

# Proposed Interstate 11 Analysis: Casa Grande to the Mike O'Callaghan-Pat Tillman Memorial Bridge



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Ian Dowdy  
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## **About Sonoran Institute**

### **Mission**

The Sonoran Institute inspires and enables community decisions and public policies that respect the land and people of western North America.

### **Vision**

The Sonoran Institute contributes to a vision of a West with:

- Healthy landscapes—including native plants and wildlife, diverse habitats, open spaces, clean air and water—from northern Mexico to western Canada.
- Vibrant communities where people embrace conservation to protect quality of life today and in the future.
- Resilient economies that support prosperous communities, diverse opportunities for residents, productive working landscapes, and stewardship of the natural world.

### **A Collaborative, Community-Based Approach**

The nonprofit Sonoran Institute, founded in 1990, works across the rapidly changing West to conserve and restore natural and cultural assets and to promote better management of growth and change. The Institute's community-based approach emphasizes collaboration, civil dialogue, sound information, local knowledge, practical solutions, and big-picture thinking.

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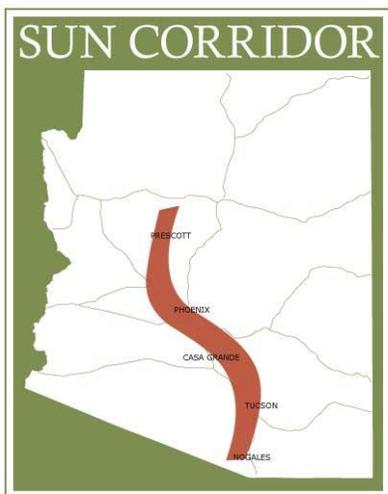
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Cover Photo: This area near Ship Rock is one of many important environmental resources that lie along the proposed Interstate 11 route. Careful avoidance and mitigation are necessary to protect this and other amazing features of Arizona.

## About The Sun Corridor

The "Sun Corridor" refers to Arizona's megapolitan area stretching from Nogales in the south to Prescott in the north, with Phoenix and Tucson at its core. The megapolitan is growing at a tremendous rate, and that rapid growth comes with the challenge of conserving natural desert and open space while improving urban quality of life. The Sun Corridor Legacy Program is one of the four keystone initiatives of the Sonoran Institute. The program's goals include:

- Advance the availability of clean and secure energy for the Sun Corridor.
- Conserve more than one million acres in Arizona for future generations.
- Encourage state policies to protect and restore free-flowing rivers in Arizona.



The Sun Corridor's desirable climate, housing options, and relatively low cost of living are reasons why this area continues to attract new residents. The area's future quality of life, environmental quality, and economic prosperity will be determined largely by how well growth is managed. Going forward, regional solutions that comprehensively address conservation, development, transportation, water, and energy issues will be critical to a sustainable future.

Arizonans must consider these regional issues when making decisions about how to develop communities, preserve cherished open spaces, ensure an adequate high-quality water supply, protect our quality of life, and enhance economic prosperity. New approaches to problem solving are needed to make this happen, and the Sonoran Institute finds them through work with federal, state, and local governments, and

stakeholder groups to determine the best mix of use and conservation for lands in the region. To find out more about the program's work, visit [www.sonoraninstitute.org](http://www.sonoraninstitute.org).

## About the Author

Ian Dowdy is the Program Director for the Sun Corridor Legacy program in Phoenix. As an urban planner he has worked in a wide variety of public and private sector roles in addition to his current capacity in the non-profit realm. With a bachelor's degree in Urban Planning and a master's in Business Administration from Arizona State University, Ian focuses his efforts on balancing the reality of urban growth in the Sun Corridor with the necessity of achieving sustainability in the built environment. For several years he has been working on a variety of projects that seek to preserve the economic vitality of Arizona through appropriate conservation measures that would safeguard important resources while improving quality of life.

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## Contents

Executive Summary .....	1
Introduction .....	2
Vision .....	2
Location and History .....	2
Renewable Energy along the I-11 .....	4
Initial Evaluation .....	5
The “Energy Preferred Alternative” .....	5
Segment Analysis .....	7
Summary .....	7
Qualitative Segment Analysis Results .....	7
Segment Summary Chart .....	8
Conclusion .....	9
The Sun Corridor and Interstate 11 .....	9
Appendix 1: Segment Analysis Results .....	10
Segment 46—Pat Tillman-Mike O’Callaghan Memorial Bridge to Kingman .....	10
Segments around the Hualapai Mountains .....	12
Segment 35—I-40 from Kingman South to Approximately Yucca .....	13
Segment 43—I-40 from Kingman East to US-93 .....	14
Segment 91—US-93 to I-40 around Chicken Springs Rd .....	15
Segment 95—US-93 from I-40 south to Wikieup .....	16
Segment 36—US-93 Wikieup South to the Wickenburg Area .....	17
Segments in Western Maricopa County .....	19
Segment 16—Hassayampa Freeway from SR 801 (SR-30) to I-10 .....	20
Segment 17—Hassayampa Freeway from I-10 to US-60 .....	20
Segment 18—Hassayampa Freeway Extended from US-60 to US-93 .....	22
Segment 20—SR-85 from Hassayampa Freeway to I-10 .....	23
Segment 21—Interstate 10 from SR-85 to Hassayampa Freeway .....	23
Segment 22—Sun Valley Parkway Extended from I-10 to US-60 .....	24
Segment 29—US-60 from Sun Valley Parkway Extended to US-93 .....	25
Segment 86—Hassayampa Freeway from SR-85 to SR-801 (SR-30) .....	26
Segment 87—SR-303 from SR-801 (SR-30) to Hassayampa Freeway .....	27

Segments in Southern Maricopa County/Western Pinal County..... 28

Segment 10—I-8 from Segment 82 to I-10..... 29

Segment 14—Vekol/Hidden Valley Fwy from Segment 82 to I-10..... 29

Segment 15—Hassayampa Freeway from SR-85 to SR-303 ..... 30

Segment 19—SR-85 from the Hassayampa Freeway to Interstate 8..... 31

Segment 82—From Hassayampa/Vekol Fwy to I-8 ..... 32

Segment 83—I-8 from SR-85 to Hassayampa Freeway/Vekol Freeway..... 33

Segment 84—Hassayampa/Vekol Freeway from SR-303 to Segment 82 ..... 34

## Executive Summary

This report attempts to provide clarity around the issues that should be evaluated in further detail as the Interstate 11 corridor alignment is evaluated and selected. The Sonoran Institute recognizes the challenge of achieving a balance between economic growth and the preservation of Arizona's unique natural resources and identity—we feel that the view that one must be selected over the other is a false choice. In this report we have addressed the following aspects of the I-11 corridor planning process:

1. The importance of embracing a true “multimodal” smart corridor that encompasses highway, rail, utility, data, and other infrastructure in a manner that allows for adaptability and change over time.
2. The value of utilizing the corridor as a catalyst toward increased renewable energy development.
3. Opportunities that each segment may bring to the local area.
4. Environmental, cultural, and social features that should be avoided when determining corridor alignments.
5. Stakeholders that should be engaged to inform the corridor planning and detailed design.
6. A relative qualitative scoring of which alignment segments seem to be better sited or have lower conflict with known resource constraints.

Through our analysis it appears that the corridor identified as the “Energy Preferred Alternative” responds well to the evaluation criteria as it avoids impacts on environmental resources, provides maximum value to renewable energy development opportunities, accommodates multiple modes, and responds to the existing conditions and development plans that preceded this study. The results however, are not conclusive and will require a detailed analysis in a quantitative way before the best alignment can be selected. Ideally, this report will serve to identify areas where future detail can be uncovered while assisting to narrow down the range of alternatives.

As a result of our work which includes site visits, GIS analysis, and interviews with stakeholders along with extensive knowledge of western Maricopa County and surrounding areas, we have concluded that the I-11 corridor, if correctly planned, designed, and impacts are mitigated, could feasibly be articulated to achieve regional economic development objectives and avoid significant environmental harm. Successful implementation, however, is reliant upon the full open and transparent integration of local communities and stakeholders including those interested in recreation, wildlife, the environment, trade, energy, cultural resources, and a wide variety of other concerns. Ultimately the success of the I-11 corridor relies upon the integration of diverse interests to determine both the location and the design of this infrastructure.

## **Introduction**

The proposed Interstate 11 priority corridor from the area of Interstate 10 at Casa Grande north to the crossing of the Colorado River on U.S. 93 presents unique opportunities and challenges for the freight industry, renewable energy advocates, transportation engineers, environmentalists and all Arizonans concerned with the state’s economic development. This preliminary evaluation of the priority corridor identifies challenges, constraints, and stakeholders who should have a substantial role in the project planning process and establishes a framework for future considerations.

## **Vision**

The proposed Interstate 11 is envisioned as a multi-modal “smart corridor” that may include elements such as an interstate highway, passenger and/or freight rail, electrical and other energy transmission facilities, and state-of-the-art data infrastructure such as fiber-optic cable. These features make the proposed corridor appealing to conservation interests as it provides the opportunity to embark upon a more sustainable approach to corridor planning and development. The current model of infrastructure typically mandates parallel yet distant infrastructure elements that compound the impacts on environmental resources; by placing transmission lines, rail corridors, and highways parallel, yet separate from each other—and thereby exponentially increasing the harm to natural landscapes and wildlife. The Interstate 11, as proposed, further distinguishes itself by providing a significant opportunity for local communities to benefit from trade stimulated by the CANAMEX corridor and renewable energy development that would be served by integrated electrical transmission infrastructure.

## **Location and History**

The proposed Interstate 11 is a segment of the CANAMEX corridor that was initially envisioned in 1996. More than two decades later, it remains highly popular with communities that could benefit from associated economic development brought by increased international trade and industrial development. In 2012, Congress approved a transportation omnibus bill (MAP-21) that included funding for planning and study of corridors throughout Arizona and Nevada that could become portions of the future CANAMEX route.

Today, a key segment of CANAMEX is embodied in the proposed Interstate 11 which is to connect Phoenix to Las Vegas and eventually to undetermined points in Mexico and the northern Nevada border. In Arizona, Interstate 93 is considered to be the logical location for the I-11, taking advantage of the recently completed Mike O’Callaghan-Pat Tillman Memorial Bridge that bypasses the Hoover Dam crossing while connecting Phoenix and Las Vegas—the two largest cities in the U.S. that are currently not connected by an interstate highway. From Wickenburg south, existing roads and facilities become less capable of accommodating the proposed interstate, making it necessary to either perform significant and costly upgrades to constrained roadways or to find alternative locations for the highway.

