

# H2K Planned Area Development

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## Section I – Introduction and Policy

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## A. Introduction

### 1. The Arizona State Land Department

The Arizona State Land Department (ASLD) manages over 9.2 million acres of state trust land in Arizona. Since 1915, the ASLD’s mission is to manage the assets of a multi-generational perpetual trust in alignment with the interests of the Trust’s 13 beneficiaries and Arizona’s future. The mission statement of the ASLD is as follows:

*To manage State Trust lands and resources to enhance value and optimize economic return for the Trust beneficiaries, consistent with sound business management principles, prudent stewardship, and conservation needs supporting socio-economic goals for citizens here today and future generations. To act in the best interest of the Trust for the enrichment of the beneficiaries and preserve the long-term value of the State Trust lands.*

State Trust land is often misunderstood in terms of both its character and management. Trust land is different from public land such as parks or National Forests. Trust lands are managed by the ASLD to generate revenue for K-12 schools and 12 additional institutional beneficiaries. The Trust accomplishes its mission through its sale or lease of Trust lands for grazing, agriculture, mining, development or recreational purposes.

The ASLD, serving as the fiduciary for the Trust, is required by the Arizona Constitution to receive maximum value for the sale or lease of Trust lands for the benefit of the Trust. Given this Constitutional mandate, it is incumbent upon the ASLD to carefully plan these properties to maximize their ultimate value. Accordingly, the ASLD is in the process of re-evaluating the existing zoning for the Trust lands in this area and working with the City of Tucson to develop plans that are appropriate for the area and will meet market demands.

### 2. Rationale for Using the Planned Area Development (PAD)

The ASLD operates differently than private property owners when it comes to planning and entitlement of land. The Trust realizes greater value when land is sold with a level of entitlement that assures the buyer of allowable land uses. Since the ASLD is not the ultimate developer or end user of the property, detailed site planning is best achieved after the land has been acquired by the developer. Once sold, the ultimate development plans still must proceed through the jurisdiction’s site planning and permitting process.

It is not uncommon for a private property owner to not only plan and entitle property, but also to install spine infrastructure, thereby making the property more attractive to the end user, such as a residential builder or commercial operator. The State Enabling Act and State Statutes provide the framework within which the ASLD can manage the land assets.

This PAD presents a two-step process to the planning and entitlement of the property. This PAD tool establishes initial zoning for the property and is uniquely appropriate for State Trust Land intended for future master plan development where a master developer or end user is not yet determined. It provides a flexible zoning entitlement that enables the land to best meet

market demand and the ASLD to meet its fiduciary mandate. The PAD in large part relies on the existing City of Tucson Unified Development Code and Subdivisions Regulations and provides supplemental regulations to provide a regulatory framework for future development.

The property within this PAD has been divided into development areas, or Development Units. Together, this PAD and its Development Units provide for the orderly development of the Trust Land after it is auctioned and provide the ASLD and the City with final site approval and the City with permitting authority.

The second step identified in this PAD is Secondary Planning. This step acknowledges that further planning beyond that completed in this PAD must be undertaken to adhere to the approval processes of the ASLD and the City of Tucson. This step requires more detailed planning of individual Development Units by a future purchaser or purchasers, and the preparation of Master Plans to be prepared prior to development of a Development Unit or portion of Development Unit.

The following Master Plans will be prepared:

- Vehicular and Pedestrian Circulation.
- Surface Drainage/Environmental Resources.
- Water.
- Wastewater.
- Trails.
- Architectural and Landscape Architectural Design Guidelines and Standards.

### **3. Unique Nature of the Property**

This unique property has been identified by the ASLD for potential disposition in the near future since the property is highly suitable and attractive for large scale industrial/advanced manufacturing use and would be a significant contributor to the Tucson economy and employment base. The following characteristics of the property make it unique and different than any other property in the City of Tucson:

- The large size of the property (2,160 acres) that is under single ownership.
- The ability to create large, flat development sites that are needed by potential large scale industrial/advanced manufacturing users to accommodate large scale buildings and facilities.
- Proximity to Interstate 10 with direct access to the Houghton Road and Colossal Cave Road traffic interchanges. The Houghton Road/Interstate 10 traffic interchange was recently upgraded to a six-lane diverging diamond interchange and offers excellent access to and from the site.
- Proximity to the Union Pacific Railroad and the ability to construct a spur line into the property. Access to the railroad is available through an adjacent property that is owned by the ASLD but not part of this PAD since it is located in unincorporated Pima County. This adjacent property is zoned CI-2 General Industrial Zone in unincorporated Pima County. A second point of railroad access is potentially available via a property that is owned by Pima County.

## *Section I – Introduction and Policy*

- Frontage on Houghton Road, a major section line arterial road that has undergone recent improvements.
- Existing dry and wet utility infrastructure in close proximity to the property.
- The gentle topographic nature of the land.
- The opportunity to form a partnership between the City of Tucson and the ASLD to protect and enhance a significant reach of the Julian Wash, to enhance the Franco Wash Tributary and allow for significant economic development via regulations in this PAD.

This site is in a unique position to provide a large property with all the benefits described above to a large-scale industrial/advanced manufacturing user to the City of Tucson. There are a limited number of sites in the City of Tucson and surrounding area that meet the specific criteria of the users or users that are envisioned for this site. The user or users of this site will likely require large development areas to accommodate the buildings, parking areas and other facilities that will be required as part of the operations envisioned to be conducted on the property. As such, another important objective of this PAD is to balance the creation of large developable area with protection of the most significant physical and environmental resources on the site, which in this case is the Julian Wash and its associated vegetation as well as the Franco Wash Tributary. The Julian Wash is subject to the Tucson Code of Ordinances, Chapter 29, Article VIII, Watercourse Amenities, Safety and Habitat (WASH ordinance). This designation by the City of Tucson sets the Julian Wash apart as a valuable natural resource that assists in groundwater recharge, supports wildlife habitat and provides natural open space areas.

The strategy for accomplishing this balance is described below.

#### **4. Balancing Development with Environmental Resources and Open Space Preservation**

As mentioned earlier, this site is uniquely situated to attract large scale industrial/advanced manufacturing users who require large, unencumbered property in order to conduct their operations. This can be accomplished within this PAD via a carefully crafted set of development standards in conjunction with a two-pronged environmental resource strategy that focuses on on-site riparian mitigation/wash enhancement and offsite open space preservation. The first part of this strategy is being called the Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan. This plan contains a mitigation strategy and development standards that not only allow for appropriate and well-planned development within this PAD, but also the protection and enhancement of the Julian Wash and Franco Wash Tributary and its associated vegetation. These areas represent the most significant natural resource on the site. The second part of the strategy is being called the Agua Verde Creek Open Space Preservation Plan. This plan focuses on conserving certain State Trust Land in the Agua Verde Creek corridor as open space and helping to protect and preserve the long-term ecological viability of the Sonoran Desert in the greater Tucson area. The provisions of both plans are described in greater detail in Section III of this PAD.

As mentioned in the previous section, the Julian Wash is subject to the Tucson Code of Ordinances, Chapter 29, Article VIII, Watercourse Amenities, Safety and Habitat (WASH ordinance). The Julian Wash is a valuable natural resource that assists in groundwater recharge, supports wildlife habitat and provides natural open space and recreational areas. The WASH

ordinance is focused on the following objectives and this PAD supports these objectives via preservation and enhancement of the Julian Wash as described throughout this PAD:

- Maximize opportunities for groundwater recharge.
- Protect existing vegetation found within and near washes, including Protected Riparian Area (PRA) identified by an Environmental Resource Report (ERR) prepared for this PAD.
- Provide for the restoration of vegetation disturbed as a result of development in and adjacent to washes.
- Assist in the reduction of the urban heat island effect by maximizing retention of existing vegetation and minimizing structural improvement of washes.

Significant portions of the property outside of the Julian Wash corridor are readily capable of development and do not contain significant physical constraints. While there are other washes on the property that are categorized as Environmental Resource Zone (ERZ) washes, they are generally of lesser significance than the Julian Wash. The designation of ERZ washes on the property is proposed to be removed in accordance with Article 5.7.2.D of the UDC via a change of zoning (this PAD). This removal of ERZ designation would not however change the fact that the ERZ washes contain PRA as identified in the ERR that was prepared for this PAD. In order to allow for the development of the site and accommodate a large-scale industrial/advanced manufacturing user, the PRA in the former ERZ Wash areas would be mitigated in accordance with the Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan requirements found in Section III.B.4 of this PAD. Mitigation efforts would be focused on the Julian Wash and Franco Wash Tributary.

This PAD proposes a strategy of balancing large, developable area with environmental preservation and enhancement. This would be accomplished by disturbing wash areas outside of the Julian Wash and implementing a well-conceived mitigation and floodplain management strategy that compensates for the loss of wash area and associated vegetation. One of the key components of the mitigation strategy is protection and enhancement of the Julian Wash and the Franco Wash Tributary corridors, which is particularly important due to the prolonged drought in the region. Field observation indicates that the vegetation on this site is dominated by Creosote, Cholla and a significant number of woody species stressed by prolonged drought conditions. By concentrating plants in the Julian Wash and Franco Wash Tributary corridors, they will be located in areas on the site that will receive the most water (naturally and from runoff from the proposed development areas), thereby increasing the opportunity for healthier wash corridors containing healthier vegetation and creating better habitat for wildlife.

The strategy for the collection and routing of stormwater created by the impervious surfaces in the proposed development areas would include directing water toward the Julian Wash and locating drainage basins in the area adjacent to the Julian Wash. Additional water would also be directed to the Franco Wash Tributary. Basins would hold and filter stormwater and then release it into the Julian Wash in a manner that approximates natural conditions, or in greater volume provided it can be demonstrated that there would be no harmful effect on downstream properties. This strategy would comply with the City of Tucson Code of Ordinances, Chapter 26, Floodplain, Stormwater and Erosion Hazard Management.

The enhancement of the Julian Wash can also involve a recreational component to allow the public to enjoy this reach of the Julian Wash. Proposed Trail 16 Gas Line Trail could be located in the Julian Wash corridor rather than along Interstate 10, or the Julian Wash Greenway (G027) could be extended into this PAD.

## **5. Economic Benefits of the PAD**

The property is well positioned for industrial and advanced manufacturing development and will contribute positively to the economic well-being of the City of Tucson. The project and its future land uses will generate construction sales tax, impact fee payments and plan processing fees. Future industrial users will contribute to the economic base of the city and add significant jobs to the community.

