft alignment, between Mile Wide Road and Manville Road. This species is listed as “sensitive” by the USFS and the BLM and Arizona Native Plant Law lists it as “Salvage Restricted”. This preserve could be enhanced with additional wildlife crossings over the CAP aqueduct.

Diamond Bell Ranch Preserve

South of Ajo Highway at the northern limits of the Altar Valley, the draft alignment cuts through the eastern most portion of the Diamond Bell Ranch preserve, a 30,000 acre ranch acquired by the county in 2008. As part of the Sonoran Desert Conservation Plan, this area was identified as the Northern Altar Valley Reserve in an effort to bring together large private landowners and natural resource agencies to better coordinate long-term conservation efforts. Over 2.5 miles of the draft alignment lies directly over county managed grazing leases. Approximately three additional miles of the proposed route closely parallel the northeast corner of the Diamond Bell Ranch. Diamond Bell Ranch and the associated grazing leases are all part of the Multi-species Conservation Plan mitigation land bank.

The proposed alignment would bisect over 1,400 acres on the northern edge of the Pinto Blanco pasture, on the State grazing lease. The immediate impact would be to make operational use of the area more difficult, if not functionally impossible, without providing corridors for livestock and wildlife to move freely under the roadway. Alternatively, the “stranded” triangle of one pasture could be left ungrazed. Depending on location of existing water resources and the final alignment of the road, additional waters might have to be developed and maintained to support the existing livestock operation.

If the new freeway directly, or indirectly, created additional access points to the network of unimproved dirt and two-track roads, the ranch would experience additional vandalism and illegal traffic. Vandalism concerns would include loss of livestock, destruction of fences, water systems, and other conservation or livestock management infrastructure. This portion of the ranch currently falls within active illegal border traffic routes involving both undocumented human migrants and significant drug running. Until just recently, the Altar Valley was in the most active zone on the border between Mexico and the United States according to the US Border Patrol.

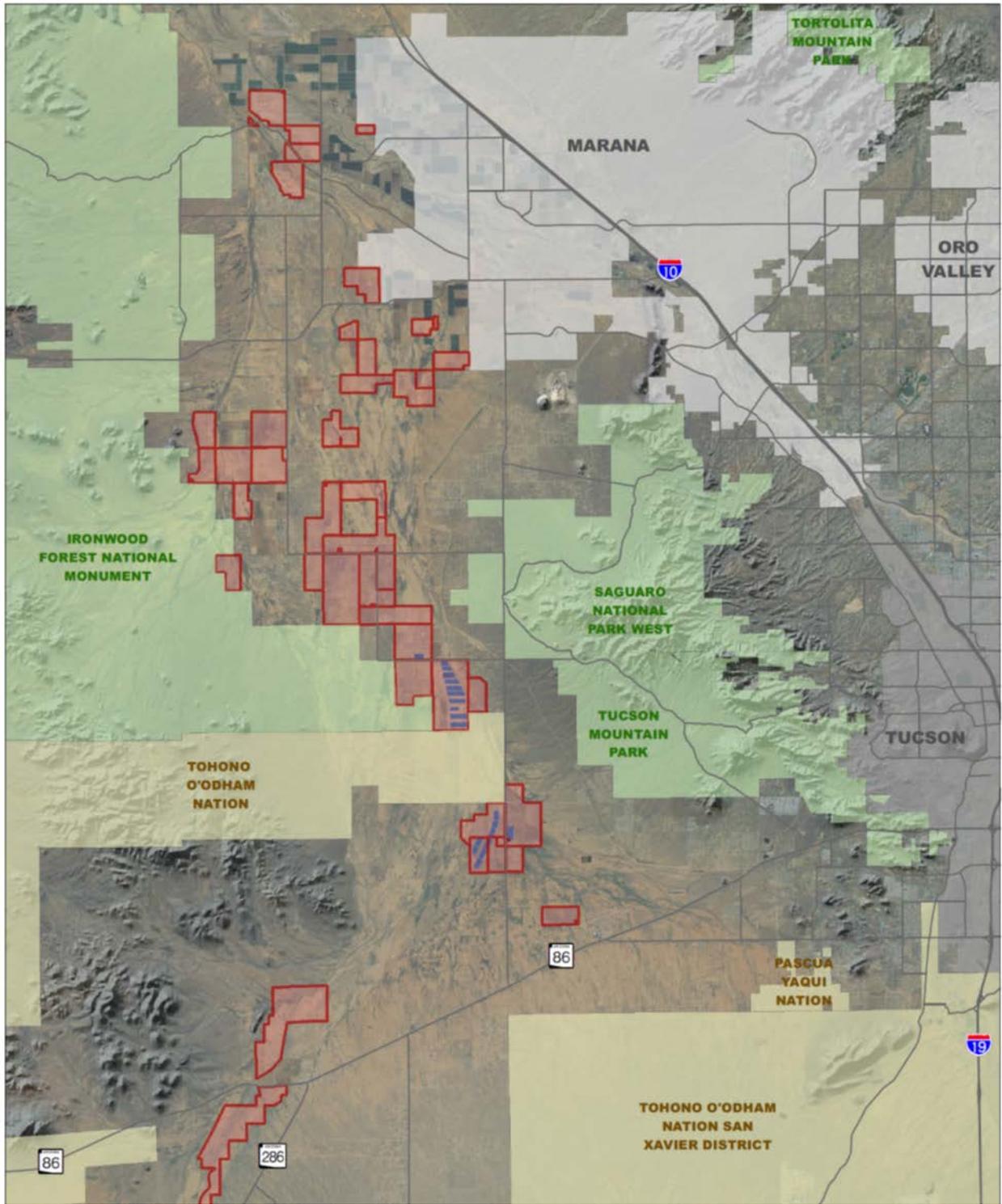
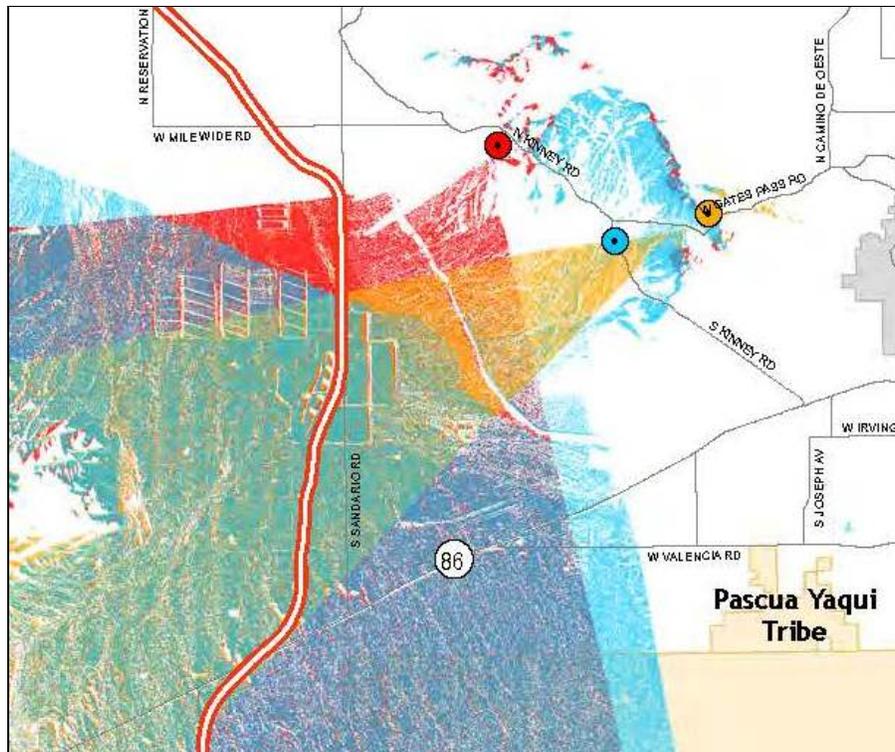


Figure 2. Avra Valley Habitat Conservation Plan Permit Area shown in red areas

Scenic View Sheds

The proposed road corridor passes within sight and ear shot of significant conservation and open space areas, including the Ironwood Forest National Monument, Saguaro National Park and Tucson Mountain Park. All of these national resources have been designated and managed as far back as the late 1920's to protect their core natural resource values, including natural view sheds, natural quiet, dark skies and protection of native and migratory plants and wildlife. The current state of the visual resources is of very high quality. Because much of the draft route lies downhill topographically from the major public view points on both Saguaro National Park and Tucson Mountain Park, view shed deterioration and noise pollution is of special concern.