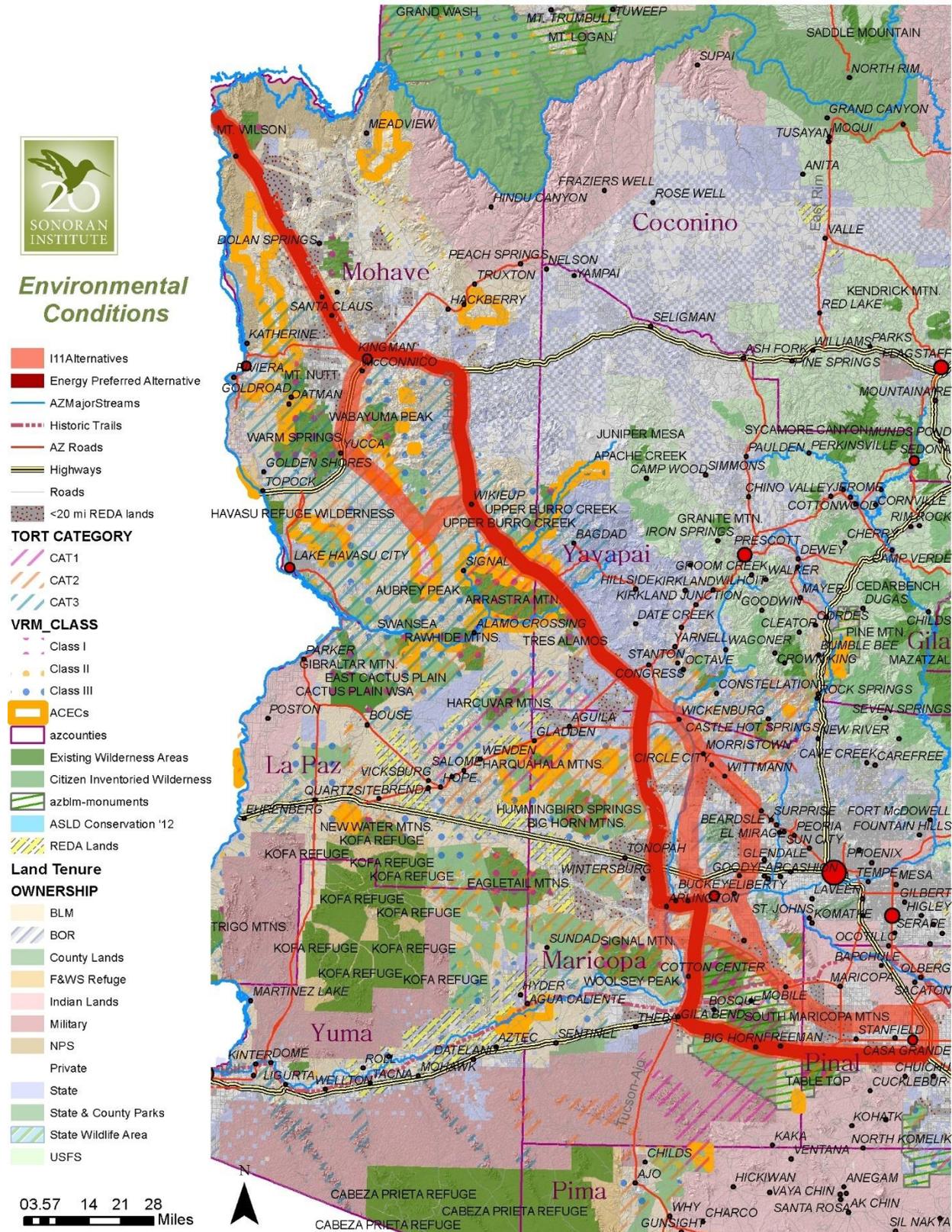


Figure 1: The Interstate 11 is proposed to go along US 93 south from Las Vegas and through the western Maricopa County communities of Wickenburg, Surprise, and Buckeye. The highlighted route is an alternative that, pending further analysis, seems to provide the most value for renewable energy development.

## Renewable Energy along the I-11

The I-11 “smart corridor” concept is attractive to renewable energy advocates due to the large amount of lands suitable for solar and wind development with few environmentally sensitive resources located near the proposed highway. These lands were screened through the Bureau of Land Management’s (BLM) Restoration Design Energy Project (RDEP), a statewide assessment that was supported by environmental and wildlife groups, renewable energy developers, and utilities in Arizona. RDEP officially designated suitable BLM lands as Renewable Energy Development Areas (REDAs). However, because the assessment extended to other Arizona lands (excluding military and tribal lands), federal, state, and private lands with REDA-like qualities were also identified. As indicated in the table below, over 700,000 acres of REDA-quality lands are located within 20 miles of the highway. Significant renewable energy development of these lands will require additional electrical transmission lines to get power to markets, a costly but necessary measure in order to provide a more balanced and sustainable energy future.

Renewable Energy Development Area Lands				
Within 10 Miles of I-11	Acres	Energy Potential <sup>1</sup> (MW)	Homes Powered <sup>2</sup>	Carbon Displaced <sup>3</sup> (tons)
Non-BLM Nominated Sites	1,307	139	115,601	4,577,784
BLM Nominated Sites	1,606	170	142,046	5,625,036
Non-BLM REDA Lands	379,857	40,317	33,597,324	1,330,454,023
BLM REDA Lands	68,452	7,265	6,054,394	239,754,010
Solar Energy Zone	2,618	278	231,555	9,169,579
<b>Total Energy Development Lands</b>	<b>453,840</b>	<b>48,169</b>	<b>40,140,920</b>	<b>1,589,580,431</b>
Within 20 Miles of I-11	Acres	Energy Potential <sup>1</sup> (MW)	Homes Powered <sup>2</sup>	Carbon Displaced <sup>3</sup> (tons)
Non-BLM Nominated Sites	9,847	1,045	870,941	34,489,244
BLM Nominated Sites	4,616	490	408,273	16,167,599
Non-BLM REDA Lands	581,444	61,713	51,427,149	2,036,515,081
BLM REDA Lands	106,232	11,275	9,395,933	372,078,945
Solar Energy Zone	2,618	278	231,555	9,169,579
<b>Total Energy Development Lands</b>	<b>704,757</b>	<b>74,801</b>	<b>62,333,850</b>	<b>2,468,420,448</b>
<sup>1</sup> Energy potential assumes the development will achieve a realized .1061 MW/Acre which is the mean planned production of approved BLM Solar applications as of 6/2013 <sup>2</sup> Assumes estimated energy demand of 12MW/10,000 homes <sup>3</sup> Assumes 33,000 tons/MW photovoltaic panels				

Figure 2: Renewable Energy Lands near I-11

Over the past year, the Arizona Solar Working Group (ASWG), comprised of environmental and wildlife advocates, utility companies, and solar energy developers, has been working to evaluate possible corridors for renewable energy transmission throughout Arizona. Recently, a settlement with environmental advocates required the Departments of Energy and Interior to reevaluate corridors identified as West Wide Energy Corridors throughout 11 western states. The ASWG is evaluating and preparing recommendations for viable corridors with low ecological impacts. The proposed I-11 is one of the alignments likely to emerge as a preferred location for a transmission line; other locations near Interstates 10 and 8 are strong candidates as well. On December 17, 2013 five members of ASWG co-signed and submitted a letter to ADOT further articulating the need for energy transmission within the corridor.

## Initial Evaluation

In September 2013, the Sonoran Institute (SI) performed an initial evaluation of the I-11 corridor through GIS analysis which included consideration of conflicts to Areas of Critical Environmental Concern (ACECs), Sonoran desert tortoise habitat, wilderness areas, citizen proposed wilderness, Arizona State Land Department (ASLD) lands with conservation value, riparian zones, Visual Resource Management (VRM) Classes, and REDA lands. In addition, SI embarked on a three-day field tour for a first-hand look at the I-11 alternatives extending from Phoenix to Nevada while meeting with local stakeholders along the way. This preliminary evaluation seemed to provide enough information to demonstrate that the I-11, at least through this alignment, could be accomplished with limited and potentially mitigatable environmental impacts. More research is needed.

## The "Energy Preferred Alternative"

The Sonoran Institute has identified an alternative for purposes of further analysis that seems to align with limiting and mitigating environmental impacts, while providing easy access to lands with renewable energy development potential. This alternative meets the performance criteria of the transportation modes, and optimizes the corridor for multiple other uses including energy transmission. The following considerations illustrate the merits of this alignment for evaluation:

1. **Gila Bend:** This small town has become the leader and incubator of the most progressive utility-scale renewable energy-friendly policy in the United States. The combination of electrical transmission infrastructure with the I-11 will allow the town to flourish and provide needed economic development and regional clean energy supply. It can also benefit from increased access and the economic development that would be enabled by the proximity of this corridor.
2. **Buckeye:** This community has prepared to take advantage of the freight industry that could come as a result of the I-11. Vast swaths of land near SR-85 and the Union Pacific Railway have been allocated for heavy industry including warehouse and distribution centers.
3. **SR-85:** Utilizing the SR-85 north from Gila Bend allows this highway, recently expanded to four lanes throughout most of its stretch, to become better utilized. Traffic congestion is less likely to occur in this remote area, making it less necessary to develop a new corridor north of the Sonoran Desert National Monument.
4. **SR-801:** The I-10 bypass (SR-801), located north and parallel to the Gila River in Buckeye, is a perfect candidate to connect the I-11 off of the SR-85 while keeping traffic off of the congested I-10. This location is preferable to the proposed Hassayampa Freeway alternative south of the Buckeye Hills near the historic Old US-80 Bridge and Gillespie Dam for a variety of reasons including conflicts with

the Arlington State Wildlife area and the Gila River riparian zone, which is among the most valuable desert waterways in the state.