## **6. General Compatibility of the PAD with Adjoining Land Uses**

The proposed PAD is largely compatible with surrounding, adjoining land uses, described as follows:

- Interstate 10 is located adjacent to the southern boundary of the subject property. An interstate highway is compatible with industrial land uses and future users will enjoy the convenient access to Interstate 10 via the Houghton Road and Colossal Cave Road traffic interchanges.
- The Union Pacific Railroad is located just to the northeast of the subject property. A railroad is compatible with industrial land uses and future users will have the ability to utilize rail access.
- For the most part, existing residential uses are located to the north of the Union Pacific Railroad and do not adjoin the subject property. However, a single-family residential subdivision currently in the early stages of construction (Hanson Ridge Sequence 20200560500) is located in unincorporated Pima County adjacent to the southeastern portion of the property. The first phase is planned for 200 lots, and there are three future development blocks shown on the final plat. It is presumed that these three blocks will be resubdivided in the future with single-family residential lots. This PAD provides appropriate buffers/land use transitions between Hanson Ridge and the development areas on the subject property.
- The Acacia Elementary School is located adjacent to the southeastern portion of the subject property. This PAD provides appropriate buffers/land use transitions between this school and the development areas on the subject property.

## **6. The Suitability of the PAD to Significant Environmental Factors**

An Environmental Resource Report per the requirements of the City of Tucson Technical Standards Manual has been prepared and identifies the location of Protected Riparian Area within this PAD. The document also contains supporting data, such as site photographs of the PRA areas and photographs showing the general character of vegetation within this PAD. The

requirements for mitigation of disturbed PRA within this PAD are found in Section III.B.4 of this PAD.

Also, as previously mentioned in this PAD, the Julian Wash corridor will be preserved and in areas enhanced to retain, protect and enhance the value and function of the wash and its associated vegetation.

## **B. Background & Guiding Principles**

### **1. Project Location**

This PAD includes State Trust Land as identified in *Exhibit A: Regional Location Map, Exhibit B: Location Map and Exhibit C: Aerial Photograph*. For the purposes of context, *Exhibit D: State Land Ownership in PAD Area* is included to identify the amount of State Trust Land in this area.

This PAD consists of approximately 2,160 acres located on the north side of Interstate 10 between Houghton Road and Colossal Cave Road. The property is located within the incorporated limits of the City of Tucson.

Pima County Assessor records list the subject property as tax parcels 305-02-005-E, 305-02-005-D, 305-03-009-0, 305-09-016-0, 305-07-008-0, 305-13-009-A, 305-08-008-0, 305-13-008-0 and 305-13-007-D.

The subject property is located within the following Sections: Section 1, Township 16 South, Range 15 East, Section 12, Township 16 South, Range 15 East, Section 6, Township 16 South, Range 16 East, Section 7, Township 16 South, Range 16 East, Section 8, Township 16 South, Range 16 East, Section 16, Township 16 South, Range 16 East, Section 17, Township 16 South, Range 16 East, Section 18, Township 16 South, Range 16 East Gila Salt River Base and Meridian, Pima County, Arizona.

The subject property is located within City of Tucson Ward 4 which is currently represented by Council Member Nikki Lee.

### **2. Historic and Existing Uses of the Site**

The subject property is vacant and undeveloped except for some existing utilities, including high-voltage electrical transmission lines, a Tucson Electric Power substation, underground telecommunications cables and three non-conforming billboards (refer to Section III.B.2.b.iii of this PAD for billboard removal language).

### **3. Proposed Project**

This PAD is being proposed to provide a flexible land entitlement that will allow the ASLD to respond to current and future anticipated demands from industrial users. This PAD allows for the creation of an industrial campus strategically located on highly developable land that is near Interstate 10 and the Union Pacific Railroad, and that has utilities available to the site. This will

support a variety of potential industrial users. The large size of the site allows for a variety of industrial uses, such as advanced manufacturing, where larger properties are desired.

#### **4. Project Goals**

There are several overarching reasons for the creation of this PAD which benefit both the City of Tucson as it grows and evolves, and the ASLD in meeting its statutory commitments to its beneficiaries. These reasons are described below:

- Provide the opportunity for development of industrial uses to meet market demand.
- Facilitate the opportunity to create manufacturing/industrial jobs paying a living wage.
- Contribute to the tax base of the City of Tucson and Pima County through the generation of future sales and property tax revenue.
- Provide land use entitlements compatible with surrounding development, including neighboring subdivisions and Davis - Monthan Air Force Base.
- Create the opportunity for the ASLD to sell land and generate proceeds for the beneficiaries of State Trust Land.
- Preserving and enhancing the Julian Wash and Franco Wash Tributary corridors and PRA to support groundwater recharge, wildlife habitat and connectivity, healthy vegetation and provide natural open space areas and a recreational trail. This enhancement would be accomplished by directing stormwater flows from developed areas toward the Julian Wash and drainage basins located near the wash, and by the establishment of riparian mitigation areas and rainwater harvesting in close association with the Julian Wash.

### **C. Conformance with General Plan**

#### **1. Plan Tucson**

Plan Tucson Exhibit LT-7, Future Growth Scenario Map, shows the subject property as mostly “Southlands.” The Southlands area extends south, east, and west of the subject property. A portion of the northwestern corner of the site along Houghton Road is identified as “Business Centers.” Business Centers designated land extends west of the subject property

Southlands is a long-term growth area, formed predominantly by large tracts of undeveloped land located at the southeastern and southern perimeters of the City of Tucson. A large portion of this area is administered by the State Land Department. Prior to releasing these lands for development, the State will initiate planning efforts to promote orderly phased development that reflects sustainable and innovative community design.

Business Centers are major commercial or employment districts that act as major drivers of Tucson’s economy. These centers generally contain corporate or multiple-use office, industrial or retail uses.

Goals and Policies from Plan Tucson that are supported and furthered by the proposed PAD are presented below (these items are taken verbatim from the Plan Tucson document):

Social Environment Goals:

- Goal 2: A stabilized local economy with opportunities for diversified economic growth supported by high-level, high-quality public infrastructure, facilities, and services.

Economic Environment Goals

- Goal 9: An economy that supports existing businesses and attracts new businesses to increase employment opportunities, raise income levels, expand the tax base, and generate public and private investment leading to a high quality of life for the community.
- Goal 12: A sustainable and diversified economy that maximizes Tucson’s strategic location and balances traditional import and export of resources with locally supplied goods and services to meet local demand.

Economic Environment Policies

- Jobs and Workforce Development Policies (JW):
  - o (JW2) Recruit, retain, and expand businesses and industries within Tucson’s key economic sectors, including but not limited to aerospace and defense, biosciences, renewable energy, astronomy, and optics to increase high-quality, high-paying job opportunities.
  - o (JW3) Increase and promote environmentally sensitive businesses, industries, and technologies, including desert adapted technologies and goods and services tailored to the special needs of Tucson as a desert community.
  - o JW5 Expand opportunities to fulfill local needs with locally produced goods and services to help Tucson capture a greater market share and advance a sustainable economy.
  - o JW6 Collaborate with local institutions, including but not limited to the University of Arizona, Pima Community College, Pima County, and public and private training and technical organizations to support a well-educated, well-trained workforce with skills matched to local job opportunities and employer needs.
- Business Climate Policies (BC):
  - o BC1 Recognize that government plays an instrumental role in creating a business supportive climate through investment in public infrastructure and services, through its regulations and policies, and in building public-private partnerships.
  - o BC2 Continue to develop and implement local strategies, services, and incentives to enhance Tucson’s business climate
- Regional and Global Positioning Policies (RG):
  - o (RG2) Capitalize on Tucson’s strategic location by maintaining and enhancing Tucson as an international port and center for commerce and logistics.



- o (RG4) Support existing and potential commercial, industrial, and other land use activity in and around Davis - Monthan Air Force Base and Tucson International Airport that: is compatible with military and aviation operations; contributes to the long-term viability of Davis -Monthan Air Force Base and Tucson International Airport; is enhanced by proximity to air service; produces a public benefit in regard to employment and revenues generated; and does not diminish existing neighborhood viability or negatively impact the health, safety, and welfare of existing residents, their homes, and their neighborhood.

Natural Environment Policies:

- Energy and Climate Readiness Policies (EC):
  - o (EC2) Encourage increased energy efficiency in new private building construction and facilitate the transition of new private construction toward net-zero buildings.
- Water Resources Policies (WR)
  - o (WR8) Integrate the use of green infrastructure and low impact development for stormwater management in public and private development and redevelopment projects.
- Green Infrastructure Policies (GI):
  - o (GI1) Encourage green infrastructure and low impact development techniques for stormwater management in public and private new development and redevelopment, and in roadway projects.
  - o Environmental Quality Policies (EQ).
    - o (GI5) Create, preserve, and manage biologically rich, connected open space; wildlife and plant habitat; and wildlife corridors, including natural washes and pockets of native vegetation, while working to eradicate invasive species.

Built Environment Goals

- Goal 25: An urban form that conserves natural resources, improves and builds on existing public infrastructure and facilities, and provides an interconnected multi-modal transportation system to enhance the mobility of people and goods.

Built Environment Policies

- Land Use, Transportation, & Urban Design (LT)
  - o (LT4) Ensure urban design that: a. is sensitive to the surrounding scale and intensities of existing development b. integrates alternative transportation choices, creates safe gathering places, and fosters social interaction c. provides multi-modal connections between and within building blocks d. includes ample, usable public space and green infrastructure e. takes into account prominent viewsheds.
  - o (LT28) Apply Guidelines for Development Review (Exhibit LT-11) to the appropriate Building Blocks in the Future Growth Scenario Map to evaluate and

provide direction for annexations, plan amendments, rezoning requests and special exception applications, Board of Adjustment appeals and variance requests, and other development review applications that require plan compliance. The Guidelines referenced in this policy and presented in Exhibit LT-11 are integral to this policy and are the tools used to meet policy objectives. Apply specific plan and functional plan policies to these types of development applications. Refer to the Design Guidelines Manual for additional guidance.

## **2. Rincon/Southeast Subregional Plan**

- This PAD complies with the Rincon/Southeast Subregional Plan. As part of the City of Tucson’s General Plan (Plan Tucson), Subregional Plans were developed to provide guidance for future land use and development direction for areas that are adjacent to the city and have potential for future city annexation. The Rincon/Southeast Subregional Plan became effective for subject property with the adoption of Map Detail #4 and Map Detail #8, June 10, 1996. The map details identify the distribution of Land Use Intensity Categories which correlate to allowable City of Tucson zoning districts.
- Land Use Categories for the subject property as shown on Map Detail #4 are Community Activity Center, Medium High Intensity Urban and Resource Conservation. Planned Area Development zoning is consistent with these land use categories.
- Map Detail #8 covers the Houghton Road/Dawn Road area. Land Use Categories for the subject property as shown on Map Detail #8 are Medium Intensity Rural, Development Reserve and Resource Conservation. Planned Area Development zoning is consistent with these land use categories.
- Special Area 2-03 applies to the site and is the I-10 Corridor/Eastern Gateway. Site design standards are provided to enhance the sense of entry to the metropolitan area, preserve viewsheds and native vegetation, and mitigate negative impacts from industrial uses. Policies are included to provide a transition from open space to developed areas, visually soften massive structures along I-10, and restrict residential development.
- Special Area 5-03 applies to the site is Restricted (Nonresidential) Medium High Intensity Urban. This area is restricted to nonresidential uses to provide a transition between existing industrial and low intensity residential uses.