Substantial work would be required to determine the extent of impacts and potential mitigation measures. The parks receive 2.5 million visitors annually and the Arizona Sonora Desert Museum (ASDM) alone receives over 450,000 visitors annually, including International visitors who contribute to the regions ecotourism economy. Most of the ASDM is outdoors and has views directly down the natural bajada to the west and onto the proposed roadway corridor for over 10 miles of the proposed highway route. The map below shows affected view sheds for three particular sites - ASDM, Old Tucson Studios, and Gates Pass, each of which would view significant portions of the proposed highway.



Recreation

Tucson Mountain Park and Saguaro National Park receive over 2.5 million visitors annually. Most of those visitors are drawn to the area for its natural open space and diverse nature-based recreational activities in undeveloped Sonoran desert landscapes. Recreational activities include hiking, mountain biking, nature study, star gazing, picnicking, hunting, nature photography, rock climbing, wildlife observation and equestrian trail riding. Tucson Mountain Park alone has over 275,000 active recreational user days a year. A sense of solitude and natural open space are qualities that form the foundation of many of the recreational experiences.

The proposed freeway could have mixed impacts to recreation. The interstate could reduce the user experience due to noise, visual and wildlife impacts. The freeway could also increase access to recreation sites if an interchange is located in Avra Valley. The benefit of improved access would need to be evaluated against the potential negative consequences of more vehicles and traffic adjacent to recreational areas. Extensive survey work would need to be completed to determine factors that might reduce recreational use in the area, reduce the quality of the experiences, or create new opportunities to access available opportunities. Experiences that would be anticipated to be negatively impacted include the loss of the iconic view sheds especially to the west, sound intrusion from a major highway, lights of vehicles at night, direct and indirect impacts to wildlife viewing opportunities and others. Mitigation measures that would facilitate wildlife movement across the highway and CAP aqueduct could also improve recreational access to the proposed CAP trail and to other public parks and preserves along the route.

Cultural and Archaeological Resources Summary

Archaeological and Historical

Archaeological knowledge of the area is uneven, depending on whether or not previous archaeological surveys have been conducted. The proposed 400-foot-wide corridor and interchanges encompass approximately 4,775 acres of lands within the Archaeological Sensitivity Zones defined in the Cultural Resources Element of the Sonoran Desert Conservation Plan (SDCP). The Corridor crosses approximately 1,390 acres of High Sensitivity lands, nearly 900 acres of Moderate Sensitivity and about 2,500 acres with Low Sensitivity. The Sensitivity Zones were mapped through an intensive knowledge-based modeling exercise based on the best available scientific expertise of the professional archaeological community in Pima County and Southern Arizona. Sensitivity Zones are often associated with Important Riparian and Biological Core Areas in valley drainage systems because the distribution of recorded cultural resources identified through surveys reveals a pattern of higher site densities associated with these areas. This demonstrated association makes the SDCP Archaeological Sensitivity mapping a useful predictive tool for estimating the locations and densities of as yet unrecorded cultural resources in areas that have not been surveyed. Independent quantitative predictive modeling confirms the high level of accuracy of the knowledge-based SDCP Sensitivity mapping, tested and found to be over 80% accurate. The Sensitivity Zones mapping produces a relatively reliable means of estimating the potential for cultural resources within the foot prints of proposed undertakings such as the Intermountain West Corridor and, absent archaeological survey data, allows estimates of the potential impacts from construction on these resources

Traditional Cultural Places, Priority Cultural Resources, Cultural Landscapes

Avra and Altar Valleys and associated uplands contain cultural landscapes that are important to the Tohono O'odham and other concerned Tribes for the plants, animals, springs, ancestral homes, ancestral burials, and ancestral religious places that are embedded within the natural landscape, all of which have tremendous present day cultural and religious importance to the Tribes. Considering the complex of cultural and sacred resources residing within the valleys holistically at the landscape scale reveals the broader picture of the importance of the cultural and sacred landscape to the Tribes and reinforces the importance of addressing the archaeological past at the landscape scale. The Tohono O'odham believe the Altar Valley is a sacred cultural landscape that should be considered as a Traditional Cultural Property (TCP) and the effects of construction of the Corridor on such cultural and historic resources should be evaluated holistically under the criteria of significance of the National Register of Historic Places, under Section 106 of the National Historic Preservation Act (NHPA).

The Corridor intersects or passes near several other categories of significant cultural and historic resources that are listed either on the National Register of Historic Places, or identified as priority sites in the SDCP. Among the recorded resources are portions of two Archaeological Districts listed on the National Register (Gunsight Mountain and Los Robles Archaeological Districts) and a large National Register-eligible archaeological site (AZ AA:11:12[ASM] Hog Farm Ballcourt Site). There is some overlap between the National Register-listed resources and Priority Cultural Resources identified in the SDCP, including three Priority Archaeological Site Complexes (Los Robles PASC, Eastern Sierrita PASC, Gunsight Mountain PASC), and one Priority Site (Hog Farm Ballcourt Site). Both National Register Districts contain numerous significant archaeological sites protected under Section 106 of the NHPA. Under the NHPA, sites that are not listed, but which are considered eligible for listing on the National Register, are afforded the same protections as listed resources.

Impacts: direct, indirect, cumulative, visual impacts, applicable federal laws & regulations

About 1,550 acres, or 34%, of the total acreage of the Intermountain West Corridor have been surveyed for cultural resources. Thirteen archaeological sites have been recorded within the Corridor, totaling 208 acres potentially subject to direct impacts. Projected site numbers based on 100% survey coverage indicate the potential for 39 archaeological sites within the 400-foot-wide Corridor, totaling about 625 acres subject to direct impacts. Based on the tested accuracy of the predictive model, projected site numbers could be subject to a margin of error of about $\pm 18\%$ (32 to 46 sites). The Corridor also crosses the alignment of the Juan Bautista de Anza National Historic Trail on the west side of the Santa Cruz River, near the Pima-Pinal County line. Over all, the alignment is well placed to avoid archaeological and historic resources.

Visual effects require different standards of evaluating impacts, resulting in different Areas of Potential Effect that could range up to five miles distance from the proposed action. Mitigation could involve modifying construction to reduce the visual profile of the proposed undertaking, either by physically reducing it or by integrating design and construction into a more aesthetically acceptable relationship with the affected resources, thereby minimizing adverse effects.

Construction of the Intermountain West Corridor would certainly have a federal nexus, so the federal cultural resources compliance standard would be appropriate, under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800) as part of the implementation of the National Environmental Policy Act (NEPA) process (EA or EIS).

Mitigation is the strategy for treatment(s) implemented to address adverse effects to Historic Properties, including direct, indirect, cumulative, and visual effects. Treatments can include avoidance of Historic

Properties and other actions to mitigate or minimize adverse effects to Historic Properties. Mitigation requirements cannot be determined at this time. A Project Agreement under the NHPA would structure the mitigation strategies and approaches to account for adverse effect, including determining the nature and scope of the project's treatment plan to address effects. When avoidance is not possible, archaeological data recovery or, in the case of historic buildings and structures, mitigation documentation, or visual effect mitigation actions are implemented according to the Agreement and plan to mitigate and minimize adverse effects.