5. **Hassayampa Freeway (North of I-10):** The Hassayampa Framework Study was completed over three years ago after a lengthy and deliberative process that included the City of Buckeye, City of Surprise, Maricopa County, the Town of Wickenburg, and a host of stakeholders including local developers. One of the outcomes of the Framework Study was this freeway alignment, located west of the Hassayampa River, which would provide a valuable missing transportation link between I-10 and the US-60 and SR-93. This proposed facility would be developed largely on private lands in rights-of-way that have been set aside by private developers solely for this purpose. However, this alignment poses challenges that need detailed design treatments to resolve.
6. **BLM Lands:** Once the Hassayampa Freeway leaves private developments it enters a segment of BLM land that has some environmental conflicts, including Category 2 Sonoran desert tortoise habitat. Mitigation measures would need to be implemented to limit the damage to this species. Also, the new Vulture Mountain recreation area is near this alignment alternative. Careful articulation of the roadway and access management, along with robust environmental mitigation will need to be implemented throughout these public lands.
7. **State Lands:** ASLD lands are prevalent west of Wickenburg. Development of the I-11 in this location could provide long-term benefit to the beneficiaries of the Trust by providing access to lands that are currently remote and with no nearby infrastructure.
8. **US-93:** The existing roadway is an excellent location for the I-11 from Wickenburg north to the I-40 and then north from Kingman to Nevada. The US-93 is in need of safety and convenience improvements for the benefit of travelers between Phoenix and Las Vegas. Though some environmentally sensitive lands will be traversed by highway construction and other proximate infrastructure, these impacts will likely be limited and subject to mitigation.

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### **Important Note on Modes and Engineering Feasibility**

The Interstate 11 corridor is a project with a very long implementation horizon; it may not be fully realized for 50 or more years. For this reason, it is essential that certain constraints have less of an impact on the selection of appropriate modes and features of the corridor since it is impossible to determine whether adequate solutions will be developed by the time the corridor is fully utilized. Improvements in materials and changes in engineering approaches may resolve some of the challenges that may limit the successful integration of certain modes in various areas. For example, it may not be feasible to have electrical transmission parallel to the highway through areas where the road curves, yet in 50 years infrastructure materials and design could change significantly, thereby eliminating this concern entirely. Similarly, heavy rail was not considered practical along US-93 due to the slopes of the roadway, but in the future these concerns may be resolved. Engineering constraints need to be applied to the roadway segments through the engineering process, not during high level planning. The Sonoran Institute recommends that segments deemed adequate to accommodate infrastructure be considered at a high level of planning and allow future work to determine feasibility at the appropriate time.

## Segment Analysis

A wide variety of factors must be considered when selecting the appropriate corridor for Interstate 11. The qualitative analysis included in Appendix 1 of this report provides a baseline for further evaluation. Not only should the environmental factors be carefully examined for avoidance and mitigation, but the complex social and cultural dynamics of communities throughout the study area should also be a major part of the alternative selection process. For example, the reliance of the Town of Wickenburg on their equestrian heritage, or the strong agrarian history of Buckeye and their unique ambitions and goals, among others should factor into alignment selection and design features. Other aspects that are unique for every community include ambitions for growth, desires for environmental protection, and capacity to embrace infrastructure development. This analysis provides a list of key stakeholders to be included in the discussion of how the Interstate 11 corridor should be articulated through this dynamic region. The West Valley, though ambitious for growth and development, remains the home of some of Arizona's most precious natural resources; that must be respected.

## Summary

### Qualitative Segment Analysis Results

Although this analysis is purely qualitative, it is necessary to develop an approach to allow each segment to be compared with another. Some have greater impacts on private lands and development plans while others interrupt wildlife migration patterns. Indeed, all conflicts are noteworthy, however the importance of each will vary depending on an individual's values. The following considerations should be noted while reviewing the results in the segment summary chart (Figure 3):

1. The scores assigned in the segment summary chart (Figure 3) are qualitative judgments given as a "gut instinct". They are neither quantitative, nor intended to be a definitive judgment.
2. In most cases the scores are comparisons between other alternatives with similar impacts. For example, a segment that gets a very poor rating of 9 for riparian impacts simply means it is the worst among similarly situated alternatives. A 1 would indicate it is the best, or among the best.
3. In many cases not enough information is available to judge an alternative, especially around complex and unknown development plans and cultural resources. In these cases a 0 was assigned.
4. As with any high level planning exercise, the true impacts will be determined based upon site-specific solutions to these conflicts. Appropriate wildlife crossing infrastructure, for example, could mitigate and improve a poor score for wildlife corridor impacts.
5. The priority is to avoid impacts; mitigation is a last resort.

Segment Summary Chart

Category	Corridor Segment												
	10	14	15	16	17	18	19	20	21	22	29	35	
Citizen Inventoried Wilderness	1	1	3	1	3	1	2	1	1	1	1	1	
Desert Tortoise Habitat	2	1	2	1	6	1	1	3	1	1	5	6	
Enhances Renewable Energy Development	1	4	1	1	1	1	1	1	6	7	4	5	
Enhances Transportation Connectivity	1	1	2	2	1	1	1	1	9	8	5	1	
Enhances State Land Value	1	1	1	1	1	1	1	1	1	1	4	1	
Historic/ Cultural Resources	0	0	3	0	2	0	1	3	1	1	3	1	
Private Property/Development Planning Alignment	1	0	1	3	1	1	1	1	1	9	8	2	
Riparian Areas	1	1	1	1	1	1	1	4	1	1	8	1	
Use of Existing Corridor	1	5	5	5	5	5	1	1	5	7	1	1	
Visual Resources	3	1	5	1	4	2	3	2	1	1	5	4	
Wilderness Areas	2	1	3	1	1	1	2	1	1	1	1	2	
Wildlife Corridors	3	1	3	1	6	2	1	3	1	3	7	4	
Appropriate Modes (Rail:R, Highway: H, Utilities: U)	UHR	UHR	UHR	UHR	UHR	UHR	UHR	UHR	UHR	UHR	H	UHR	UHR
<b>Total: Higher value denotes higher conflict/harm</b>	<b>17</b>	<b>17</b>	<b>30</b>	<b>18</b>	<b>32</b>	<b>17</b>	<b>16</b>	<b>22</b>	<b>29</b>	<b>41</b>	<b>52</b>	<b>29</b>	

Category	Corridor Segment											
	36	43	46	82	83	84	85	86	87	91	95	
Citizen Inventoried Wilderness	5	1	1	1	3	1	1	1	1	5	1	
Desert Tortoise Habitat	8	3	1	4	5	3	1	2	1	8	3	
Enhances Renewable Energy Development	1	2	1	1	3	1	5	5	1	1	1	
Enhances Transportation Connectivity	1	1	1	2	3	1	1	1	1	1	1	
Enhances State Land Value	1	2	0	1	1	1	1	1	1	1	2	
Historic/ Cultural Resources	0	1	1	0	0	4	4	9	1	0	0	
Private Property/Development Planning Alignment	1	3	1	0	1	2	1	1	3	1	1	
Riparian Areas	5	1	1	1	1	1	3	9	3	1	3	
Use of Existing Corridor	1	1	1	5	1	5	1	9	5	9	1	
Visual Resources	6	1	3	3	4	4	3	5	1	8	2	
Wilderness Areas	3	1	1	1	3	1	1	1	1	2	1	
Wildlife Corridors	5	1	2	2	5	9	1	9	1	9	3	
Appropriate Modes (Rail:R, Highway: H, Utilities: U)	UH	UHR	UHR	UHR	HR	UHR	UHR		UHR		UH	
<b>Total: Higher value denotes higher conflict/harm</b>	<b>37</b>	<b>18</b>	<b>14</b>	<b>21</b>	<b>30</b>	<b>33</b>	<b>23</b>	<b>53</b>	<b>20</b>	<b>46</b>	<b>19</b>	

Key:	
Beneficial/Low Conflict	1-3
Moderate Conflict	4-6
Harmful/High Conflict	7-9
Unknown/Mixed Bag	0
N/A	

Figure 3: This chart summarizes in a numeric way the qualitative analysis that was performed on the alternative segments. Low numbers indicate lower conflict or higher benefit.

## Conclusion

The Interstate 11 corridor could serve a valuable purpose to communities throughout Arizona. Clearly, if economic projections resulting from enhanced international trade, more serviceable regional transportation, and renewable energy development are realized, the region could benefit greatly. These benefits however, should not be viewed separately from the potential impacts on Arizona's wildlife, culture, and heritage. Some corridor segments appear to pose significant risks to irreplaceable treasures like wildlife, scenic areas, and riparian zones. Considerable impacts to these resources would result in a loss of identity, opportunity, and economic value. Priority should be placed on protecting our resources and values before looking to enhance and capitalize on new opportunities.

The I-11 corridor, in its broadest sense—including the successful integration of multiple modes including utilities, rail, and highway infrastructure—presents an incredible chance to capture new economic opportunities and define a new approach to infrastructure development that searches for win-win answers, seeks to provide transparent choices, and avoids impacts while mitigating the unpreventable. Our research and analysis demonstrate that the I-11 provides economic opportunity and could be designed to resolve potential conflicts appropriately.

## The Sun Corridor and Interstate 11

The Sonoran Institute retains a pragmatic yet powerful vision of the Sun Corridor's future that includes promoting a vibrant and diverse economy while enabling an environmentally-conscious, sustainable, and resilient community. The multi-modal approach to the I-11 fits within this vision, provided it meets the following conditions:

1. Employs a transparent, public process that respects all people and communities in the planning and implementation of the corridor;
2. Avoids impacts with natural and cultural resources to the extent practicable;
3. Mitigates harms that occur to natural and cultural resources;
4. Contributes to enhanced renewable energy development and utilization;
5. Enables choice in transportation options by establishing a framework for multiple modes to utilize the corridor;
6. Instills the process with flexibility to a range of possible, yet uncertain future outcomes; and
7. Connects underserved and underrepresented people and communities to new opportunities and transportation options.

Western Arizona has experienced decades of explosive growth resulting in profound cumulative environmental impacts. The addition of a new interstate, if not prudently planned, could further contribute to the degradation of the fragile Sonoran Desert landscape and ecosystem. Planning for I-11 provides an opportunity to effectively promote numerous economic development objectives in a collaborative, integrated, and environmentally sound fashion. By working together, Arizonans can leverage this important opportunity to shape a more sustainable future AND a more vibrant and resilient economy—a future we can all agree upon.