## **3. Esmond Station Area Plan**

This PAD is compliant with the Esmond Station Area Plan. Esmond Station Area Plan industrial land use policies support ensuring the availability of adequate services and the proper setting

for industrial developments that are compatible with surrounding uses. The Esmond Station Area Plan recognizes and applies to the ASLD land holdings.

## **D. Community Issues**

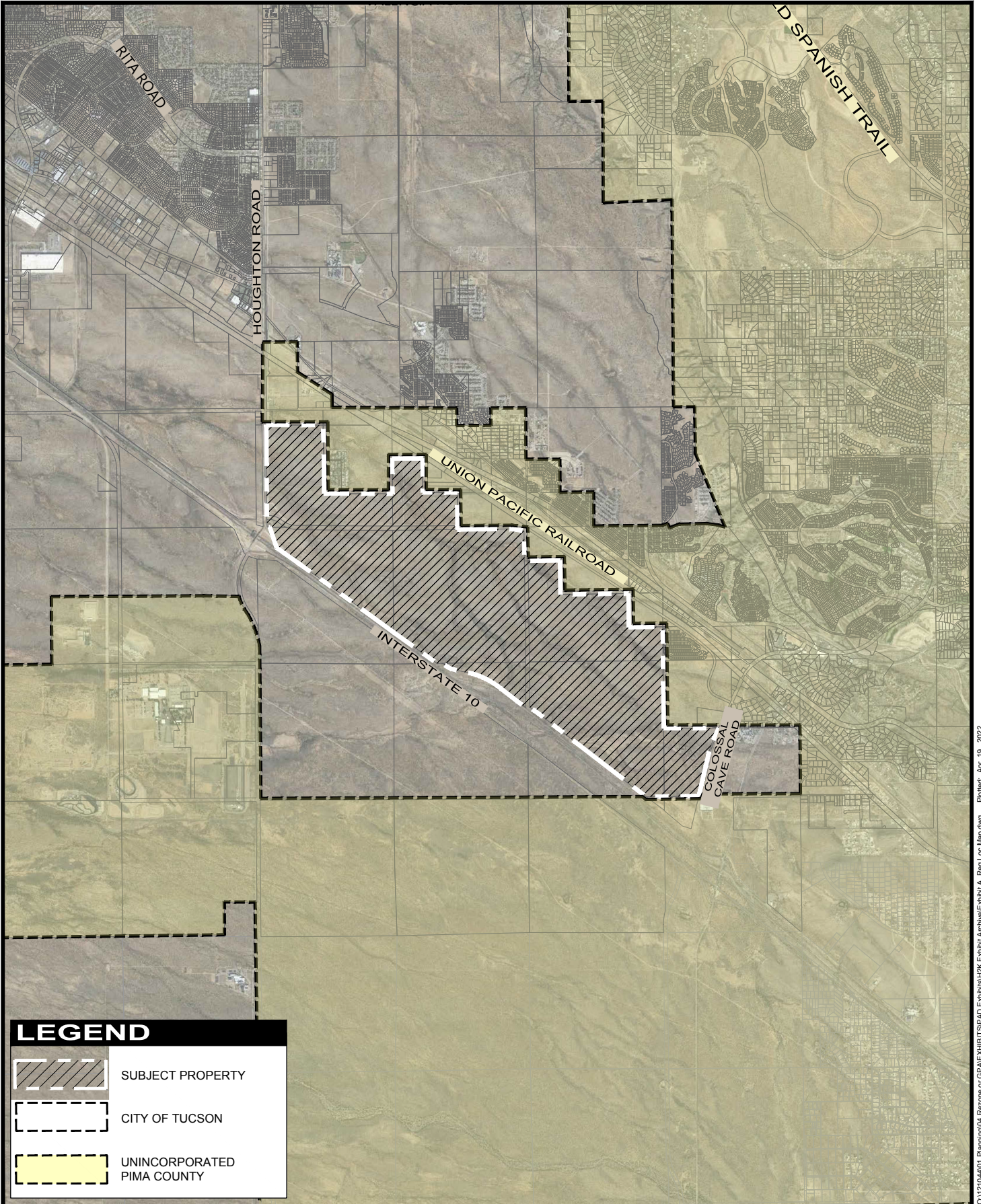
### **1. Benefits to the Community**

This PAD provides the following benefits to the Tucson community:

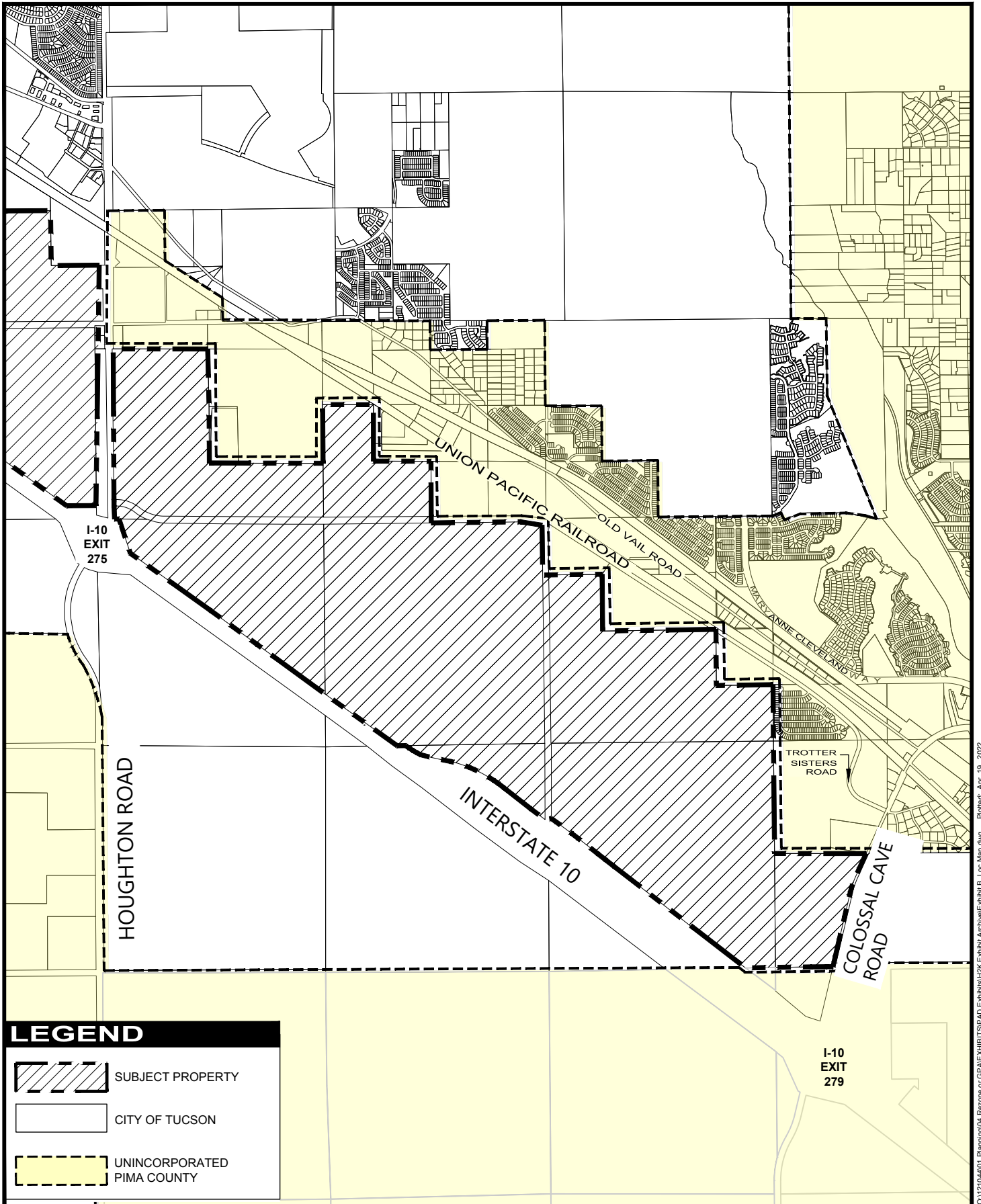
- It creates an inventory of readily available industrial land that can meet market demand and respond to economic conditions at the local, national, or international level.
- It creates a Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan. This plan will enhance the Julian Wash and Franco Wash Tributary and address existing drought-stressed vegetation associated with other washes on site by directing on-site surface drainage toward the Julian Wash and concentrating the most valuable riparian-type vegetation in that area. Water harvesting techniques would be utilized to provide the greatest amount of water from natural rainfall to the vegetation in the Julian Wash and Franco Wash Tributary corridors.
- It expands Tucson’s economic base and provides a foundation for new employment opportunities.
- It establishes standards and measures to ensure future development within this PAD is compatible with the surrounding area.
- It provides appropriate buffering between the PAD and the adjacent and nearby residential subdivisions, the Cactus Country RV Park and Acacia Elementary School.
- It ensures continuing access for private property owners that currently access their properties through the PAD site.

### **2. Public Participation and Outreach Program**



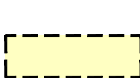
To ensure substantive input and feedback as part of the rezoning process, this PAD includes discussions and interactions with nearby neighborhoods, leadership individuals and stakeholders. This PAD has considered and respected the interactions with the various groups, and this PAD document has been created to respect the issues identified during our outreach.