Infrastructure Impacts and Considerations for the Intermountain West Corridor

Natural Gas Pipeline Considerations

The draft alignment crosses and runs parallel to two collocated underground natural gas pipelines 30" and 26" in diameter. These pipelines are a major connection for the region to the national natural gas distribution network and are operated by El Paso Natural Gas, now part of Kinder Morgan, Inc. These lines run northwesterly from Sandario Road to Trico Road, crossing Mile Wide, Manville, and Trico Roads. The alignment could be adjusted to avoid running directly above the collocated pipelines. The roadway crosses another natural gas pipeline in the vicinity of Trico Road and Trico Marana Road. Along State Route 86, the roadway crosses the proposed 36" diameter Kinder Morgan Sierrita pipeline which would serve Mexico. Figure 4 shows the roadway corridor and natural gas facilities in the Avra Valley area.

Electrical Transmission Considerations

The proposed alignment does not impact any known electrical transmission facilities, i.e. substations, but at three locations it crosses a transmission line that runs along Trico Road. The roadway avoids a sub-station facility located east of Trico Road and south of Marana Road. At several locations, the alignment also crosses a larger transmission line that connects a sub-station north of Ajo Way and west of Sierrita Mountain Road to another sub-station on Pima Mine Road east of I-19. Figure 4 shows the roadway corridor and known electrical transmission facilities.

There are several potential additions to transmission lines planned in the general vicinity of the Intermountain alignment (Figure 4). It may be beneficial to plan for and advocate for the co-location of these utilities along the Intermountain alignment. This may minimize additional linear impacts, including associated environmental, recreational, visual impacts, associated with utility lines.

Water Supply Considerations

The proposed alignment passes close to several well fields, recharge facilities and the Central Arizona Project (CAP) canal that provide water for agriculture, municipal and industrial water supplies. The City of Tucson operates the Clearwater Renewable Resource Facility (CRRF) which annually recharges over 160,000 acre-feet of Colorado River water (CRW) from the CAP canal (Figure W-1, cyan lines). A managed recharge project stores up to 43,000 acre-feet of effluent annually. Four groundwater savings projects have the capacity to save 49,755 acre-feet of groundwater each year by using CAP water rather than groundwater (Figure 3). Two large well fields (Clearwater and South Avra Valley) and several isolated well fields supply over 95,000 acre-feet to metropolitan Tucson supplying 70% of water demand in eastern Pima County. The CAP canal delivers 220,000 acre-feet annually in southern Avra Valley.

Avra Valley is considered part of a federally-designated sole source aquifer. EPA defines a sole or principal source aquifer as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally and economically supply all those who depend on the aquifer for drinking water. Sole source aquifer designation is a tool to protect drinking water supplies from contamination.

Proposed federal financially assisted projects that have the potential to contaminate a designated sole source aquifer are subject to EPA review. As a result of EPA review of a proposed federally financed project in the designated SSA, concerns regarding ground water quality protection can lead to specific recommendations or additional pollution prevention requirements as a condition of funding ([USEPA](#), no date). Most projects referred to EPA for review are expected to provide information about proximity to wells and pipelines, and information about structures that might be associated with the construction project, such deep pilings or underground storage tanks.

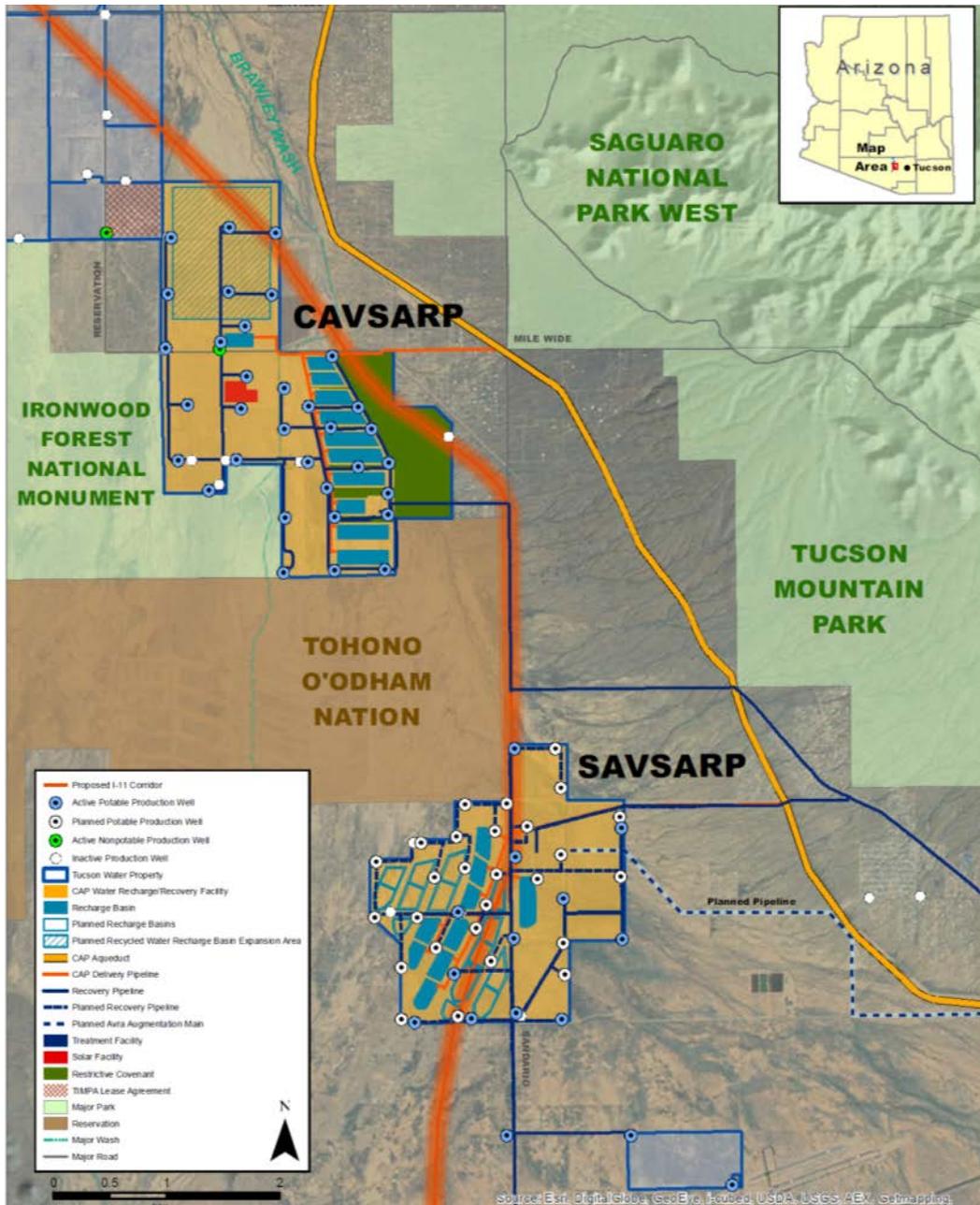


Figure 3. Clearwater Renewable Resource Facility

Clearwater Renewable Resource Facility (CRRF)

The two phases of CRRF, Central Avra Valley Storage and Recovery Project (CAVSARP) and the Southern Avra Valley Storage and Recovery Project (SAVSARP), comprise 20 recharge basins occupying 535 acres in the vicinity of Sandario Road between Mile Wide Road and Snyder Hill Road. Several delivery pipelines transport water to the basins and a series of recovery wells and collector pipelines transport the water to Hayden-Udall Water Treatment Plant.