## Appendix 1: Segment Analysis Results

### Segment 46—Pat Tillman-Mike O'Callaghan Memorial Bridge to Kingman

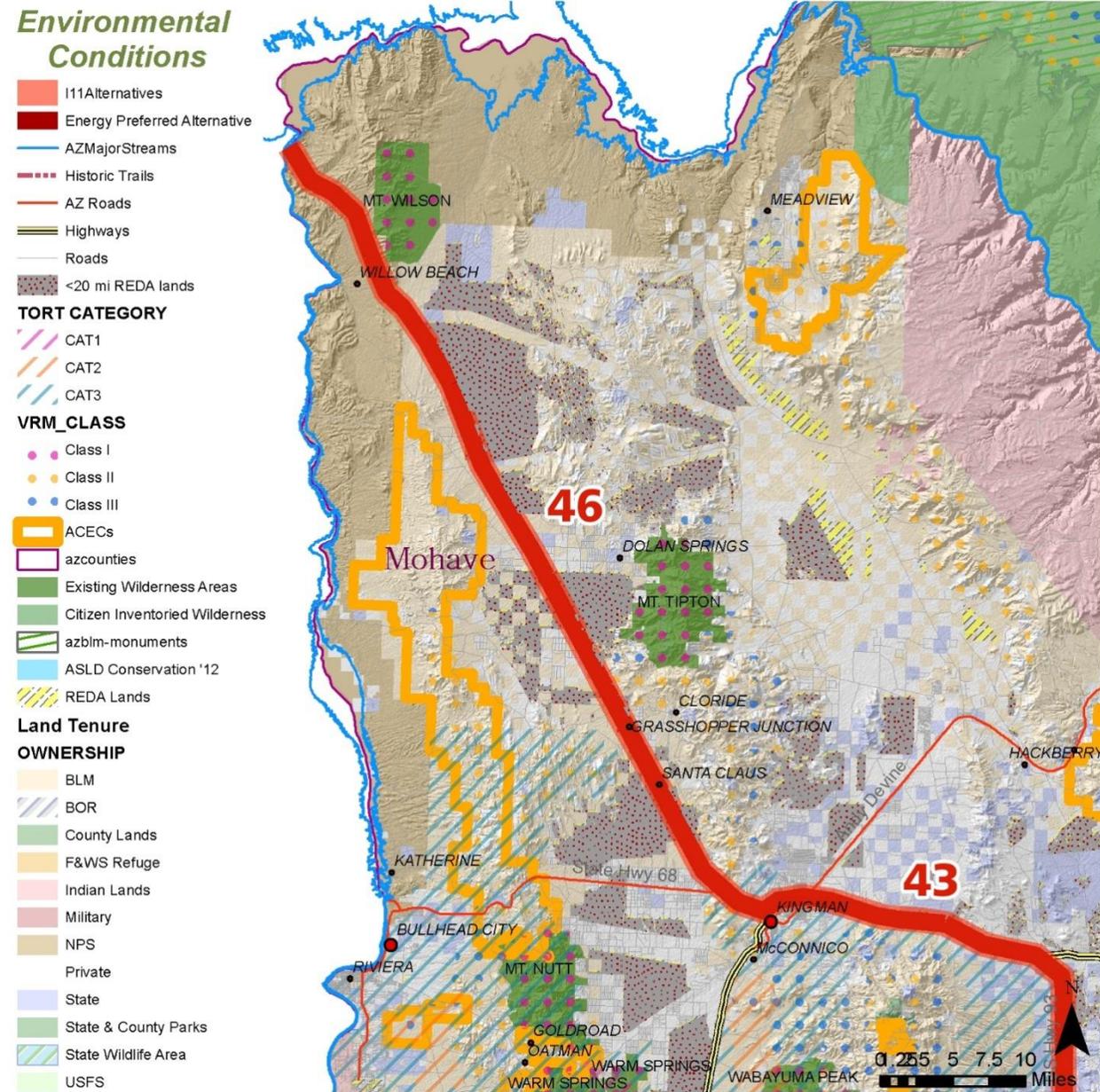


Figure 4: Segment 46 traverses the Lake Mead National Recreation Area and some impressive stretches of Mohave Desert. It also is adjacent to some valuable REDA lands and a proposed massive wind energy facility.

Segment 46
<b>Opportunities</b>
Provides an important connection to Nevada across the recently constructed Pat Tillman-Mike O'Callaghan Memorial Bridge.
Utilizes an existing corridor outfitted with wildlife crossing infrastructure that minimizes additional habitat fragmentation.
Lies adjacent to significant REDA-quality lands that can facilitate an energy transmission corridor to move the energy to demand centers like Las Vegas, Phoenix, and California.
Much of the land is owned by the Bureau of Land Management.
<b>Challenges</b>
The Lake Mead National Recreation Area (NRA) has interest in protecting their view corridors which increases the complexity of aligning electrical transmission within the I-11.
Views from the Mt. Tipton and Mt. Wilson wilderness areas should be a consideration as the roadway is designed.
Additional wildlife crossings may be necessary from the mountainous region east of the corridor to the Lake Mead NRA.
The interchange from I-11 to I-40 should be carefully designed to respect the community of Kingman and the recreation and natural resources in the mountains west of the city.
<b>Stakeholders</b>
Arizona Game and Fish Department: Retains data on wildlife movements that will help avoid and mitigate impacts.
Arizona Wilderness Coalition: Particularly interested in Wilderness areas and should be consulted on visual resource impacts of the roadway with respect to Mt. Tipton and Mt. Wilson.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Centennial West transmission line: A proposed line crossing northern Arizona from northeast New Mexico to California.
City of Kingman: Residents and town leaders should be engaged to help identify important design and alignment considerations.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Mohave County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Mohave Wind Energy: Owns a large wind farm approved south of Lake Mead NRA and north of the proposed I-11.
Sierra Club: Voiced specific concerns about the highway corridor; they can provide insight on how design and location can best respect environmental issues.
<b>Modal Considerations</b>
Transmission: While important, electrical transmission through this area is challenging. The following comment, from Jim Charters, Chairman of the Southwest Area Transmission Sub-Regional Planning Group (SWAT), addresses transmission lines crossing the Colorado River. <i>"The crossing of the Colorado River at Hoover is not trivial. Only one line crosses at this time, upstream. When the lake is up (it does this occasionally) all boat traffic must be restricted due to arc hazard. When the bridge was being designed Western considered additional crossings. There was a significant resistance to crossing in the recreation area downstream and very little space for crossing upstream because of the lake. Crossing the Colorado River south of the Recreation area and into the El Dorado Valley from the south via Searchlight was a logical path for the lines, if not for the highway."</i> It may be worthwhile to study various crossing opportunities for the electrical transmission line separate from the Pat Tillman-Mike O'Callaghan Bridge.
Rail: It is logical to locate rail freight and/or transit along the US-93 from Las Vegas to further enhance both tourism and freight connectivity. This segment is compatible with rail development and operation, though engineering constraints may be a factor.
Highway: The existing infrastructure and limited environmental impacts along this corridor indicate that the highway portion of the I-11 is appropriately sited along the US-93 through this area.

Segments around the Hualapai Mountains

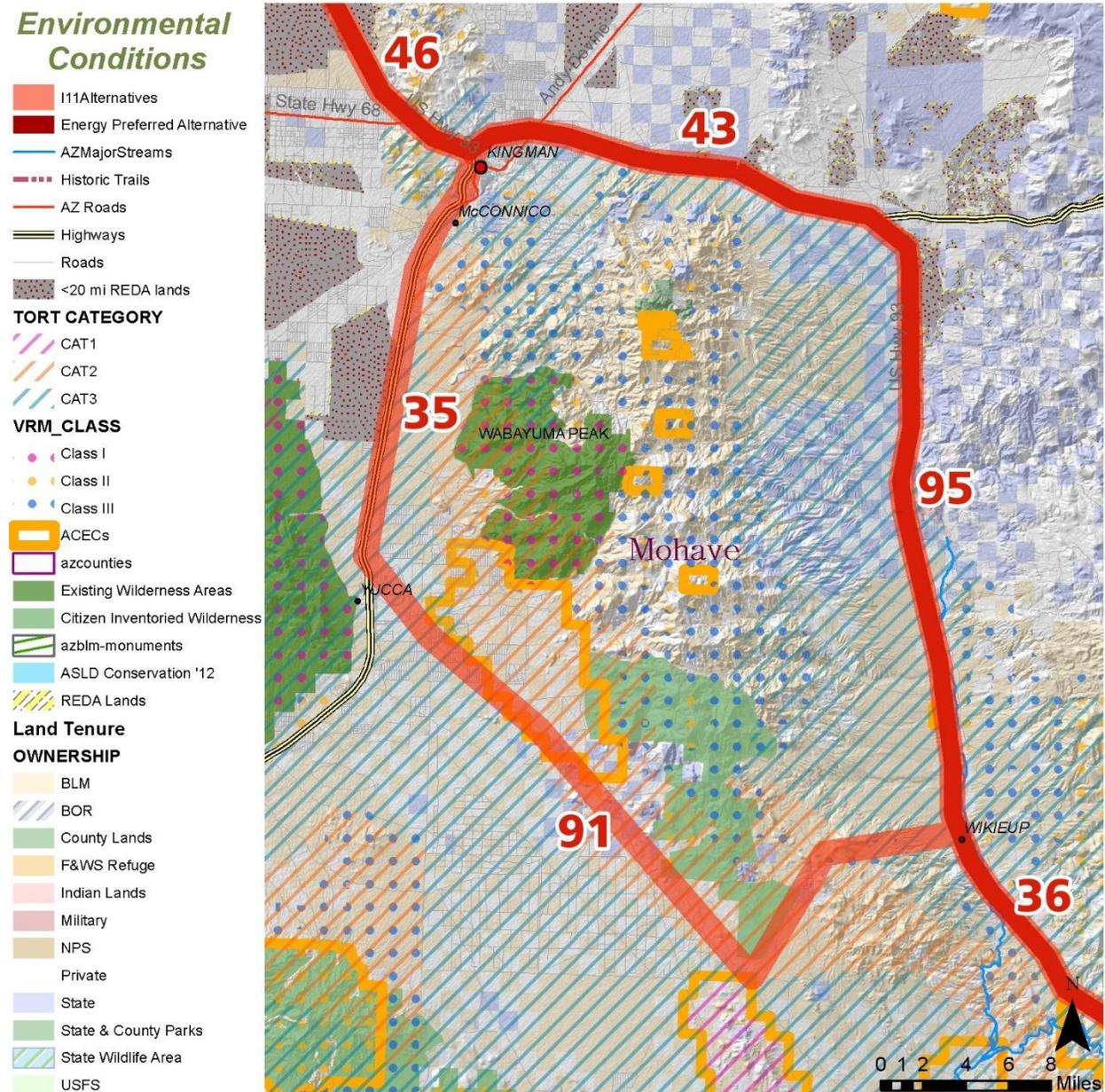


Figure 5: Segments 43, 95, 91, and 35 surround the Hualapai Mountains and a large number of other valuable environmental resources.