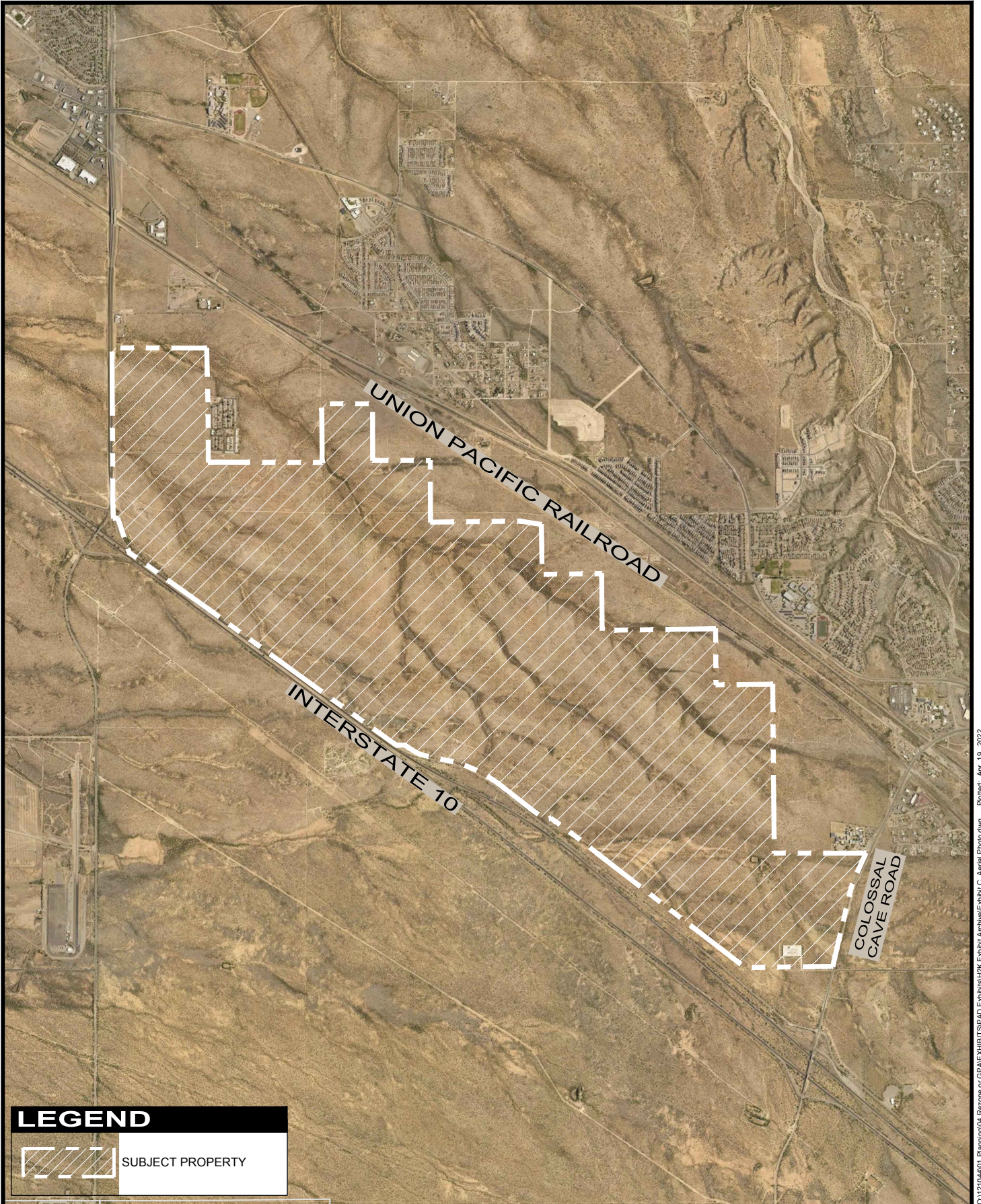
**Exhibit A**  
**Regional Location Map**



**LEGEND**

-  SUBJECT PROPERTY
-  CITY OF TUCSON
-  UNINCORPORATED PIMA COUNTY

**Exhibit B  
Location Map**



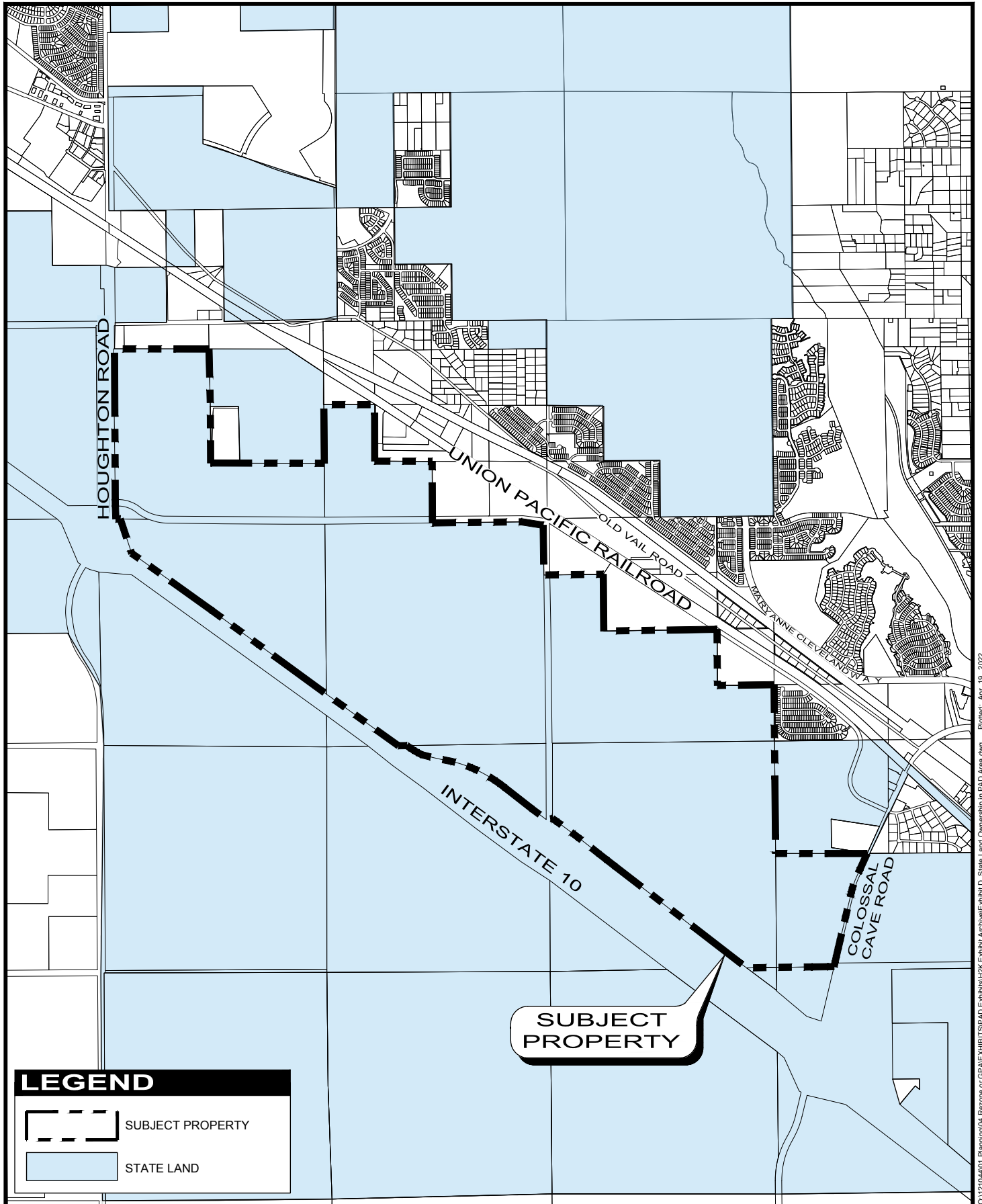
**LEGEND**



SUBJECT PROPERTY

**Exhibit C  
Aerial Photograph**





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**LEGEND**



SUBJECT PROPERTY

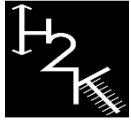


STATE LAND

**SUBJECT PROPERTY**

**Exhibit D  
State and Ownership**





## Section II – Site Analysis



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## A. Land Uses and Existing Zoning

### 1. On Site Land Uses and Zoning

The western roughly one third of the subject property is currently zoned RX-1 (Residential Zone). The approximate eastern two-thirds are currently zoned RH (Rural Homestead). The RX-1 zone provides for suburban, low density, single-family, residential development, agriculture, and other compatible neighborhood uses. The RH zone is intended to preserve the character and encourage the orderly growth of rural areas. It is intended to encourage rural development in areas lacking facilities for urban development and to provide for agriculture, commercial and industrial development only where appropriate and necessary to serve the needs of the rural area.

Please refer to *Exhibit E: Existing Zoning*.

The subject property is primarily vacant except for an approximately 2.5-acre Tucson Electric Power substation located in the southeastern corner of the site. There are three non-conforming billboards along the I-10 frontage on the southern side of the site. The Pima County Assessor parcel numbers and the City of Tucson and billboard owner identification numbers for the three billboards are specified in the following table:

Pima County Assessor Number	City of Tucson Identification Number	Billboard Owner Identification Number
305-03-0090	592	04040
305-03-0090	591	04041
305-13-0080	588	04043

In addition, electrical transmission lines, underground telecommunication cables, and a petroleum pipeline pass through the site.

Please refer to *Exhibit F: Existing Land Use*.

### 2. Applicable Overlay Zones

#### *Airport Environs Zone (AEZ)*

A portion of the subject property is located within the environs of the Davis - Monthan Air Force Base. More specifically, Approach Departure Corridor Three (ADC-3) and Noise Control District – A (NCD A) impacts the northwestern area of this PAD. Please refer to *Exhibit G: Airport Environs Zone (AEZ)*.

The purpose of the AEZ is to protect the health, safety, and welfare of persons and property in the vicinity of Tucson International Airport and Davis - Monthan Air Force Base and to protect the long-term viability of Davis - Monthan Air Force Base.

The ADC-3 establishes performance standards for industrial development including height and land use intensity as follows:

- For uses in the Industrial, Wholesaling and Storage land use groups, the maximum FAR is 0.40 for sites within the ADC – 3.
- For all other non-residential groups, the maximum FAR is 0.20 for sites within the ADC - 3.
- The minimum project site area is five acres.
- The maximum permitted building height is 62 feet from design grade elevation or the height limit of underlying zone, whichever is more restrictive.
- Any meeting space and function areas where people gather in excess of 5,000 square feet in area shall be located underground.

The following land uses and use groups are prohibited in the ADC-3:

- Education Use, Elementary and Secondary Schools.
- Day Care.
- Medical Service, Major and Extended Care.
- Hazardous Material Manufacturing.
- Residential Use Group (all uses in the group).
- Hazardous Material Storage.
- Hazardous Material Wholesaling.
- Landfills or facilities providing services that are critical for public health and safety, such as fire protection, police communications, sewage and water treatment or storage are prohibited.

The NCD-A identifies an area with a 24-hour average sound level (Ldn) of 65 - 70 decibels. NCD-A prohibits noise sensitive uses such as outdoor assembly, outdoor entertainment, and medical services. Sound attenuation is required in certain instances to reduce the interior noise level by 25 decibels, for example, for public accommodation.

*Major Street & Routes Setback Zone (MS&R)*

This PAD is subject to and shall comply with Unified Development Code Article 5.4 Major Street & Routes Setback Zone (MS&R).

*Gateway Corridor Zone (GCZ)*

This PAD is subject to and shall comply with Unified Development Code Article 5.5 Gateway Zone (GCZ).

*Scenic Corridor Zone (SCZ)*

This PAD is subject to Unified Development Code Article 5.3 Scenic Corridor Zone (SCZ). The City of Tucson Major Streets & Routes (MS&R) Plan map designates both Houghton Road and Colossal Cave Road adjacent to the site as Scenic Arterial Routes. This PAD shall comply with the SCZ, which includes a 30-foot wide Scenic Route Buffer area that must be preserved and maintained in its natural state within the private property adjacent to Houghton Road and Colossal Cave Road. Also, non-residential structures shall not exceed 30 feet in height within the Scenic Corridor Zone, which is the area 400 feet from the future right of way line.