The proposed alignment avoids the 20 existing recharge basins and most of the wells. Minor adjustments at CAVSARP can be made to avoid one or two recovery wells potentially coincident with the proposed alignment. Future plans for wells and basins at CAVSARP can be accommodated by installing delivery and recovery pipelines beneath the freeway to connect northern recharge and recovery activities with that south of the proposed alignment. At SAVSARP, the distance between Sandario Road and existing wells is large enough to accommodate 300 feet for a freeway right-of-way; however, proposed basins and wells for SAVSARP are coincident with the proposed alignment requiring placement of the route outside the SAVSARP.

The roadway corridor intersects the delivery pipeline to CAVSARP and SAVSARP as well as the collector pipeline from SAVSARP. Accommodations need to address the additional load from the freeway as well as the traffic. Minor adjustments might be needed to avoid two small stations on Milewide Road just east of Brawley Wash. The most important issue to address would be finding an easement along Sandario Road between the Tohono O'odham Nation and the Bureau of Reclamation Tucson Mitigation Corridor that avoids the 60-inch collector pipeline from CAVSARP (Figure 3).

South Avra Valley Well Field

The City of Tucson has over seven wells in the South Avra Valley well field. Collector pipelines may be intersected by the proposed alignment. Accommodations need to address the additional load from the freeway as well as the traffic.

Isolated Well Fields

City of Tucson has several isolated well fields in Avra Valley providing water to residences that are outside the proposed alignment (Figure W-2). A number of other private wells and small Public Water Systems in Avra Valley would need to be evaluated for proximity to the proposed alignment.

Lower Santa Cruz River Managed Recharge Project

This recharge project begins at Ina Road and ends at Trico Road. Key infrastructure for the project is a stream gage just upstream from Sandario Road, which is not impacted by the proposed alignment.

Groundwater Savings Projects

The BKW Milewide Groundwater Savings Facility occupies 160 acres just east of CASARP (Figure W-1, green line). The Cortaro Marana Irrigation District, BKW Farms and Avra Valley Irrigation District form a block of farm land between Interstate 10 and Brawley Wash north of Avra Valley Road (Figure W-2) that receives up to 49,000 acre-feet of CAP water. If the proposed alignment intersects these farms, an evaluation would need to be performed to identify the location of canals and determine an alternative, such as installing below grade structures.

Minimizing Land Development—An Indirect Impact

Why Limiting Development in Avra Valley Is Important

Development of the Intermountain West Corridor or any interstate freeway through Avra Valley would have many impacts, all of which would need to be fully identified and documented in an environmental impact assessment (EIS) as required by the National Environmental Policy Act (NEPA). These impacts include land development and urban growth, both directly and indirectly related to the proposed freeway. We discuss these land development impacts and ways to reduce or mitigate these impacts later in this section. But first, we discuss why limiting development along the Corridor is important.

1. Conservation Lands - As explained earlier in this report, much of Avra Valley is within the County's Conservation Lands System (CLS), which means that these areas have significant biological resources and wildlife/habitat value. Development is discouraged in these areas but encouraged elsewhere outside of the CLS. The County is committed to conserving areas within the CLS to mitigate the impacts of public and private development within the Tucson metropolitan region.
2. Floodplains and Riparian Areas - Storm water flows north through the Avra Valley within broad flood plains associated with the Brawley Wash and Black Wash. Significant storm events may reach the Santa Cruz River at the north end of the Avra Valley. These waterways include the most valuable riparian habitats and corridors for wildlife. Discouraging development helps maintain natural floodplain functions that slow down damaging flood events, increases ground water recharge, and reduced the potential for flooding downstream in areas like Marana.
3. Groundwater - Decades ago decisions were made to retire numerous agricultural wells throughout Avra Valley and construct the Central Arizona Project canal such that water imported from the Colorado River is recharged in Avra Valley, blended with natural groundwater, and pumped back and piped across the mountains to serve the growing Tucson metro area. The City and County are dependent upon the CAP and recharge basins and infrastructure for their long-term water supply. This infrastructure limits the areas where development in Avra Valley can occur. Development in Avra Valley can't occur without additional wells and impacts to the long-term Tucson water supply.
4. Limited Infrastructure, High Cost of Services – Avra Valley is predominantly rural and lacks the types of public services and infrastructure (including water and sewer) that would support more development. Extending services to this area is costly both to private developers and to public agencies.
5. Ranching and Farming – Much of Avra Valley is used for cattle ranching and farming. The County, through the Sonoran Desert Conservation Plan, has recognized the many diverse benefits of keeping ranchers ranching including maintaining the wide open spaces and natural landscapes that support plants and wildlife, natural floodplain functions, and scenic views. Farming and agricultural lands which support local food production are being recognized more and more as important land uses.
6. Dark Skies Support Astronomy – Because Avra Valley is so sparsely developed, its dark night skies help support active research at the Kitt Peak observatory and other astronomy related activities that

provide jobs and contribute to the local economy. The proposed freeway and any associated development along the Corridor, even if it were to comply with the Tucson/Pima Outdoor Lighting Code, would contribute to light pollution and threaten astronomical research at Kitt Peak.

7. Rural Land Uses – The existing land uses along the Corridor in Avra Valley are generally low density residential, ranching, farming or publically-owned natural parks. The County’s Comprehensive Land Use Plan and Zoning aims to maintain these types of land uses.
8. Development Generates Traffic – The new freeway would encourage more development with the promise of improved interstate access and reduced travel times. However, this development would generate more traffic which would reduce the effectiveness and efficiency of the route as a trucking and freight corridor or as a bypass. Because the route is so much longer than I-10, it only becomes an attractive alternative route if traffic remains light and travel speeds are high. Any new development that occurs as a result of the freeway would add traffic to the freeway and gradually diminish its value as a bypass.

Direct Land Development Impacts

The direct land impacts of new interstate freeway include the consumption of land required to accommodate the roadway facility itself, including travel lanes, paved shoulders, medians, clear zones, and roadway interchanges. A four-hundred foot wide freeway corridor is assumed in this analysis, but this width can increase if interchanges are built to accommodate on-off ramps, bridges, and the reconfiguration of intersecting roads. Approximately 2700 acres of right of way is anticipated for the entire length of the proposed freeway. Two additional interchanges could add 2100 acres to this. If a total of 4800 acres of acres were used for the entire system, this would utilize approximately 2200 acres of State Trust land, and 1200 acres of private land.

Indirect Land Development Impacts

Travel-Related Development

Besides the direct land impacts of any new roadway and the right of way it occupies, new roadways impact adjacent lands by encouraging development. Freeways and interstates in particular generate demand for travel-related development such as truck stops, gas stations, lodging and food. Even limited-access freeways require some basic level of services and access to operate safely. This type of travel-related development is typically concentrated more at interchange areas where vehicles enter and exit the freeway, but can also follow along intersecting roadways away from the freeway.

Residential and Commercial Development

Besides travel-related development, freeways also generate demand for nearby residential and commercial development that benefit from improved access and reduced travel times. Avra Valley is relatively remote and served by only a few rural roadways and minimal infrastructure and services. But a new freeway could open up vast areas to development that otherwise would not occur, or would occur much more slowly, due to direct access to the interstate system and associated trade and commerce. Limiting this type of indirect development would be difficult to accomplish, but several strategies are discussed below.

Measures to Minimize Development along the Route

Summary paragraph about measures and their effectiveness/limitations

1. Limit Interchanges and Access

The most effective and permanent way to minimize and control land development along the proposed corridor would be to control or limit access to this facility. With no local access, there would be no additional incentive for land development to occur along or adjacent to the route. A freeway with little or no access to local roads would minimize environmental impacts associated with direct and indirect land development. If a service area were required, even this could be provided with no access to local roads.

Making this facility a toll road or using some other measure of pricing would not control or limit traffic, but it could discourage some travel unless the alternative route is more costly. Unlike older toll highways which limited access to these facilities and required vehicles to stop and pay tolls, modern toll roads use technology that allows vehicles to travel at highway speeds while transponders charge their vehicle at specific points.