## Segment 35—I-40 from Kingman South to Approximately Yucca

Segment 35
<b>Opportunities</b>
Use of an existing highway corridor reduces the impacts of creating a new segment.
A nearby railroad could be used and/or upgraded for the multimodal aspect of the corridor.
Existing freeway interchange designs at the US-93 junction can be utilized.
Provides economic development opportunity for the City of Kingman on private and state lands south of the developed area.
Carries limited impact upon Sonoran desert tortoise habitat, although Category 3 lands exist to the south.
REDA lands to the west of the corridor can facilitate an energy transmission corridor to move the energy to demand centers like Las Vegas, Phoenix, and California.
Provides access to developable private and state lands to the east.
Much of this corridor is under federal ownership, reducing the impact on private land owners.
<b>Challenges</b>
Private and state lands will need to be acquired; potential for concerns and resistance from impacted landowners.
Views from the Wabayuma Peak Wilderness area should a consideration as the roadway is designed.
Wildlife infrastructure may be required to respect historical migration patterns.
This segment can only connect to US-93 through creation of an additional east/west roadway, Segment 91. The significant impacts on environmental resources of Segment 91 are discussed in more detail below.
<b>Stakeholders</b>
Arizona Game and Fish Department: Retains data on wildlife movements that will help avoid and mitigate impacts.
Arizona Wilderness Coalition: Particularly interested in Wilderness areas and should be consulted on visual resource impacts of the roadway with respect to Wabayuma Peak Wilderness area.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
City of Kingman: Residents and town leaders should be engaged to help identify important design and alignment considerations.
Lake Mead NRA: Needs to be consulted about how electrical transmission could be articulated through their lands toward Nevada.
Mohave County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Private developers with projects along this roadway should be consulted to determine areas of collaboration and/or conflict.
Sierra Club: Voiced specific concerns about the highway corridor; they can provide insight on how design and location can best respect environmental issues.
Community of Yucca: Should be engaged in a discussion about the opportunities and challenges that the corridor would bring to them.
<b>Modal Considerations</b>
Although rail and highway infrastructure exist, connecting them with the Phoenix area remains difficult. Based on comments by Jim Charters, Chairman of the SWAT Sub-Regional Planning Group cited with Segment 46, this corridor segment could be used to get electrical transmission to the Searchlight area to cross Lake Mead NRA.

## Segment 43—I-40 from Kingman East to US-93

Segment 43
<b>Opportunities</b>
Use of an existing highway corridor reduces the impacts of creating a new segment.
A nearby railroad could be used and/or upgraded for the multimodal aspect of the corridor.
Existing freeway interchange designs at each I-40—US-93 junction can be utilized.
Provides economic development opportunity for the City of Kingman on private and state lands east of the developed area.
Carries limited impact upon Sonoran desert tortoise habitat, although Category 3 lands exist to the south.
<b>Challenges</b>
Private and state lands will need to be acquired; potential for concerns or resistance from impacted landowners.
Views from the Wabayuma Peak Wilderness area should a consideration as the roadway is designed.
Wildlife infrastructure may be required to respect historical migration patterns.
<b>Stakeholders</b>
Arizona Game and Fish Department: Retains data on wildlife movements that will help avoid and mitigate impacts.
Arizona Wilderness Coalition: Particularly interested in Wilderness areas and should be consulted on visual resource impacts of the roadway with respect to Wabayuma Peak Wilderness area.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Centennial West transmission line: A proposed line crossing northern Arizona from northeast New Mexico to California.
City of Kingman: Residents and town leaders should be engaged to help identify important design and alignment considerations.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
The Hualapai Tribe: Engagement will help protect their cultural resources and values.
Mohave County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Mohave Wind Energy: Owns a large wind farm approved south of Lake Mead NRA and north of the proposed I-11
Private developers with projects along this roadway should be consulted to determine areas of collaboration and/or conflict.
Sierra Club: Voiced specific concerns about the highway corridor; they can provide insight on how design and location can best respect environmental issues.
<b>Modal Considerations</b>
The existing presence of rail, transmission, and a highway along this corridor suggests reasonable accommodation of all the considered modes within this smart corridor. Limited impacts to important wildlife and ecological resources are expected at this time.

## Segment 91—US-93 to I-40 around Chicken Springs Rd

<b>Segment 91</b>
<b>Opportunities</b>
Provides access to developable private and state lands near Golden Valley.
<b>Challenges</b>
This segment impacts or is directly adjacent to a number of critical environmental resources including: Sonoran desert tortoise Category 1, 2 and 3 lands; two ACECs; Citizen Inventoried Wilderness; and BLM Visual Resource Management (VRM) Class II and III.
A roadway built along the terrain and slopes going up and over the Hualapai Mountains will cause significant environmental degradation.
Private lands will need to be acquired for this roadway to be built in this location.
<b>Stakeholders</b>
Arizona Game and Fish Department: Retains data on wildlife movements that will help avoid and mitigate impacts.
Arizona Wilderness Coalition: Particularly interested in Wilderness areas and should be consulted on visual resource impacts of the roadway with respect to Wabayuma Peak Wilderness area.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Mohave County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Private developers with projects along this roadway should be consulted to determine areas of collaboration and/or conflict.
Sierra Club: Voiced specific concerns about the highway corridor; they can provide insight on how design and location can best respect environmental issues.
U.S. Fish and Wildlife Service: Should be engaged in discussions about impacts to Sonoran desert tortoise habitat.
Community of Wikieup: Needs to be involved to help articulate the corridor around their community.
Community of Yucca: Should engaged in a discussion about the opportunities and challenges that the corridor would bring to them.
<b>Modal Considerations</b>
This segment is not a good candidate for any of the modes, especially rail and highway due to environmental constraints and slopes.

## Segment 95—US-93 from I-40 south to Wikieup

Segment 95
<b>Opportunities</b>
Use of an existing highway corridor reduces the impacts of creating a new segment.
Existing electrical transmission infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
Existing freeway interchange designs at the I-40—US-93 junction can be utilized.
Provides growth and economic opportunity for the small community of Wikieup
Provides development opportunity to some private and state lands on the northern section of the corridor.
Some of the impacted lands are under BLM ownership, which may be easier and/or less expensive to acquire.
REDA lands on the southern extent of the segment near Wickenburg can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
<b>Challenges</b>
Private and state lands will need to be acquired; potential for concerns or resistance from impacted landowners.
Sonoran desert tortoise habitat will be impacted.
Wildlife corridors are impacted throughout this segment.
This segment runs parallel to the Big Sandy River, which is an important riparian area.
<b>Stakeholders</b>
Arizona Wilderness Coalition: Has worked throughout the state on river preservation and should be engaged in how the proposal may impact the Big Sandy.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Audubon Society: Based on their interest and experience in river preservation they can provide input on corridor design with respect to riparian areas.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Mohave County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Community of Wikieup: The US-93 currently runs through this small town. Future designs should take into account the interests of the community.
<b>Modal Considerations</b>
This segment may be appropriate for highway and utility infrastructure, including electrical transmission.
Rail does not currently exist nearby but could, depending on the complexity of engineering the track and how much additional impact is created around sensitive areas like the Big Sandy river.

Segment 36—US-93 Wikieup South to the Wickenburg Area

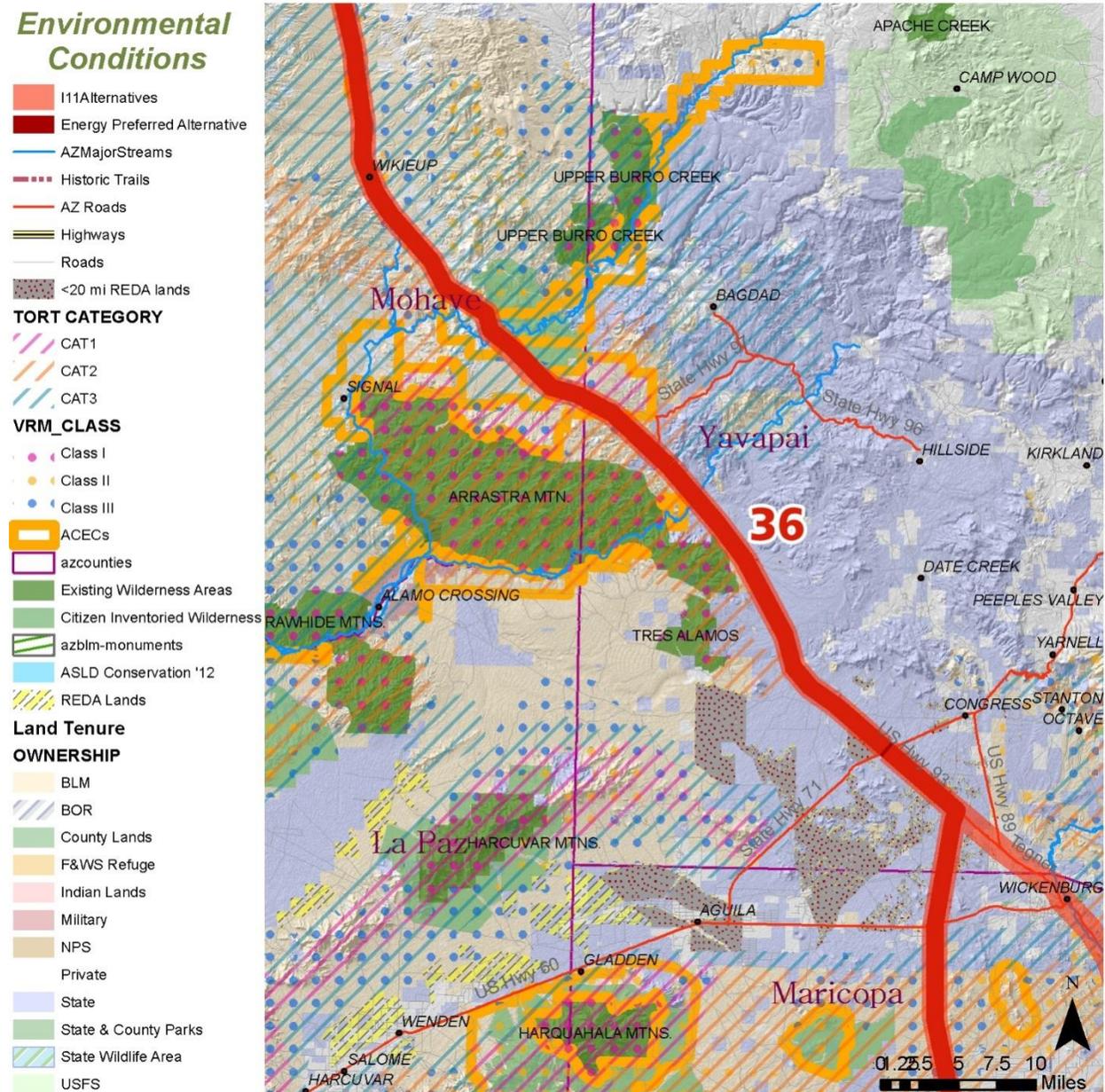


Figure 6: Segment 36 from Wikieup south to the Wickenburg area crosses some significant ecological resources requiring a careful approach to corridor design and development.