*Environmental Resource Zone (ERZ)*

This PAD is subject to Unified Development Code Article 5.7 Environmental Resource Zone (ERZ), including Section 5.7.2.D which permits changes to the ERZ designations through this PAD.

### 3. Off-Site Land Uses, Existing Zoning & Structures

The existing land uses surrounding this PAD are as follows:

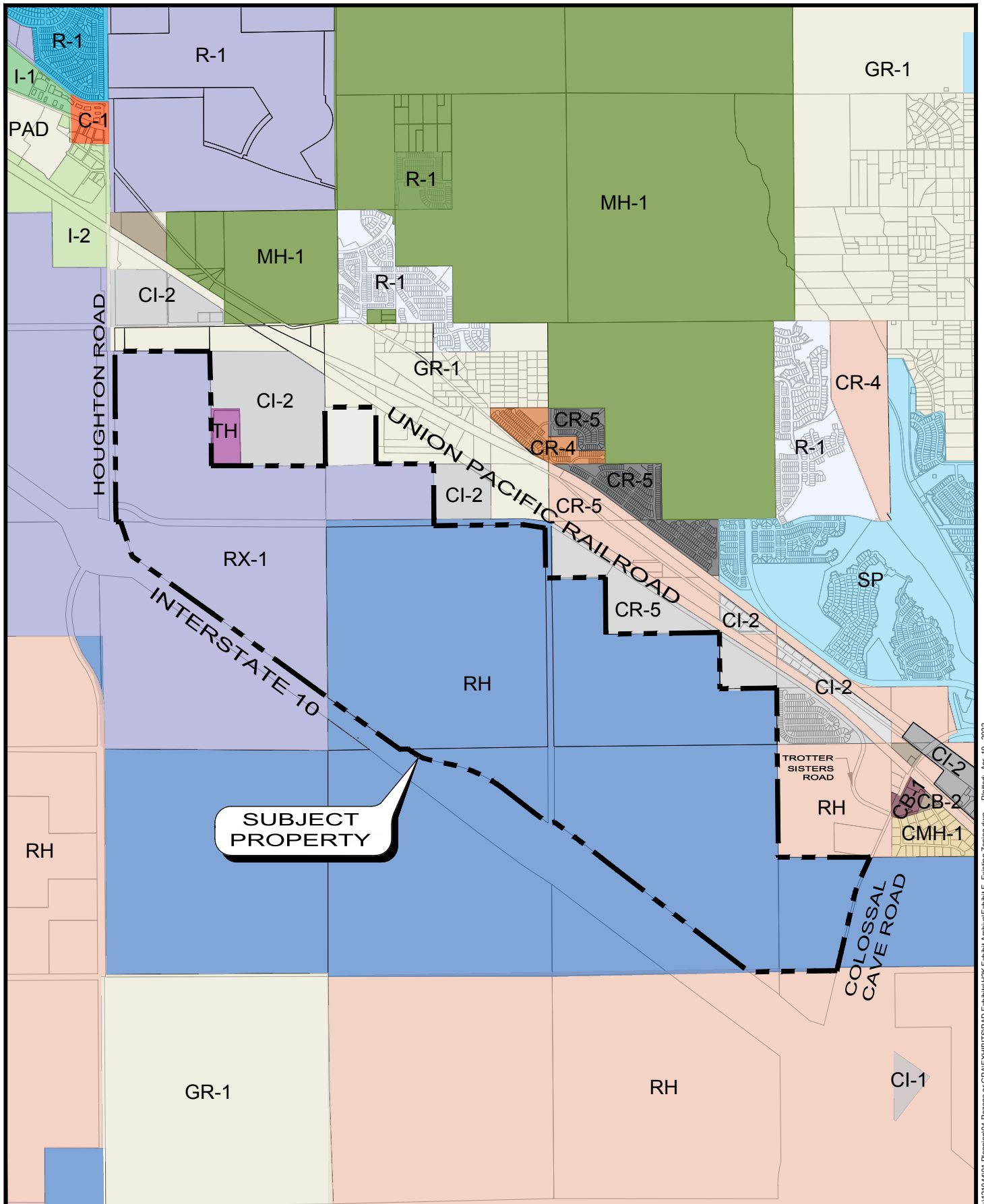
- North: Cactus Country RV Resort (262 RV spaces on approximately 38 acres), Union Pacific Railroad, Kinder Morgan petroleum pipeline and vacant land.
- East: Colossal Cave Road, Acacia Elementary School and vacant land.
- South: Interstate 10, one billboard and vacant land.
- West: Houghton Road and vacant land.

Please refer to *Exhibit G: Existing Land Use*.

Surrounding zoning is as follows:

- North: Pima County GR-1, CI-2, TH, CR-5 and RH.
- South: City of Tucson RH, RX-1 and Pima County RH.
- East: City of Tucson RH and RX-1.
- West: City of Tucson RX-1.

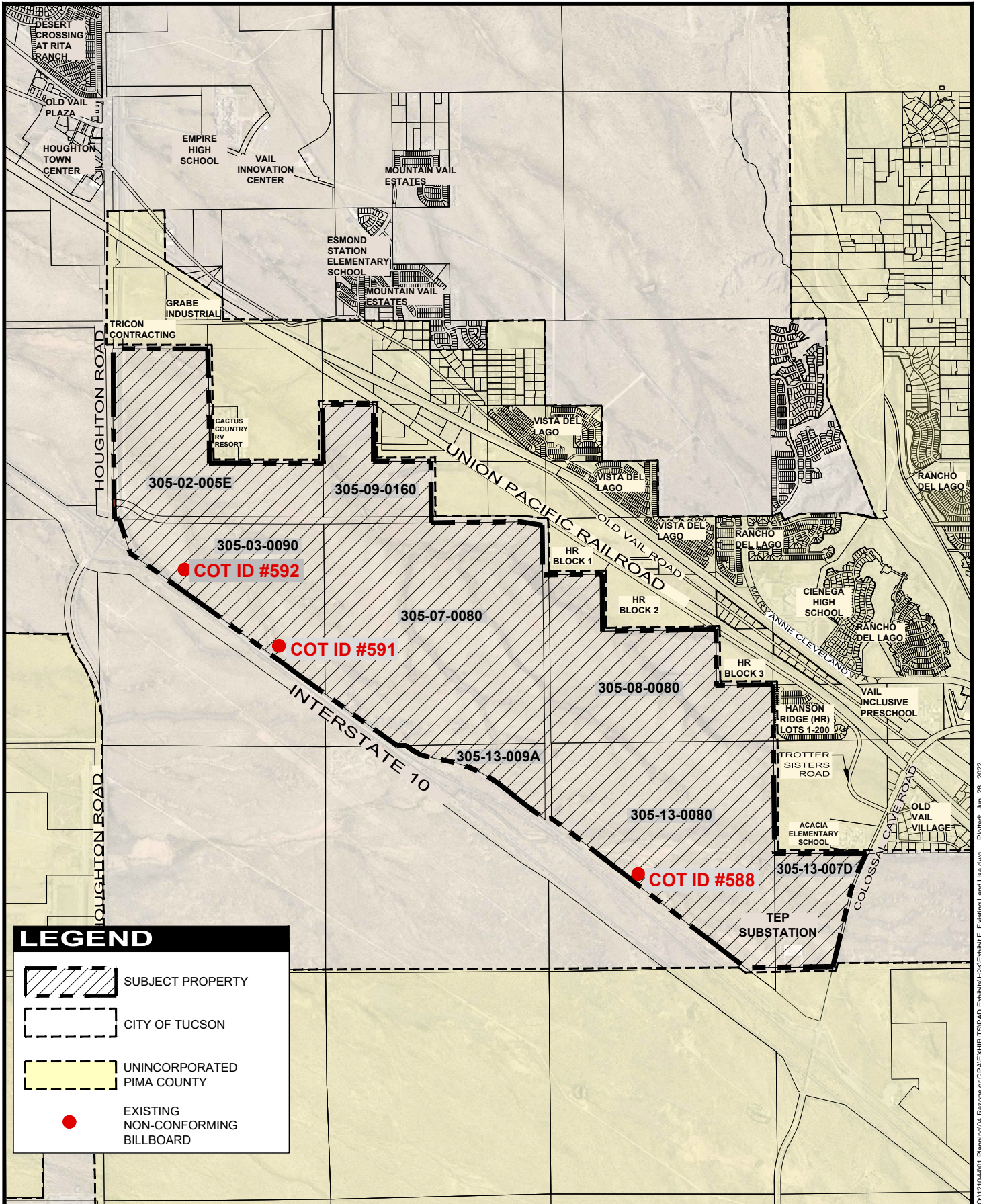
Please refer to *Exhibit E: Existing Zoning*.




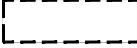


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### Exhibit E Existing Zoning