2. Elevate the Roadway

Elevating the proposed interstate above the ground could reduce the land impacts of the roadway itself. Bridges would be required over washes and low-lying areas. By physically separating the roadway from the land, the footprint of the roadway can be reduced to only the bridge piers that support the roadway deck. Elevated roadways can allow people, water, vehicles and wildlife to cross under the facility without conflict. In areas where limited right of way exists, such as along Sandario Road, an elevated roadway could potentially fit within the existing right of way without impacting the Tohono O’odham Nation to the west or the Bureau of Reclamation Tucson Wildlife Mitigation Corridor to the east. Elevated roadways do increase highway noise further away from the interstate, so other sound mitigation measures such as rubberized asphalt, trees and walls could be required as well.

3. Purchase Land for Conservation

Governmental agencies like ADOT or Pima County could purchase land along the Corridor and restrict its use to open space and/or agricultural activities if desired. For example, lands acquired along the Corridor could be actively managed as a County natural resource park like Tucson Mountain Park, or passively managed as a wildlife corridor, or even leased to ranchers or farmers – all with the goal of not developing the land for residential or commercial uses. As discussed earlier in this report, several thousand acres of land would need to be acquired for the mitigation of impacts associated with development of the Corridor itself (following Pima County’s Conservation Land System requirements). Those mitigation lands could serve dual purposes if sited along either sides of the Corridor; preventing future development along the corridor, as well as protection of natural open space, wildlife corridors, and riparian areas for necessary mitigation of the Corridor impacts. The County has a lot of experience in buying and managing land for these purposes with well over 100,000 acres for conservation purposes. If land were purchased to prevent development along the Corridor, a third party could hold an interest in those lands so as to prevent the County, or any other agency that owns the land, from selling the land in the future for development. For

instance, the County or ADOT could purchase the land and convey an easement or enforcement right to another agency or non-profit organization.

4. Purchase Conservation Easements, Development Rights or Deed Restrictions

Another tool to prevent development along the Corridor is to purchase conservation easements, development rights or deed restrictions. As opposed to purchasing the land outright, governmental agencies could purchase just a portion of the property rights, which is less expensive. The landowner would then retain certain rights. However, the County has had limited success in acquiring conservation easements or development rights mainly because the appraised value of acquiring such rights is lower than value of purchasing land outright and therefore landowners have often chosen to receive a greater amount of money for selling outright.

5. Comprehensive Planning and Zoning

The planning and zoning of land provides some measure of controlling future land use development, but these tools are not permanent. Land is frequently up-planned and rezoned to support development projects that may not conform to existing plans and zoning. Public opinions about growth and development change over time, as do the elected officials who create and enforce policy. Therefore, any comprehensive plan or zoning designation that is intended to control land development along the corridor may not last and can always be changed.

Down-zoning or down-planning land to control development has limited appeal because of Proposition 207 which requires the County to reimburse landowners for any diminution of land value. The County could purchase private development rights, but this has similar financial drawbacks and may not be viable from a budget perspective. It would also require willing sellers. But with the exception of some higher intensity zoning at the northeast corner of Anway and Manville Roads, and along Avra Valley Road leading north to Trico-Marana Road, zoning is mostly low density/intensity along the projected route so there are few down-zoning opportunities.

The fact that much of the corridor through Avra Valley impacts the Conservation Lands System (CLS) could potentially limit the number and size of rezonings which might otherwise be approved. This is because for any impacted CLS lands, open space must be set-aside in proportion to the amount and conservation value of the impacted lands. However, these set-asides are not restricted to the site of the rezoning or impacted area, so important CLS lands can legally be developed if set-asides are provided. This is an important point, because CLS lands in Avra Valley are unique biologically and ecologically and setting aside lands elsewhere does little to preserve the native flora and fauna, habitats, and wildlife corridors in Avra Valley. *Also, the CLS allows more dense development such as cluster development and small lot development.*

As authorized by A.R.S. § 11-821.03, transfer of development rights (TDR's) is a process by which potential development associated with one lot or parcel of land may be transferred to another lot or parcel of land in unincorporated Pima County. Property owners in defined "sending areas" can transfer (sell) development rights to property owners in defined "receiving areas". All such transfers of development potential must be in compliance with the Comprehensive Plan for the receiving area. The value of the TDR's approach (and governmental purchase of development rights) is limited. The transactions are voluntary. The majority of the zoning along the projected route is RH, which is essentially the least intensive zone for residential density, at one dwelling per 4.12 acres. Receiving areas would need to be

added and it may be difficult to find sufficient private land holdings that would qualify for this assignment in the unincorporated area.

As a temporary measure, the County could adopt Comprehensive Plan policies that would limit growth along and near the projected route, including assigning a mapped urban growth boundary beyond which higher density rezonings are discouraged and planned infrastructure improvements are limited. Such an approach could be combined with strategic up-planning within the boundary to ensure adequate lands for population growth and to avoid housing and other new development cost increases that could otherwise result. To be effective, the Town of Marana would need to agree to limiting growth near the corridor, but since this area is part of their own growth area, it is not likely they would agree to such controls. A “low-density/intensity” overlay zone could also be devised that adds development restrictions and standards to the underlying zone within a certain distance of the corridor or around public preserves in its vicinity.

7. Impact Fees and Financial Incentives

Impact fees are used to help fund infrastructure where growth is occurring or expected to occur. Some may suggest their use as a method for growth control, but there is disagreement over whether or not this works. Whether or not fees may or may not discourage or slow development, they do not ultimately prevent development for willing payers.

Synthesis: Mitigation Approaches, Challenges, and Opportunities

Any state or federal planning process for the Intermountain West Corridor would evaluate and compare a full range of alternatives, including the county's proposed Avra Valley alignment, the Interstate 10/19 alternative, and the no-build alternative. Such a planning process would be much more comprehensive than this report, and it would look at multiple alignment options through Avra Valley. This report only examines one Avra Valley alignment and only considers some of the environmental impacts that would be studied through a state or federal planning process. For example, this report does not address social impacts, neighborhood impacts, access impacts and many other impacts.

Avoid Impact Areas

The best way for the proposed freeway through Avra Valley to reduce environmental impacts is to avoid those impacts in the first place. Environmentally sensitive areas and natural and cultural resources should be avoided to the greatest degree possible. This can be achieved through realignment of the corridor around those sites. Some of the most significant resources to avoid include the Santa Cruz River floodway, the Brawley Wash riparian areas, the County lands along Black Wash, and the mitigation lands for the CAP canal.

Eliminate/Minimize Interchanges

The second best approach to minimizing environmental impacts is to eliminate or minimize the number of interchanges along the freeway. Freeway interchanges require significant amounts of land to accommodate long exit and on-ramps, and they encourage roadside development of travel-related uses such as like truck stops, gas stations, fast food, and lodging. Interchanges also increase land values and encourage residential and commercial development near to freeways because they provide direct transportation access.

Mitigation Measures

Land acquisition, purchase, conservation, zoning, etc.

Wildlife Crossings

Safe passage for wildlife (see Summary Map). Provisions can be made for wildlife passage under a freeway. The efficacy of wildlife passages depends on their careful design, location, and features such as vegetation, soils, water, and fencing that lie outside the right-of-way. Compatible land management outside the right-of-way, over time, can make or break the success of wildlife passages. In some places in Avra Valley, floodplain constraints or past investments in underground water storage or land conservation provide opportunities to ensure long-term compatibility for wildlife passages.

Interagency cooperation is critical to successful wildlife crossings. Regarding of the actual route chosen, land ownership is spread out among many different entities; without cooperation, many wildlife measures discussed in this report would simply be impossible to implement.