Segment 36
<b>Opportunities</b>
Use of an existing highway corridor reduces the impacts of creating a new segment.
Existing electrical transmission infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
Some of the impacted lands are under BLM ownership and may be easier and/or less expensive to acquire than private or state land.
The Burro Creek and Santa Maria River upgraded bridge infrastructure may be utilized.
REDA lands on the southern extent of the segment near Wickenburg can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
<b>Challenges</b>
Significant amounts of state lands will need to be acquired through much of this segment.
Category 1, 2, and 3 Sonoran desert tortoise habitat will be impacted by this corridor segment.
Wildlife corridors are impacted throughout this segment.
Crossing the Big Sandy River, Burro Creek, and the Santa Maria River on this segment requires significant care and disturbance avoidance.
Three different ACECs will be impacted by this corridor.
A Citizen Inventoried Wilderness unit directly adjacent to this segment along the east side of the corridor might give rise to conflict or concern.
Care is required to avoid impacts to the solitude and viewshed of the Arrastra Mountain and Tres Alamos Wilderness areas, which are within view of this segment.
Consideration will need to be given to the few areas of VRM Class I, II, and III near the corridor.
<b>Stakeholders</b>
American Rivers: A national non-profit organization that may be interested in how the corridor can be designed around these three challenging river crossings.
Arizona State Land Department: A significant amount of ASLD lands are around the corridor near Wickenburg. ASLD's engagement can assist in the determination of appropriate alignments that maintain the value of state lands.
Arizona Wilderness Coalition: It has inventoried a proposed wilderness unit near Burro Creek on the east side of the corridor. Additionally, AWC is interested in the health and protection of the Santa Maria and Big Sandy rivers as well as Burro Creek. The Arrastra Mountain and Tres Alamos wilderness units are under their stewardship and may be impacted by views from this corridor.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Audubon Society: Based on their interest and experience in river preservation they can provide input on corridor design with respect to riparian areas.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Town of Wickenburg: As the corridor nears this community and enters their planning area their engagement will help them plan the land uses and transportation elements around the corridor.
Community of Wikieup: The US-93 currently runs through this small town. Future designs should take into account the interests of the community.
Yavapai County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
<b>Modal Considerations</b>
This segment requires significant design considerations to integrate all modes and respect the sensitive ecological features present throughout the corridor.
Electrical transmission is located near the corridor and could, with appropriate design considerations, be integrated into the highway design.
Rail does not currently exist nearby, but it could, depending on the complexity of engineering and how much additional impact is created around sensitive areas like the Big Sandy, Santa Maria, and Burro Creek riparian areas.

Segments in Western Maricopa County

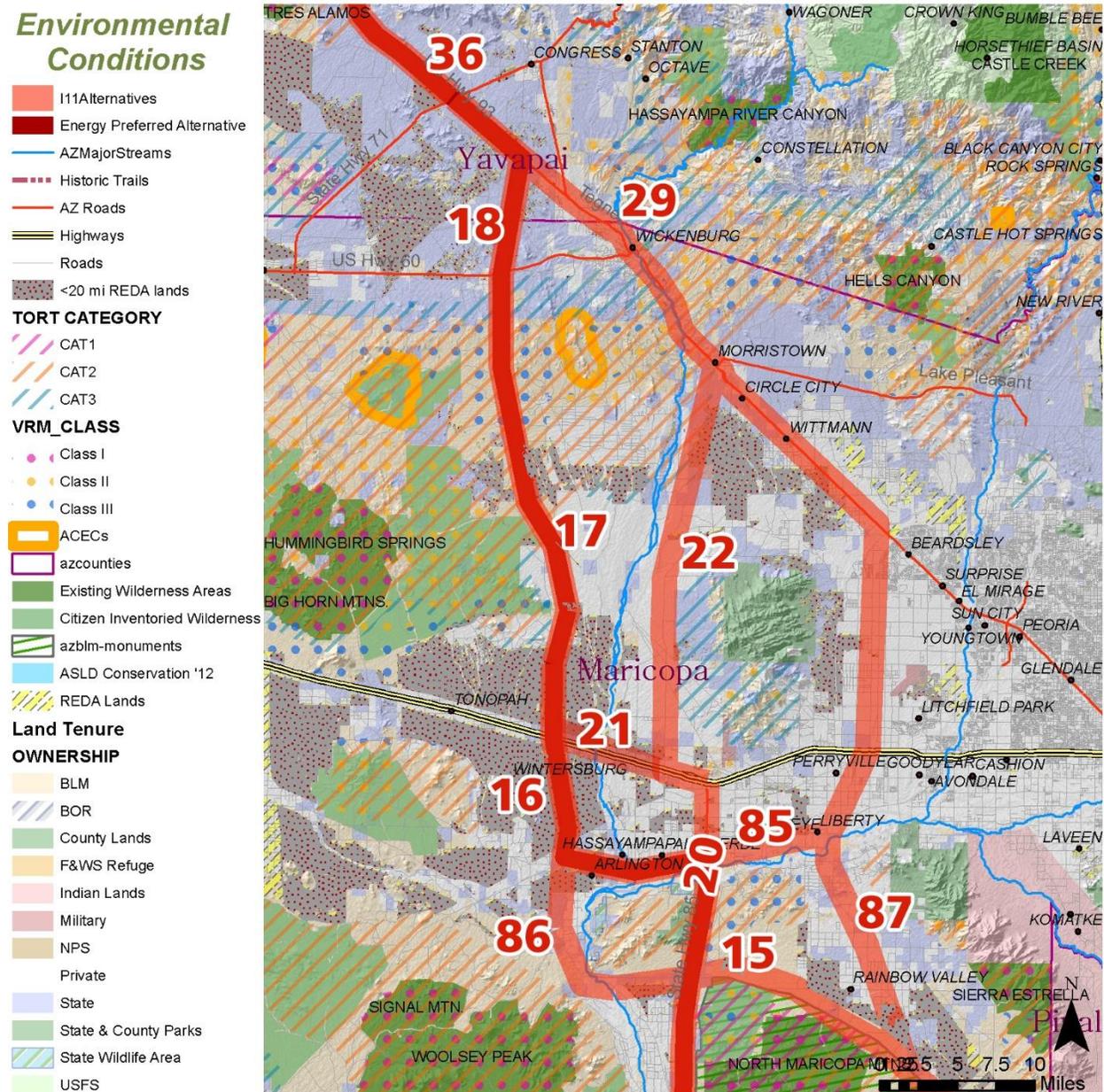


Figure 7: The corridor as it extends into Maricopa County becomes much more urban, going through areas that have been planned for development for many years. Notable areas of concern exist, however, including lands around Wickenburg and the Gila River.

## Segment 16—Hassayampa Freeway from SR 801 (SR-30) to I-10

Segment 16
<b>Opportunities</b>
Serves a growth area in unincorporated Maricopa County.
REDA lands along this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Relieves traffic along the I-10 through Buckeye.
Existing electrical transmission is in this area along with the Palo Verde Nuclear Generating Station that can provide synergy with renewable energy development and opportunities for co-location of additional transmission infrastructure.
<b>Challenges</b>
Scattered development throughout this area may pose challenges to locating the corridor.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in preserving wildlife corridors in western Maricopa County.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 17—Hassayampa Freeway from I-10 to US-60

Segment 17
<b>Opportunities</b>
Bypasses the heart of Wickenburg allowing the community to expand into nearby state land parcels.
Existing electrical transmission infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
REDA lands, primarily state lands, near the corridor can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Utilizes land set aside by private developers for the corridor which will reduce the cost of property acquisition.
Provides access to growing segments of the City of Buckeye and surrounding Maricopa County.
The development of this western highway connection will allow traffic to more easily bypass the Phoenix region and will improve the inadequate access to US-93 from I-10.
<b>Challenges</b>
Significant amounts of state lands will need to be acquired through much of this segment.
The community of Wickenburg could be adversely impacted if the corridor does not account for their needs for access and tourism. Recent transportation efforts in the community have resulted in negative views around infrastructure planning and development.
This segment includes lands with high ecological value near the Vulture Mountain ACEC.
A large swath of Category 2 and 3 Sonoran desert tortoise habitat will be impacted by this corridor segment.
The corridor would disturb lands in VRM Class III.
The corridor could negatively impact ongoing efforts to develop the Vulture Mountain Cooperative Recreation Management Area (CRMA).
Lands west of segment 17 are included in legislation (HR 1799) to permanently designate a National Conservation Area and new wilderness units. The roadway needs to be located outside of this area.
This segment will interrupt critical wildlife corridors between the Belmont Mountains and the Hassayampa River.
Equestrian access is an important feature of Wickenburg culture and should be considered in corridor location and design.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in preserving wildlife corridors in northern Maricopa County.
Arizona State Land Department: A significant amount of ASLD lands are around the corridor near Wickenburg. ASLD’s engagement can assist in the determination of appropriate alignments that maintain the value of state lands.

Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
City of Buckeye: Owns lands and major developments near and adjacent to the roadway.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations, including a major project in the southern portion of this segment.
Maricopa County Parks Department: Leads the process to plan and implement the Vulture Mountain CRMA.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
Town of Wickenburg: As the corridor nears this community and enters their planning area, their engagement will help them plan the land uses and transportation elements around the corridor.
Wickenburg Conservation Foundation: A small group of individuals who are interested in protecting Wickenburg's unique sense of place and equestrian recreation opportunities. They are concerned about how a potential highway corridor would impact the Vulture Peak ACEC and the planned Vulture Mountain Cooperative Recreation Management Area (CRMA).
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.
Electrical transmission is located near the corridor and could, with appropriate design considerations, be integrated into the highway design.
Integrated rail, which is possible in this corridor, would not require goods and passengers to go through the heart of Phoenix to get to Wickenburg and points north.
The corridor may need to be wider than current development plans allow through the Douglas Ranch and Belmont communities. Design of the corridor should be coordinated with the community plans to ensure that there is adequate space for all modes.