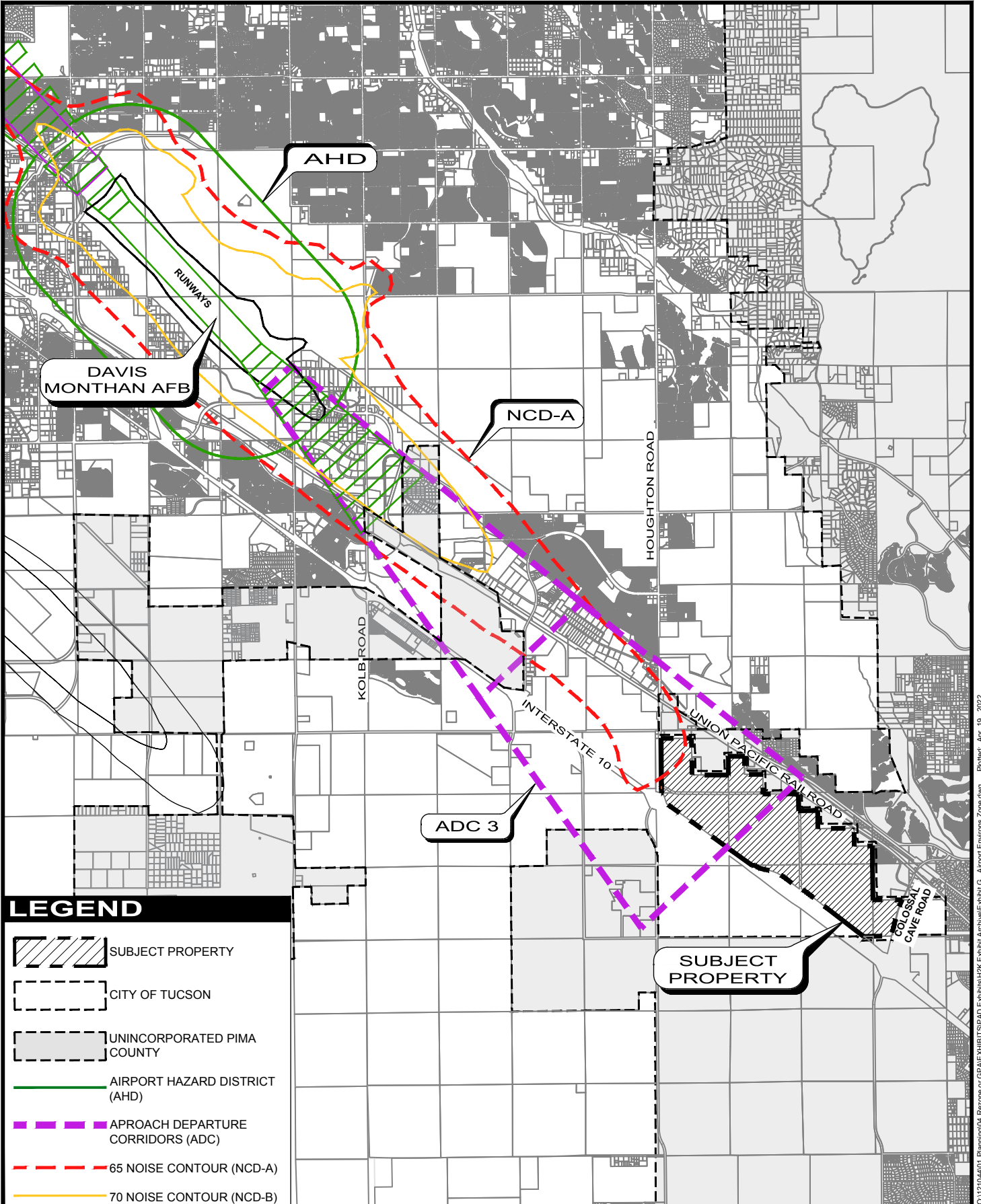
**LEGEND**

-  SUBJECT PROPERTY
-  CITY OF TUCSON
-  UNINCORPORATED PIMA COUNTY
-  EXISTING NON-CONFORMING BILLBOARD

**Exhibit F  
Land Use**



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## Exhibit G Airport Environs Zone (AEZ)

#### 4. Natural and Built Constraints

The following is a description of the natural and built constraints within this PAD. Please refer to *Exhibit G: Existing Land Use*.

An approximately 2.5-acre Tucson Electric Power substation is located in the southeastern portion of the subject property. A set of high-voltage electric transmission lines pass through the substation on an east-west alignment, intersecting with Colossal Cave Road to the east and Interstate 10 to the west. The width of this utility corridor is approximately 250 feet. A second set of high voltage electric transmission lines cross the western portion of the site on a northeast to southwest alignment. The width of this utility corridor is approximately 200 feet.

Underground telecommunications cable for multiple providers are located within 10-foot-wide easements that are roughly parallel to and approximately 500 feet from Interstate 10.

An underground interstate petroleum pipeline passes to the north of and through a small corner of the north side of the subject property within a 30-foot-wide easement.

See Section II.F of this PAD for discussion of washes on the site.

## B. Existing Educational and Community Resources

### 1. Vail Unified School District Facilities and Capacity Consideration

This PAD is located within the Vail Unified School District. This PAD does not propose any residential development and therefore will not generate any new students within Vail Unified School District.

For informational purposes, the district operates two preschools, eight elementary schools, six middle schools and six high schools. Acacia Elementary School, located on Colossal Cave Road just to the northeast of the subject property, is the nearest Vail Unified School District school to this PAD. There are five other schools within a 1-mile radius of this PAD.

Please refer to *Exhibit H: Schools and Fire Stations*.

### 2. Libraries

There are no public libraries located within one mile of this PAD. The nearest library is the W. Anne Gibson Esmond Station Library located at 10931 E Mary Ann Cleveland Way.

### 3. Health Care Facilities

The nearest health care facilities are as follows:

- Northwest Emergency Center at Vail, 10146 E Old Vail Road, one mile north of the subject property.
- TMC Urgent Care, 10350 E Drexel Road, 5.5 miles north of the subject property.
- St. Joseph’s Hospital Annex, 7401 S Wilmot Rd, 6.5 miles northwest of the subject property.



#### 4. Fire/Emergency/Law Enforcement

This PAD will be served by City of Tucson Police and Fire Departments. This PAD is within the City of Tucson Police Department Operations Division East Division. Rincon Substation, located at 9670 E. Golf Links Road and approximately eight miles north of the subject property, is the nearest City of Tucson Police Department facility. Tucson Fire Department Station 19, located at 9700 E. Esmond Loop and just over 2 miles north-northwest of the subject property, is the nearest Tucson Fire Department facility.

Please refer to *Exhibit H: Schools and Fire Stations*.

### C. Existing Open Space, Recreation & Trails

#### 1. Existing On-Site Open Space and Trails

Please note that any trails and/or recreational spaces on State Trust Land require application to ASLD and will be evaluated for impact to the Trust. Trails that may informally exist on the property are not currently permitted uses on State Trust Land.

The Pima Regional Trail System Master Plan identifies two proposed trails elements within this PAD described below:

- The Gas Line Trail (T016) is planned as a dirt trail to follow a utility easement through the site from northwest to southeast along Interstate 10. The trail extends for 27 miles from Wilmot Road east to the Cochise County boundary. Please note that TO16 is incorrectly labeled as TO17 on the Pima County Regional Trail System Master Plan.
- The Powerline Path (PO32) is planned under the high voltage electrical transmission lines along a northeast to southwest alignment in the western portion of the site and connects to the planned Gas Line Trail.

#### 2. Off-Site Recreation & Spaces

The following recreational/open space amenities are adjacent to or in close proximity to this PAD:

- The Wentworth Road Path (P041) is adjacent to Colossal Cave Road at the east end of this PAD and is unimproved at this time.
- The Houghton Greenway (G025) is adjacent to Houghton Road at the west end of this PAD. Greenways are a corridor that typically features a path and trail, preserved native vegetation and/or landscape plantings, and pedestrian amenities. The Houghton Greenway is approximately 21 miles long and connects with the 18.4-mile-long Julian Wash Greenway at the northwest corner of the site.
- The Julian Wash Greenway (G027) currently terminates at the northwest corner of the site and extends 18.4 miles west to the Santa Cruz River and forms the south leg of the Urban Loop, the 53-mile backbone of the Regional Trail System in Tucson.
- The 4,151-acre Cienega Creek Natural Preserve is located approximately one mile northeast of this PAD. It was established by Pima County in 1986 to protect the Creek's sensitive and increasingly rare riparian ecosystem, as well as to promote natural aquifer recharge and provide flood protection.

### 3. Off-Site Public & Neighborhood Parks

The 2,950 acre Southeast Regional Park, located on Houghton Road less than one mile southwest of this PAD, is home to shooting and archery ranges, multiple motor sports venues and the Pima County Fairgrounds.

Please refer to Exhibit I: Parks and Trails.

## D. Existing Transportation & Circulation

### 1. Relevant Public Streets

Physical access to this PAD is available from Houghton Road and Colossal Cave Road. The west end of the PAD is adjacent to the Interstate 10/Houghton Road traffic interchange. The east end of the PAD is adjacent to the Interstate 10/Colossal Cave Road traffic interchange.

The following is a description of the roads surrounding the subject property:

- *Houghton Road.* The Regional Transportation Authority Houghton Road Corridor project was recently completed between Mary Ann Cleveland Road and Interstate 10. When fully completed, the improved corridor will extend north to Tanque Verde Road. The roadway has six travel lanes, bicycle lanes in each direction, and a 12-foot multi-use path along the east side. As determined by the Pima Association of Governments, there the Annual Average Daily Traffic for this stretch of Houghton Road is between 13,034 and 16,672 trips.
- *Houghton Road/I-10 Traffic Interchange.* The Houghton Road/I-10 traffic interchange has recently been reconstructed by the Arizona Department of Transportation. The improvements include six-travel lanes, new on and off ramps, access for bicycles and pedestrians and landscaping.
- *Colossal Cave Road.* Colossal Cave Road is currently a two-lane strip-paved roadway adjacent to the subject site. As determined by the Pima Association of Governments, there the Annual Average Daily Traffic for this stretch of Colossal Cave Road is 11,939 trips.
- *Rocket Road.* Rocket Road is a rough dirt road running east-west within the subject site. The current Rocket Road alignment intersects with Houghton Road approximately 400 feet north of the Houghton Road/Interstate 10 interchange. The intersection will be realigned an additional 350 feet north of its current location as part of the aforementioned Arizona Department of Transportation Houghton Road/I-10 traffic interchange improvement project.
- *Trotter Sisters Drive.* Trotter Sisters Drive is an unimproved street to the north of this PAD. It is a planned residential collector street that will connect to Colossal Cave Road, run generally parallel the Union Pacific Railroad tracks, and end where the Rocket Road right-of-way and the Freeman Road right-of-way intersect.
- *Giada Drive.* Giada Drive is a platted but unimproved local street with a planned connection to the subject property from the Hanson Ridge Subdivision adjacent to the east of the subject property

Please refer to Exhibit J: Existing Roads.

### 2. Major Streets & Routes Considerations

- Houghton Road is identified on the City of Tucson's *Major Streets & Routes Plan* map as a Scenic Arterial Street with a 200-foot right-of-way.
- Colossal Cave Road is identified on the City of Tucson's *Major Streets & Routes Plan* map as a Scenic Arterial Street with a 150-foot right-of-way.

- The City of Tucson’s *Major Streets & Routes Plan* map identifies Rocket Road as a Future Scenic Arterial Street with a 150-foot right-of-way intersecting with Houghton Road approximately 600 feet north of the new Houghton Road/I-10 traffic interchange. This alignment coincides with the paved access road serving the Cactus Country RV Resort.

Please refer to *Exhibit K: Major Streets and Routes Plan Designations*.

### **3. Public Transportation**

While there is no scheduled service to the subject site, there are bus lines and stops to the northwest of this PAD. The subject site is served by Sun Van (on-demand) Service Area Premium which serves areas beyond what is required by the Americans with Disabilities Act including trips beyond the typical 3/4-mile maximum distance to the nearest regular Sun Tran stop.

Please refer to *Exhibit L: Bus Routes*.

## **E. Existing Utility Infrastructure**

### **1. Existing Utilities**

#### **Public & Private Sewer**

The sewer infrastructure in the area of the subject property is owned and maintained by the Pima County Regional Wastewater Reclamation Department.

Existing potential sewer connections are as follows:

- 10-inch PVC in Trotter Sisters Drive adjacent to site. There is a manhole located at the intersection of Trotter Sisters Drive and the Rocket Road right-of-way that is a potential point of connection.
- Various potential connection points exist to the west of this PAD in the area of Rita Road.

Please refer to *Exhibit M: Existing Water & Sewer*.

#### **Potable Water**

This PAD is located within the Obligated Service Area for Tucson Water.