Reducing visual impacts. addressed within the right-of-way

Avoidance and minimization measures include:

- Minimize number/eliminate freeway interchanges.
- Minimize impacts to Kitt Peak astronomy research and economy by limiting lighting.
- Avoid or minimize impacts to Tucson Water recharge ponds, wells, and pipe facilities by route adjustments.
- Avoid or minimize impacts to environmental mitigation lands, floodplains, and agricultural lands by route adjustments.
- Avoid or minimize impacts to ironwood desert scrub near Mile Wide Road.
- Avoid impacts to Santa Cruz River by route adjustments.
- Elevate longer sections of roadway to avoid floodplains and wildlife impacts.
- Minimize sound impacts through pavement type and sound attenuation measures.
- Avoid or minimize impacts to cultural resources by route adjustments around most sensitive sites.
- Protect important natural areas and historic properties through property acquisition, conservation easements and other preservation methods.
- Minimize and discourage future development along and adjacent to route by eliminating/limiting interchanges, buying land or conservation easements, maintaining low intensity land use and zoning designations, adopting overlay zone to further limit development in key areas.

Freeway construction could be scheduled to avoid impacts during certain wildlife breeding periods.

Freeway design could prohibit or reduce overhead lighting to protect dark skies and to avoid impacts on some types of wildlife.

There are many possible mitigation measures, but most do not prevent loss of natural or cultural resources. One of the few mitigation measures that provided an opportunity to reverse losses of riparian habitat is the idea of re-establishing natural vegetation and processes on the mix of City and County lands that exist along the Brawley Wash, an idea which is consistent with the City's 2012 draft Avra Valley Habitat Conservation Plan. The challenge would be whether such an effort could be successful, and the extended time over which such an effort could be carried out. The best way to approach this would be to begin with small-scale efforts in advance of freeway construction, using adaptive management to see if actual outcomes match those predicted and then using these results to learn and adjust future management plans and policy (Walters 1986). Restoring damaged floodplains to natural functions would require significant long-term commitment to funding, perhaps using an endowment. In addition, it would require a long-term, interagency engagement to learn about how to restore the Brawley and meet agreed-upon objectives.

Mitigation measures include:

- \$8 million for in-lieu mitigation fees (or up to 2000-4000 acres of land acquisition) for riparian habitat mitigation within floodplains. In lieu fees could be dedicated to (1) working with Tucson Water to rehabilitate floodplain functions across former farmland in Avra Valley, and maintain or enhance areas of mesquite woodland and floodplain grassland, (2) revegetating former farmland to improve habitat quality for wildlife and reduce buffelgrass, and/or (3) acquiring and protecting areas of existing riparian habitat.
- 11,000 acres of mitigation for Conservation Lands System impacts to be used to maintain and restore wildlife connectivity in Avra and Altar Valleys and limit future development in key areas.

- Provide more wildlife passages across Central Arizona Project (CAP) canal at Saguaro National Park and other areas north of the BOR mitigation corridor.
- Elevate extended sections of roadway to reduce floodplain and wildlife impacts and limit adjacent development.
- Provide livestock and wildlife crossings in Altar Valley or wildlife waters and pasture fencing to compensate for impacts to County's Diamond Bell ranch.
- Follow cultural resource compliance process (state and/or federal standard): site identification inventory in APE, determination of site eligibility to identify historic properties, determination of adverse effect to historic properties, mitigate adverse effect through avoidance and minimization of impacts, if avoidance is not possible mitigate impacts through archaeological data recovery and/or monitoring.

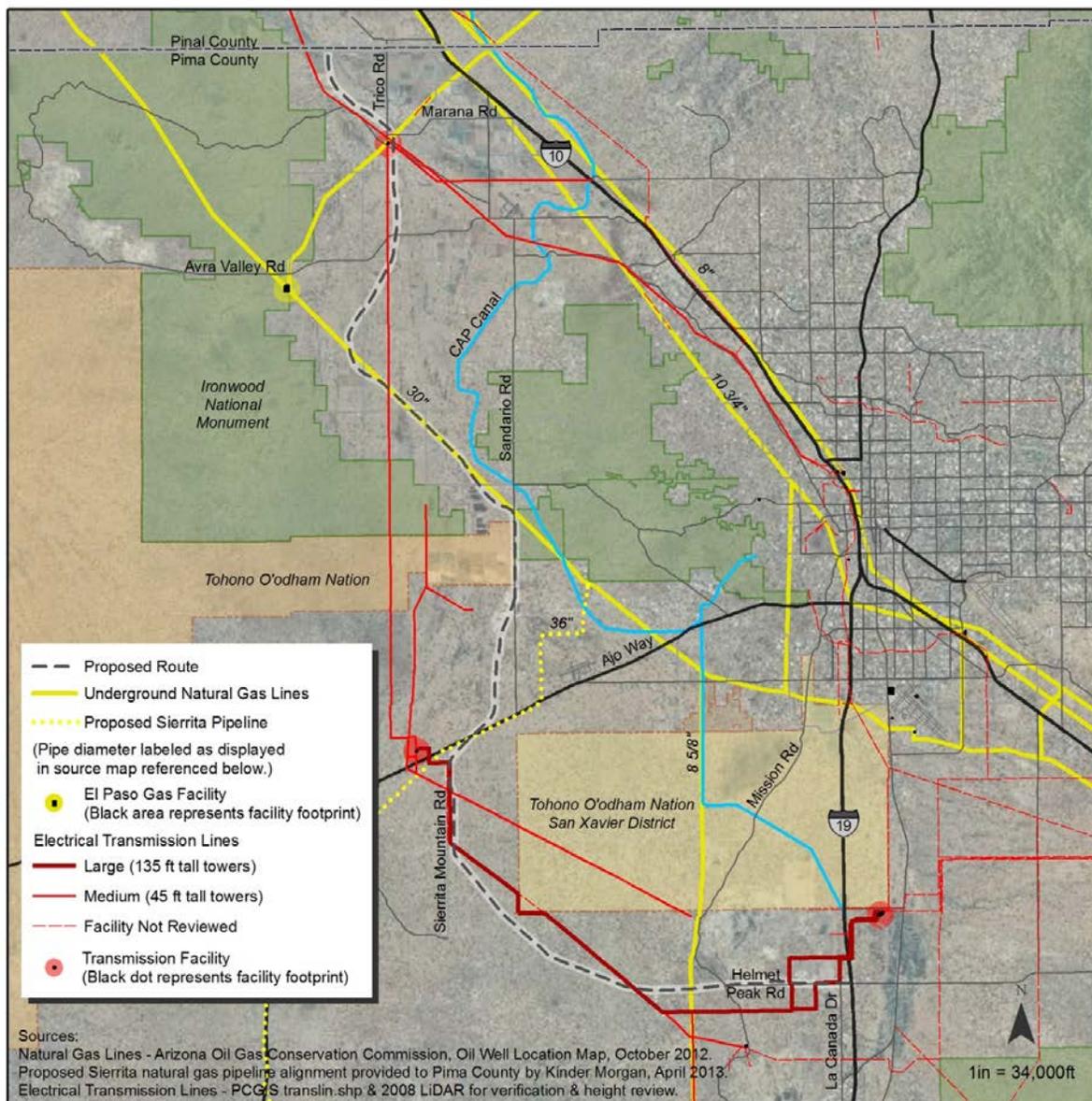


Figure : Natural Gas and Electrical Transmission Facilities

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ATTACHMENT 3



COUNTY ADMINISTRATOR'S OFFICE

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(520) 724-8661 FAX (520) 724-8171

C.H. HUCKELBERRY
County Administrator

April 13, 2018

Alex Smith
Deputy Area Manager
US Bureau of Reclamation
Phoenix Area Office
6150 W. Thunderbird Road
Glendale, Arizona 85306

Re: Decision-making Authority regarding developments within Tucson Mitigation Corridor

Dear Mr. Smith:

The Bureau of Reclamation (Reclamation) has been negotiating directly with the Federal Highways Administration (FHWA) and the Arizona Department of Transportation (ADOT) regarding the potential future routing of the proposed Interstate 11 (I-11) through the Tucson Mitigation Corridor (TMC). The TMC compensates for decreased wildlife habitat connectivity between the rest of the Tucson Mountain Wildlife Area and areas to the west blocked by the Central Arizona Project (CAP) aqueduct. The TMC was purchased as a direct result of consultation with the Arizona Game and Fish Department (Department) and the United States Fish and Wildlife Service (USFWS) under the Fish and Wildlife Coordination Act (FWCA).