## Segment 18—Hassayampa Freeway Extended from US-60 to US-93

Segment 18
<b>Opportunities</b>
Bypasses the heart of Wickenburg allowing the community to expand into nearby state land parcels.
Existing electrical transmission infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
The development of this western highway connection will allow traffic to more easily bypass the Phoenix region and will improve the inadequate access to US-93 from I-10.
REDA lands, primarily state trust lands, to the west of the corridor can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
<b>Challenges</b>
Significant amounts of state lands will need to be acquired through much of this segment.
The community of Wickenburg could be adversely impacted if the corridor does not account for their needs for access and tourism. Recent transportation efforts in the community have resulted in negative views around infrastructure planning and development.
This segment relies on the development of the Hassayampa Freeway corridor (discussed in Segment 17) through lands of high ecological value.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in preserving wildlife corridors in northern Maricopa County.
Arizona State Land Department: A significant amount of ASLD lands are around the corridor near Wickenburg. ASLD’s engagement can assist in the determination of appropriate alignments that maintain the value of state lands.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Town of Wickenburg: As the corridor nears this community and enters their planning area, their engagement will help them plan the land uses and transportation elements around the corridor.
Yavapai County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.
Electrical transmission is located near the corridor and could, with appropriate design considerations, be integrated into the highway design.
Currently rail takes another route through Wickenburg and north to Prescott. However, depending on the complexity of engineering, rail could be located in this corridor.

## Segment 20—SR-85 from Hassayampa Freeway to I-10

Segment 20
<b>Opportunities</b>
Use of an existing highway corridor reduces the impacts of creating a new segment.
Provides an important connection for rail and utilities from Gila Bend and I-8 north.
Connects the renewable energy development occurring in Gila Bend to regional markets.
Integrates freight, employment, and industrial development plans in Buckeye into regional transportation planning.
<b>Challenges</b>
Design considerations will need to be given to protect the ecological values of the Gila River, which is undergoing restoration efforts by Maricopa County, Buckeye, Goodyear, and a number of other organizations.
Adjacent to Category 2 Sonoran desert tortoise habitat.
Crosses the Gila River.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting the ecological values of the Gila River and related wildlife benefits.
Audubon Society: Interested in the Gila River corridor and should be involved in the planning and design of this segment.
City of Buckeye: Their engagement will ensure that the corridor reflects city planning efforts and policies.
Defenders of Wildlife: Defenders can provide input on how the corridor can avoid impacts on Sonoran desert tortoise habitat.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 21—Interstate 10 from SR-85 to Hassayampa Freeway

Segment 21
<b>Opportunities</b>
Use of an existing corridor reduces the impacts of creating a new segment.
<b>Challenges</b>
This segment of I-10 will exceed capacity in the coming years, requiring significant upgrades to maintain a marginal level of service.
Use of this segment overlooks the opportunity to develop additional, desperately-needed east-west highway connections.
This segment may not be suitable for additional utility construction due to constraints of existing development plans.
<b>Stakeholders</b>
City of Buckeye: Interested in this corridor that traverses a major growth area.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Maricopa County: Should be engaged to allow the I-11 to respond to regional plans and considerations.
Maricopa County Flood Control: Manages flood structures on the north side of the I-10 and should be involved in the discussion about the future of this corridor.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
This segment may not be a good candidate to serve rail and utility modes, though both are present nearby.

## Segment 22—Sun Valley Parkway Extended from I-10 to US-60

Segment 22
<b>Opportunities</b>
Connects I-10 and US-60 west of the White Tank Mountains.
REDA lands, adjacent to the corridor, can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Electrical transmission and a natural gas pipeline lie near this segment.
<b>Challenges</b>
The larger width of this corridor compared to existing infrastructure might significantly impact planned communities along the route.
This segment will interrupt critical wildlife corridors between the White Tank Mountains and the Hassayampa River.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in preserving wildlife corridors in northern Maricopa County. A significant linkage west of the White Tank Mountains is of high priority to them.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
City of Buckeye: Interested in this corridor that traverses a major growth area.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
City of Surprise: A portion of this segment goes through their planning area.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.
The corridor width required may not be feasible considering long-standing development entitlements that exist along the segment.

## Segment 29—US-60 from Sun Valley Parkway Extended to US-93

Segment 29
<b>Opportunities</b>
May be designed to integrate with the Town of Wickenburg to foster increased tourism and traffic for the community.
Use of an existing highway corridor reduces the impacts of creating a new segment.
REDA lands adjacent to the corridor can facilitate an energy transmission corridor to move the energy to demand centers like Las Vegas, Phoenix, and California.
Existing rail infrastructure in the corridor reduces new construction impacts.
<b>Challenges</b>
Topography and natural resource constraints may restrict the full development of the corridor.
The community of Wickenburg could be adversely impacted due to corridor width and difficulty in navigating through the Town while preserving its unique identity and character.
This segment includes lands with high ecological value around the Hassayampa River Preserve.
A large swath of Category 2 and 3 Sonoran desert tortoise habitat will be impacted by this corridor segment.
The corridor may disturb lands in VRM Class II and III.
Electrical transmission may be difficult to navigate through this segment due to ecological and environmental constraints.
This segment will interrupt critical wildlife corridors between the Hieroglyphic Mountains on the north and the Hassayampa River.
Equestrian access is an important feature of Wickenburg culture and should be considered in corridor location and design.
Impacts to the Hassayampa River, an important ecological feature of this region, could devastate wildlife and the broader environment.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in preserving wildlife corridors in northern Maricopa County.
Arizona Wildlife Federation: A conservation group that is interested in protecting wildlife resources and finding win-win solutions for habitat protection and appropriate recreation.
Burlington Northern Santa Fe Railroad: Should be included in the development and integration of this segment’s rail component.
Defenders of Wildlife: Well-suited to evaluate and seek solutions for habitat loss and connectivity issues.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Morristown, Whitman, and Circle City: These communities lay along the route and should be invited to the design and routing discussions.
The Nature Conservancy: Owns land and manages the Hassayampa River Preserve. They should be consulted about how the corridor could impact their interests.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
City of Surprise: A good portion of this segment goes through their planning area.
Town of Wickenburg: As the corridor nears this community and enters their planning area, their engagement will help them plan the land uses and transportation elements around the corridor.
Wickenburg Conservation Foundation: A small group of individuals who are interested in protecting Wickenburg’s unique sense of place and equestrian recreation opportunities. They are concerned about how a potential highway corridor would impact the Vulture Peak ACEC and the planned Vulture Mountain Cooperative Recreation Management Area (CRMA).
<b>Modal Considerations</b>
This segment can feasibly accommodate rail and highway as they already exist in this area.
Electrical transmission may be difficult to accommodate through sensitive lands along the Hassayampa River areas under VRM Class II.

## Segment 86—Hassayampa Freeway from SR-85 to SR-801 (SR-30)

<b>Segment 86</b>
<b>Opportunities</b>
Provides traffic connectivity to the community of Arlington.
<b>Challenges</b>
Crosses the Gila River in an ecologically sensitive area around the Arlington State Wildlife Area, the historic Old US-80 bridge, and the Gillespie Dam.
This segment will interrupt the critical wildlife corridors between the Gila Bend Mountains, the Gila River, and Buckeye Hills.
Adjacent to Category 2 Sonoran desert tortoise habitat.
Corridor is located w the viewshed of Woolsey Peak Wilderness and Signal Mountain Wilderness, which are categorized as VRM Class I.
Located adjacent to lands in the Sonoran Desert Heritage conservation proposal (HR1799); conflict with these protection areas should be eliminated.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting the ecological values of the Gila River and related wildlife benefits.
Audubon Society: Interested in the Gila River corridor and should be involved in the planning and design of this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Gila River and Tohono O'odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
Great Bend of the Gila National Monument Coalition: They should be engaged to determine how this segment conflicts with their effort to create a National Monument, including lands in and around the Gila River.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
This segment is not a good candidate for any of the modes due to impacts to cultural resources, historic heritage, and natural constraints.

**Segment 87—SR-303 from SR-801 (SR-30) to Hassayampa Freeway**

<b>Segment 87</b>
<b>Opportunities</b>
Serves a growth area through Buckeye and unincorporated Maricopa County.
REDA lands along this segment can facilitate an energy transmission corridor to move the energy to demand centers like Las Vegas, Phoenix, and California.
Provides a new connection from Mobile, SR-238, and I-8. It will also serve the Cities of Goodyear and Avondale and their southernmost growth areas.
Existing electrical transmission is in this area.
<b>Challenges</b>
Design considerations will need to be given to protect the ecological values of the Gila River which is undergoing restoration efforts by Maricopa County, Buckeye, Goodyear, and a number of other organizations.
The Rainbow Valley community’s scattered development pattern makes corridor location difficult.
Crosses the Gila River.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting the ecological values of the Gila River and related wildlife benefits.
Audubon Society: Interested in the Gila River corridor and should be involved in the planning and design of this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
City of Goodyear: The eastern edge of this corridor extends into Goodyear.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Community of Rainbow Valley: This unincorporated area of Maricopa County has a rural identity that should be considered in the planning process.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