Tucson Water maintains water lines in the area of this PAD described as follows:

- 24” ductile iron water line located in Houghton Road that currently terminates north of the railroad tracks at Old Vail Road. This line is planned for extension south along Houghton Road and will extend to Corona De Tucson. Completion is expected sometime in 2023.
- 24” ductile iron water line in Old Vail Road. This line terminates at the Tucson Water booster station located at 11210 E Old Vail Road (APN 305-09-006D).

There are no Tucson Water water lines located east of the above-mentioned booster station.

Please refer to *Exhibit M: Existing Water & Sewer*.

### **Reclaimed Water**

There are no reclaimed water distribution adjacent to the subject property; however, Tucson Water indicates that reclaimed lines are located near Houghton Road and Drexel Road and could be extended to this PAD.

### **Solid Waste Disposal**

The City of Tucson Department of Environmental and General Services is responsible for all solid waste collection within the City limits. The closest active public landfill to the PAD is the Los Reales Landfill.

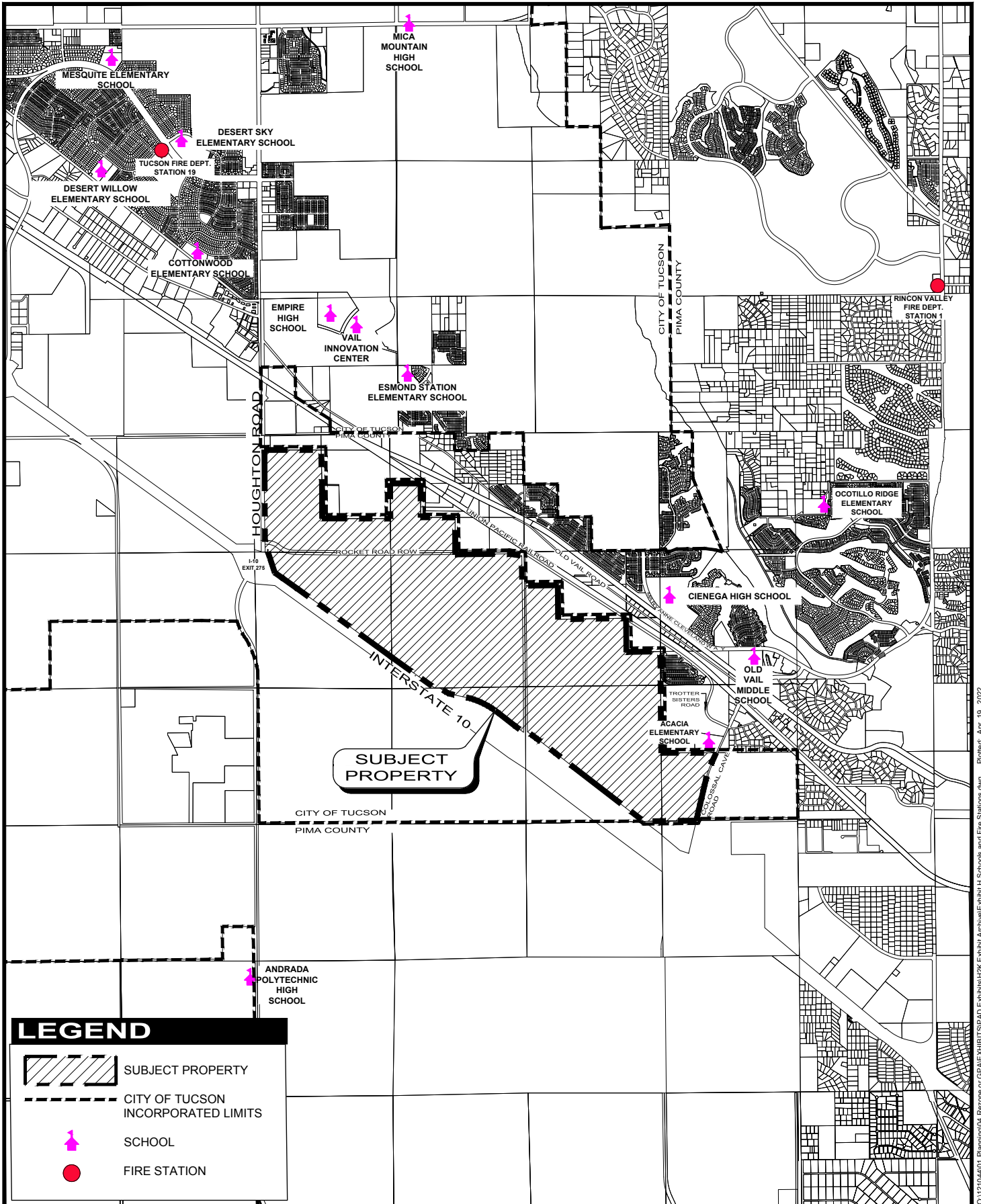
### **Gas and Electric**

Southwest gas will provide natural gas to the subject property. There is an existing 12” high pressure gas line located at the intersection of Houghton Road and Old Vail Road and an existing 8” high pressure gas line located in Colossal Cave Road. There are no gas lines within the PAD.





Tucson Electric Power will provide electric power to the subject property.

## **2. Overall Project Serviceability**

It is anticipated that utility providers, the Tucson Fire Department and the Tucson Police Department will be able to serve this PAD.