Reclamation accepted the Department's recommendation to acquire the TMC and worked with the Department in developing management prescriptions for wildlife found in the 1986 *Environmental Commitment Plan* (ECP) and the 1990 *Master Management Plan* (MMP).

The FWCA authorized the acquisition of the TMC under 16 USC § 663 (a) and (b), and Section §663(d) directs that such properties "*shall continue to be used for such purposes, and shall not become the subject of exchange or other transactions if such exchange or other transaction would defeat the initial purpose of their acquisition.*"

The Department inquired with the Office of the Arizona Attorney General (AG) regarding the ECP and MMP, and the AG returned a memorandum to the Department on March 16, 2017 concluding that the 1986 *Environmental Commitment Plan* is that wildlife conservation "project plan" required in 16 USC § 662(b), and the 1990 *Master Management Plan* is the "general plan" jointly approved by DOI and the Department for the management of TMC for wildlife conservation purposes pursuant to 16

Mr. Alex Smith

Re: **Decision-making Authority regarding developments within Tucson Mitigation Corridor**

April 13, 2018

Page 2

USC § 663(b). According to Section II (2), "Management Actions," Reclamation is obligated to prohibit any future developments within the TMC unless jointly agreed to by Reclamation, the Department, the USFWS, and Pima County (parties).

Pima County has worked with Reclamation, the Department, and USFWS together with FHWA and ADOT to provide input to a mitigation plan intended to meet minimum obligations under the ECP and MMP to satisfy the environmental commitments of Reclamation and maintain the functionality of the TMC. To date, the parties have not seen the plan, nor have they been asked for agreement. Subsequently, the parties have not agreed to any future developments within the TMC, including the proposed I-11.

Pima County has worked in good faith with Reclamation to describe those actions which would maintain functionality of the TMC but heard at our recent meeting with Reclamation that we will not be afforded an opportunity to officially consent to the mitigation package that will be negotiated between Reclamation, ADOT and FHWA, for the purposes of including it in the administrative draft Tier 1 Environmental Impact Statement (EIS) on May 21. This is contrary to our expectations of parity as parties to the TMC Agreement.

Pima County requests that any mitigation package describing mitigation for the TMC provided for the Tier 1 EIS analysis requires routing through standard decision making processes through leadership of each party and signature from each agency head prior to any consideration of alternatives that utilize the TMC.

I hope this letter clarifies our position regarding the TMC and the commitment to joint decision-making authority spelled out in the MMP.

Sincerely,



C. H. Huckelberry
County Administrator

CHH/lab

Enclosure

c: Raul Vega, Arizona Game and Fish Department
Scott Richardson, US Fish and Wildlife Service



MARK BRNOVICH
ATTORNEY GENERAL

OFFICE OF THE ARIZONA ATTORNEY GENERAL
CIVIL LITIGATION DIVISION
CONSUMER PROTECTION & ADVOCACY SECTION

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ATTORNEY / CLIENT PRIVILEGED INFORMATION - NOT FOR PUBLIC DISCLOSURE

MEMORANDUM

TO: John Windes, Habitat Evaluation and Lands Program Manager
Arizona Game and Fish Department

FROM: Linda Pollock, Assistant Attorney General

DATE: March 16, 2017

RE: The 1990 BOR/AGFD/Pima County *Master Management Plan* for the Tucson
Mitigation Corridor (TMC)

Question presented:

Did the September 30, 2009 expiration of the 2002 *Cooperative Agreement* between the Bureau of Reclamation and Pima County Natural Resources Parks and Recreation Department also result in the expiration of its attached *Master Management Plan*, leaving the Department with no role in Bureau of Reclamation's management of the Tucson Mitigation Corridor?

Background.

As mitigation for damages to wildlife and habitat due to the construction of the Central Arizona Project, Tucson Aqueduct – Phase B, the Bureau of Reclamation (BOR) committed to mitigation measures. These commitments were developed pursuant to the Fish and Wildlife Coordination Act, 16 USC §§ 661-667e and NEPA, 40 CFR Parts 1500-1508.

The 1985 EIS for the project and the ROD at Appendix F contained BOR's *Environmental Commitments*, which included the future development of an *Environmental Commitment Plan* (ECP), described as the "the master environmental implementation document for construction, operation, and maintenance activities" for the Tucson Aqueduct – Phase B.

Many of the ROD's *Environmental Commitments* dealt with actions to be performed during the construction phase of the CAP, such as revegetation of disturbed habitat, a rough

finish on the canal side slopes to allow small animals to escape, wildlife-proof fencing, the construction of wildlife watering sites and barrier fences along portions of the canal to protect against desert tortoise and Gila monster drownings.

The *Environmental Commitments* also contained post-construction commitments, principally the “acquisition and management of a wildlife movement corridor” (the Tucson Mitigation Corridor, or TMC). Management requirements for the TMC included “no further residential or industrial development”, “[e]xclude grazing, mining, dumping, and off-road vehicles”, the construction of the wildlife watering sites and wildlife crossings. Adoption of these commitments was essential for the selection of BOR’s preferred CAP alignment alternative, the “West Side Plan” which of all alternatives posed the highest biological losses. BOR’s environmental commitments would reduce the biological impacts “to an acceptable level”. ROD at 7-8.

The following year BOR issued its 1986 *Environmental Commitment Plan, Tucson Aqueduct, Phase B* (the ECP) describing various commitments for vegetation, land and water resource management, wildlife, and special status species (plants), among others. The commitments in the ECP were in two categories, construction-related and nonconstruction-related. The ECP was basically a recap of the ROD’s environmental commitments with more details.

The ECP noted that some commitments would be initiated and completed after the construction phase:

These commitments will be completed by Bureau personnel or by contractor (sic). Some of these commitments, such as monitoring or additional studies, may continue for many years. Post-construction compliance will be the responsibility of the [BOR] Environmental Division under the direction of the [BOR] Project Manager. . . [a]ctual implementation of some commitments may be done by other agencies through interagency agreements.

ECP at 2.

Section II of the ECP, titled Non-Construction Related commitments, discussed the acquisition and management of TMC as mitigation for wildlife movement severance. The TMC “would be turned over to a natural resource agency for management as wildlife habitat”. Management requirements of the TMC includes “no further residential or industrial development, and “exclude grazing, mining, dumping and off-road vehicles”. Section II also states that “additional mitigation recommended by the FWS, AGFD, BLM and others would be implemented as appropriate” (Section II.C.10).

BOR first offered the Department the opportunity to manage TMC in a letter dated June 26, 1987, which the Department apparently turned down. In 1990 BOR entered into a *Cooperative Agreement for Use of Project Lands for Wildlife and Plant Conservation and*

Management, Tucson Mitigation Corridor, Central Arizona Project with Pima County. The Agreement, which was also characterized within the body of the document as a “general plan” under the Fish and Wildlife Coordination Act, recites that the Department of the Interior and the Director of AGFD find that “it would be in the public interest” for TMC’s wildlife resources to be managed by Pima County Parks and Recreation in accordance with the attached Master Management Plan. BOR would provide Pima County with funding for operation, maintenance and repair of the wildlife facilities within TMC “for the life of the project”. The parties apparently contemplated that Pima County would provide this management in perpetuity, as the Cooperative Agreement had no termination date. Section 9 provided that if Pima County failed to administer TMC for conservation of plant and wildlife resources as described in the Master Management Plan, management responsibilities would transfer back to BOR.