Segments in Southern Maricopa County/Western Pinal County

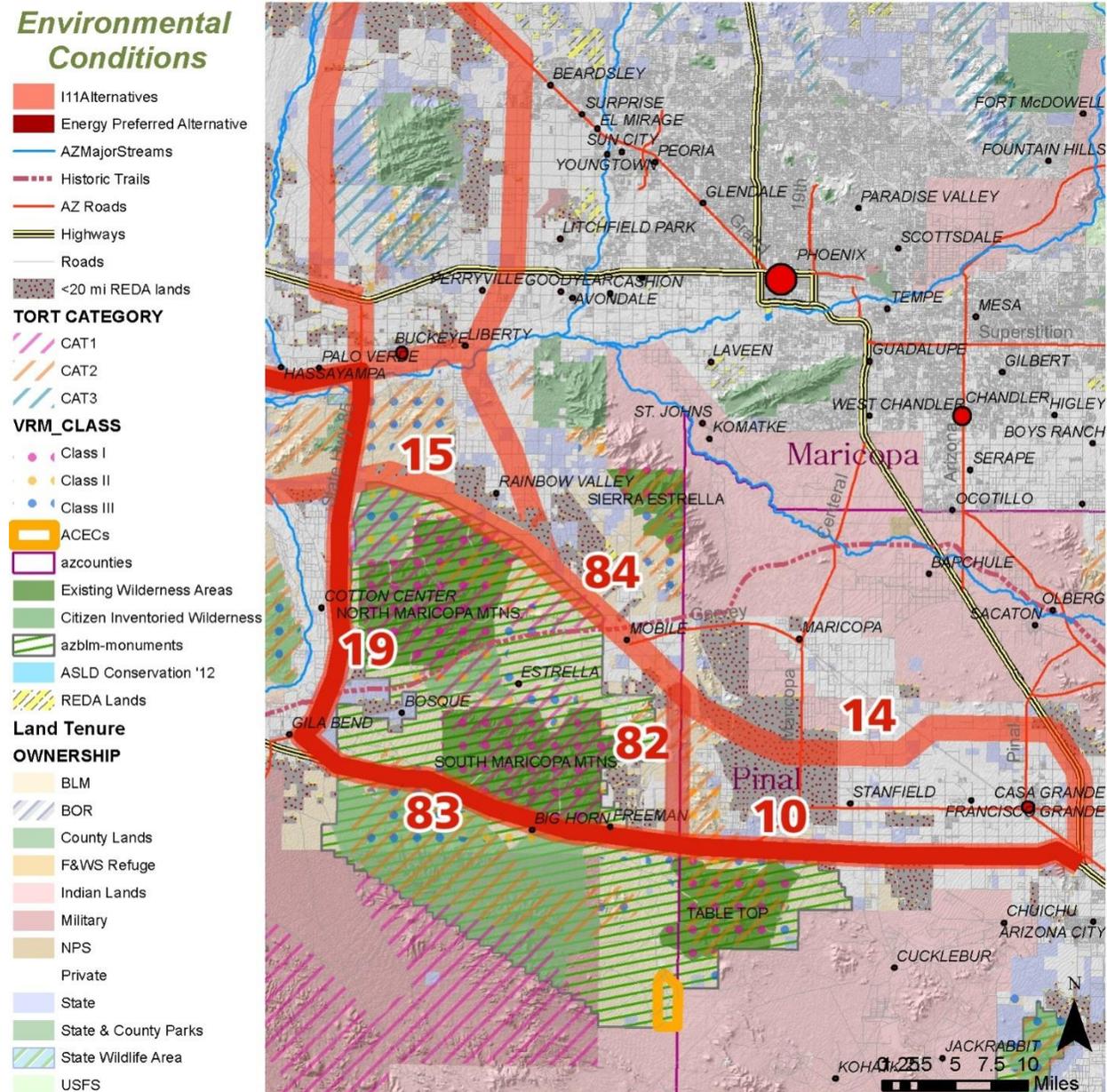


Figure 8: This portion of the corridor study centers around connecting Pinal and Maricopa Counties while avoiding impacts to the Sonoran Desert National Monument.

## Segment 10—I-8 from Segment 82 to I-10

Segment 10
<b>Opportunities</b>
Use of existing rail infrastructure near the corridor reduces the need for the development of rail infrastructure in this segment.
REDA lands adjacent to this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Use of an existing transportation corridor reduces costs and impacts of creating a new segment.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
Category 2 Sonoran desert tortoise habitat will be impacted by this corridor segment.
Falls within the viewshed of the Table Top Wilderness area.
Lies within or adjacent to VRM Class I, II, and III in the SDNM.
Private and state lands will need to be acquired; potential for increased development costs and concerns or resistance from impacted landowners.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Pinal County.
Arizona Wilderness Coalition: Interested in protecting the quality of Arizona's wilderness areas including those near this segment.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Gila River and Tohono O'odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
City of Maricopa: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Pinal County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 14—Vekol/Hidden Valley Fwy from Segment 82 to I-10

Segment 14
<b>Opportunities</b>
This urban corridor has few environmental conflicts.
REDA lands adjacent to this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
<b>Challenges</b>
Adjacent to Category 2 Sonoran desert tortoise habitat.
Private and state lands will need to be acquired; potential for increased development costs and concerns or resistance from impacted landowners.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Pinal County.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Gila River and Tohono O'odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
City of Maricopa: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Pinal County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 15—Hassayampa Freeway from SR-85 to SR-303

Segment 15
<b>Opportunities</b>
Existing electrical transmission and natural gas infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
REDA lands and the approved Sonoran Solar project adjacent to this segment can facilitate an energy transmission corridor to move the energy to demand centers like Las Vegas, Phoenix, and California.
Connects Rainbow Valley and surrounding areas to the regional transportation network.
Does not cross the Gila River, which reduces impacts and cost.
Much of the land is under BLM ownership and may be easier and/or less expensive to acquire than private or state land.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
Interrupts wildlife connectivity from the SDNM north to the Gila River.
Adjacent to Category 1 and 2 Sonoran desert tortoise habitat.
Falls within the viewshed of the North Maricopa Mountains and the Sierra Estrella Wilderness areas.
Adjacent to lands that are VRM Class I, II, and III that could impact the experience of users of the land.
Private and state lands will need to be acquired; potential for increased development costs and concerns or resistance from impacted landowners.
Citizen Inventoried Wilderness areas near this segment might give rise to conflict or concern.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Maricopa County.
Arizona Wilderness Coalition: Interested in protecting the quality of Arizona’s wilderness areas including those near this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Friends of Sonoran Desert National Monument (SDNM): These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Gila River and Tohono O’odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 19—SR-85 from the Hassayampa Freeway to Interstate 8

Segment 19
<b>Opportunities</b>
Use of an existing transportation corridor reduces costs and impacts of creating a new segment.
Existing electrical transmission infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
Connects Gila Bend to the regional transportation network and provides new economic opportunities to the community.
Additional transmission infrastructure in this location would facilitate additional renewable energy in Gila Bend: the leader in solar energy development.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
Interrupts wildlife connectivity from the SDNM west to the Gila River and Gila Bend Mountains.
Adjacent to Category 1 Sonoran desert tortoise habitat.
Falls within the viewshed of the North Maricopa Mountains Wilderness area.
Adjacent to lands that are VRM Class I, II, and III that could impact the experience of users of the land.
Private and state lands will need to be acquired; potential for increased development costs and concerns or resistance from impacted landowners.
Citizen Inventoried Wilderness areas near this segment might give rise to conflict or concern.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Maricopa County.
Arizona Wilderness Coalition: Interested in protecting the quality of Arizona’s wilderness areas including those near this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Town of Gila Bend: Should be engaged to coordinate the corridor with city planning efforts and policies.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

**Segment 82—From Hassayampa/Vekol Fwy to I-8**

<b>Segment 82</b>
<b>Opportunities</b>
REDA lands adjacent to this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Connects I-8 and the proposed Hassayampa Fwy.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
Category 2 Sonoran desert tortoise habitat will be impacted by this corridor segment.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Maricopa and Pinal Counties.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Gila River and Tohono O’odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
City of Maricopa: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Pinal County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.

## Segment 83—I-8 from SR-85 to Hassayampa Freeway/Vekol Freeway

Segment 83
<b>Opportunities</b>
Use of existing rail infrastructure near the corridor reduces the need for the development of rail infrastructure in this segment.
REDA lands adjacent to this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Use of an existing transportation corridor reduces costs and impacts of creating a new segment.
Much of the land is under BLM ownership and may be easier and/or less expensive to acquire than private or state land.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
Interrupts wildlife connectivity across the SDNM.
Adjacent to Category 1 and 2 Sonoran desert tortoise habitat.
Falls within the viewshed of the South Maricopa Mountains Wilderness area.
Adjacent to lands that are VRM Class I, II, and III that could impact the experience of users of the land.
Citizen Inventoried Wilderness areas near this proposal might give rise to conflict or concern.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Maricopa County.
Arizona Wilderness Coalition: Interested in protecting the quality of Arizona’s wilderness areas including those near this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Town of Gila Bend: Should be engaged to coordinate the corridor with city planning efforts and policies.
Gila River and Tohono O’odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
City of Maricopa: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Pinal County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
Highway and rail modes can be feasibly accommodated in this segment with appropriate design and mitigation considerations.
Electrical transmission may prove challenging due to the viewsheds of the nearby wilderness areas and the need to protect the character of the SDNM.

## Segment 84—Hassayampa/Vekol Freeway from SR-303 to Segment 82

Segment 84
<b>Opportunities</b>
Existing electrical transmission and natural gas infrastructure near the corridor allows for co-location of new utility infrastructure to reduce impacts.
REDA lands adjacent to this segment can facilitate an energy transmission corridor to move energy to demand centers like Las Vegas, Phoenix, and California.
Connects Rainbow Valley and Mobile to the regional transportation network.
<b>Challenges</b>
Runs parallel to the Sonoran Desert National Monument (SDNM) and might give rise to conflict or concern.
This segment will interrupt wildlife connectivity across the Rainbow Valley linkages, which is a high priority wildlife corridor.
Adjacent to Category 1 and 2 Sonoran desert tortoise habitat.
Falls within the viewshed of the Sierra Estrella Wilderness area.
Private and state lands will need to be acquired; potential for concerns and resistance from impacted landowners.
<b>Stakeholders</b>
Arizona Game and Fish Department: Interested in protecting wildlife corridors in this area of Maricopa County and has special interest in the Rainbow Valley linkage.
Arizona Wilderness Coalition: Interested in protecting the quality of Arizona’s wilderness areas including those near this segment.
City of Buckeye: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Developers and Landowners: Retain existing entitlements on land near this corridor that would be significantly impacted by corridor development.
Friends of Sonoran Desert National Monument: These stewards of the monument should be engaged with any proposal that will impact the SDNM.
Gila River and Tohono O’odham Indian Communities: Some portions of this area have significant Native American ruins and heritage sites. They should be engaged to determine areas of conflict and/or concern.
City of Maricopa: Their engagement will ensure that the roadway reflects city planning efforts and policies.
Maricopa County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Pinal County: Their engagement insures that the I-11 corridor reflects regional plans and considerations.
Sierra Club: Voiced specific concerns about the highway corridor and should be engaged to discover how the design and location can be better implemented to respect environmental issues.
Sonoran Desert Heritage Coalition: A collection groups and individuals who advocate for the protection of about one million acres west of Phoenix and near this highway segment. They should be engaged to determine areas of conflict and/or concern.
<b>Modal Considerations</b>
All modes can be feasibly accommodated in this segment.



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