The *Master Management Plan* and the *Cooperative Agreement* cross-reference each other, and the *Master Management Plan* contains several references to Pima County¹.

The management plan for TMC is found in Section II of the *Plan*:

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| <p>II. <u>Management Plan:</u></p> <p>1. Management Goals:</p> <p>a. Compensate for wildlife movement disruptions caused by aqueduct construction by providing an undeveloped wildlife movement corridor between the Tucson Mountains and the Nation to the west.</p> <p>b. Preserve areas containing the Federally Endangered Tumamoc globe-berry and the night-blooming cactus, Thornber’s fishhook cactus desert tortoise, and Gila monster (all Federal Candidate Category 2 species) as compensation for populations impacted by project construction.</p> <p>c. Compensate for wildlife habitat lost due to aqueduct construction by prohibiting deleterious activities within the area boundaries.</p> <p>2. Management Actions:</p> <p>a. Prohibit any future developments within the area other than existing wildlife habitat improvements described above or future wildlife improvements, management, or developments agreed to by Reclamation, Arizona Game and Fish Department (AGFD), Fish and</p> |
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¹ In a letter dated December 27, 1988 from the BOR project manager to Pima County expressing BOR’s opposition to a proposed San Joaquin road extension through the TMC, BOR stated that “we are in the process of acquiring signatures on the final Management Plan for the Tucson Mitigation Corridor. This plan specifically prohibits all further developments within the area other than those for wildlife habitat improvement”. This strongly suggests that BOR and the Department had finalized the Management Plan well before BOR approached Pima County to manage the site.

Wildlife Service (FWS), and Pima County. This will preserve this fragile desert habitat from urbanization and maintain an open wildlife movement corridor.

b. Prohibit grazing, mining, dumping, discharge of firearms, trapping, recreation developments, and off-road vehicles to maintain the integrity of the area for both wildlife and special status plant species.

Prohibited activities will be regulated according to Chapter 12 of the Parks and Recreation Commission, Pima County, under authority of A.R.S. § 11-931 et seq.

c. Maintain and repair 2 wildlife watering sites within TMC.

d. Post and maintain signs around TMC.

e. Ensure that trash is kept out of the TMC.

f. Maintain and repair 4-strand fences on perimeter of TMC.

g. Maintain locked gates on perimeter of TMS to exclude unauthorized motor vehicles.

h. Enforce all laws and regulations set forth in this document, and by the State of Arizona, for the entire 2,730 acres, including the 216 acre CAP right-of-way.

[Emphasis added].

The 1990 *Cooperative Agreement* was superseded and replaced in 2002 with *Cooperative Agreement 02-FC-32-0150 between the United States Department of Interior, Bureau of Reclamation and Pima County Natural Resources Parks & Recreation for Wildlife & Plant Management in the Tucson Mitigation Corridor*, and a related *Assistance Agreement*. The 2002 *Agreement* did not refer to itself as a "General Plan", the Department was not a party, and the Fish and Wildlife Coordination Act was not referenced. The 2002 *Agreement's* objectives and purpose was to transfer funds pursuant to the Endangered Species Act and the 1985 EIS to Pima County for the continued O&M of TMC "for wildlife movement disruptions caused by the aqueduct construction". Pima County's responsibilities were identical to its duties under the 1990 *Agreement* (the *Master Management Plan* was attached to the 2002 *Agreement*), with the addition of requirements to provide detailed quarterly and financial reports to BOR. In return, BOR would continue to fund the County for the five-year term of the *Agreement*.

On September 14, 2007 BOR sent to Pima County Modification No. 002 to the 2002 *Cooperative Agreement* and *Assistance Agreement* which extended the period of performance to September 30, 2008. On September 24, 2008 BOR sent Modification No. 3 extending the term of the *Cooperative Agreement* to September 30, 2009. Pima County later decided to end its involvement as BOR's financial reporting requirements were too onerous.

Analysis.

The primary purpose of the Fish and Wildlife Coordination Act, 16 U.S.C. §§ 661-666, is to protect wildlife and habitat from the impacts of federal or federally-authorized water resource development projects which impound, divert, or control waters from streams or other bodies of water. 16 USC §§ 661; 663(a).

Prior to the implementation of any water project, the federal project agency is required to consult with the USFWS and the head of the state wildlife agency. 16 USC § 662(a). The consultation is directed toward the protection and development of wildlife resources. *Id.* The project report from the lead federal agency must give “full consideration to the reports and recommendations” that result from the consultations with FWS and the state wildlife agency, and “the project plan shall include such justifiable means and measures for wildlife purposes as the [federal project agency] finds should be adopted to obtain maximum overall project benefits”. 16 U.S. C. § 662(b).

The FWCA also authorizes the acquisition and use of lands and water for wildlife conservation purposes:

The use of such waters, land, or interests therein for wildlife conservation purposes shall be in accordance with **general plans approved jointly** (1) by the head of the particular department or agency exercising primary administration in each instance, (2) by the Secretary of the Interior, and (3) by **the head of the agency exercising the administration of the wildlife resources of the particular State wherein the waters and areas lie.**

Section § 663(a) and (b). (emphasis added). Subsection § 663(d) states that such properties “shall continue to be used for such purposes, and shall not become the subject of exchange or other transactions if such exchange or other transaction would defeat the initial purpose of their acquisition”.

Section § 664 provides that such lands “shall be administered by the [Secretary of the Interior]” directly or in accordance with cooperative agreements entered into pursuant to section 661 in accordance with “general plans approved jointly by the Secretary of the Interior and the head of the department or agency exercising primary administration of such areas”.

Pursuant to FWCA, BOR consulted with the Department by hiring the Department to catalog potential wildlife losses along the CAP alignment in the 1983 and 1985 *Biological Resource Inventory*. BOR also accepted the Department’s recommendation to acquire TMC and worked with the Department in developing the management prescriptions for wildlife found in the 1986 *Environmental Commitment Plan* and the 1990 *Master Management Plan*.

In replacing the 1990 *Cooperative Agreement* with Pima County with the 2002 *Cooperative Agreement*, BOR likely made the decision that the 2002 Agreement should not be called a "general plan" (as contemplated by Section § 663 of FWCA), as the agreement was not in fact a management plan, but rather an agreement transferring TMC wildlife management responsibility to Pima County with a funds transfer for the costs of management. Accordingly, references to the FWCA and the signature of the Department are missing from the 2002 *Agreement*. The *Master Management Plan* remained as an attachment.

The termination of the Cooperative Agreement in 2009 ended the County's management responsibilities for the TMC, as well as BOR's obligation to provide funding, and reverted the management of TMC back to BOR. The *Master Management Plan's* Section II "Management Goals" and Management Actions" survived the 2009 termination of the Cooperative Agreement because it stands as the jointly-approved wildlife conservation plan between the Secretary of the Interior and the Department as required in Section § 663(b) of FWCA.

Conclusion.

The 1986 *Environmental Commitment Plan* is that wildlife conservation "project plan" required in FWCA 16 USC § 662(b), and the 1990 *Master Management Plan* is the "general plan" jointly approved by DOI and the Arizona Game and Fish Department for the management of TMC for wildlife conservation purposes pursuant to FWCA 16 USC § 663(b). According to Section II(2), "Management Actions", BOR is obligated to prohibit any future developments within TMC unless jointly agreed to by BOR, the Arizona Game and Fish Department, the U. S. Fish and Wildlife Service and Pima County.