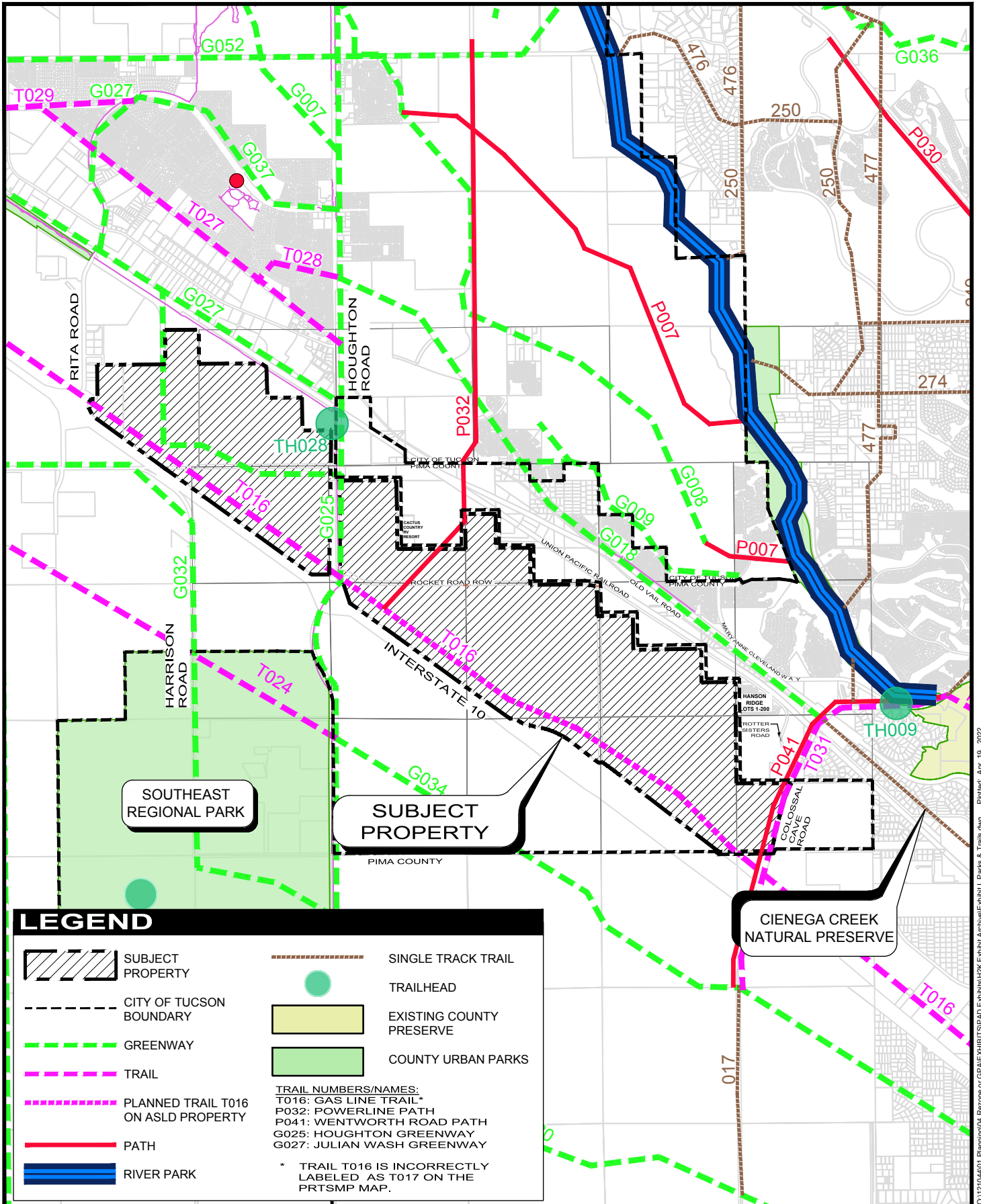
**LEGEND**

-  SUBJECT PROPERTY
-  CITY OF TUCSON INCORPORATED LIMITS
-  SCHOOL
-  FIRE STATION


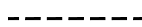









**Exhibit H**  
**Schools & Fire Stations**



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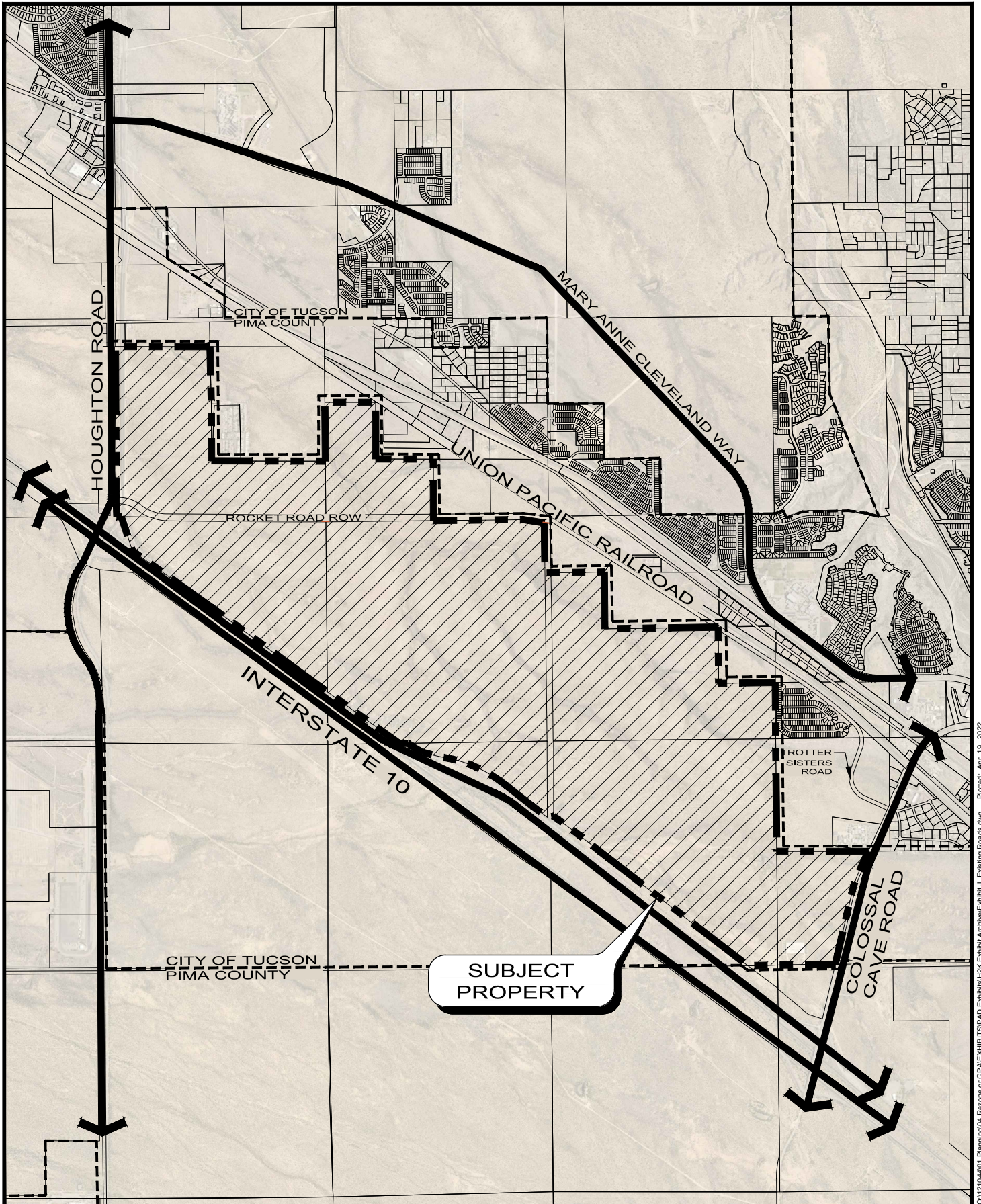
**LEGEND**

-  SUBJECT PROPERTY
  -  CITY OF TUCSON BOUNDARY
  -  GREENWAY
  -  TRAIL
  -  PLANNED TRAIL T016 ON ASLD PROPERTY
  -  PATH
  -  RIVER PARK
  -  SINGLE TRACK TRAIL
  -  TRAILHEAD
  -  EXISTING COUNTY PRESERVE
  -  COUNTY URBAN PARKS
- TRAIL NUMBERS/NAMES:**  
 T016: GAS LINE TRAIL\*  
 P032: POWERLINE PATH  
 P041: WENTWORTH ROAD PATH  
 G025: HOUGHTON GREENWAY  
 G027: JULIAN WASH GREENWAY
- \* TRAIL T016 IS INCORRECTLY LABELED AS T017 ON THE PRTSMP MAP.

**Exhibit I  
Parks & Trails**



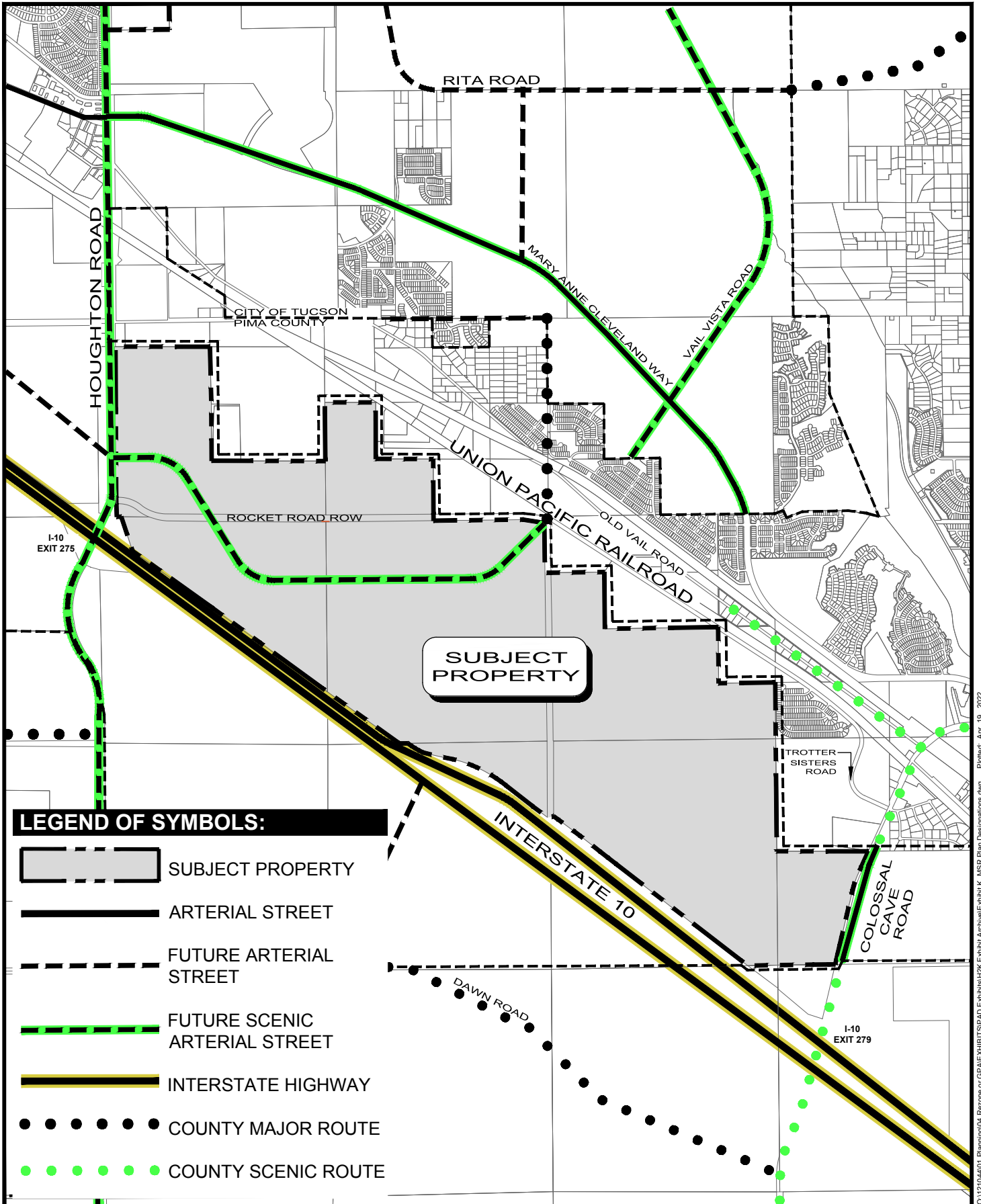
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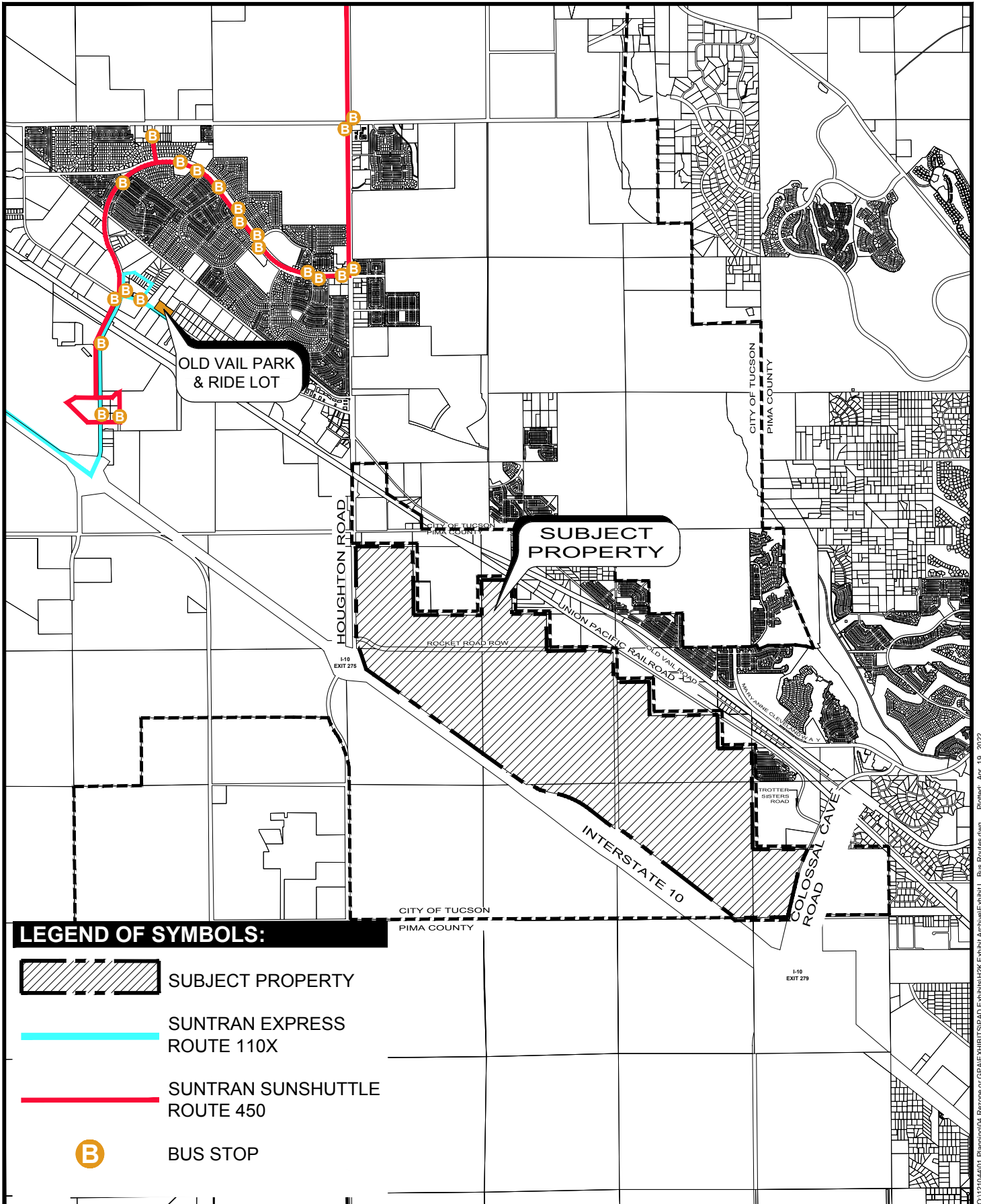
**Exhibit J**  
**Existing Roads**





**Exhibit K  
MS&R Plan Designations**

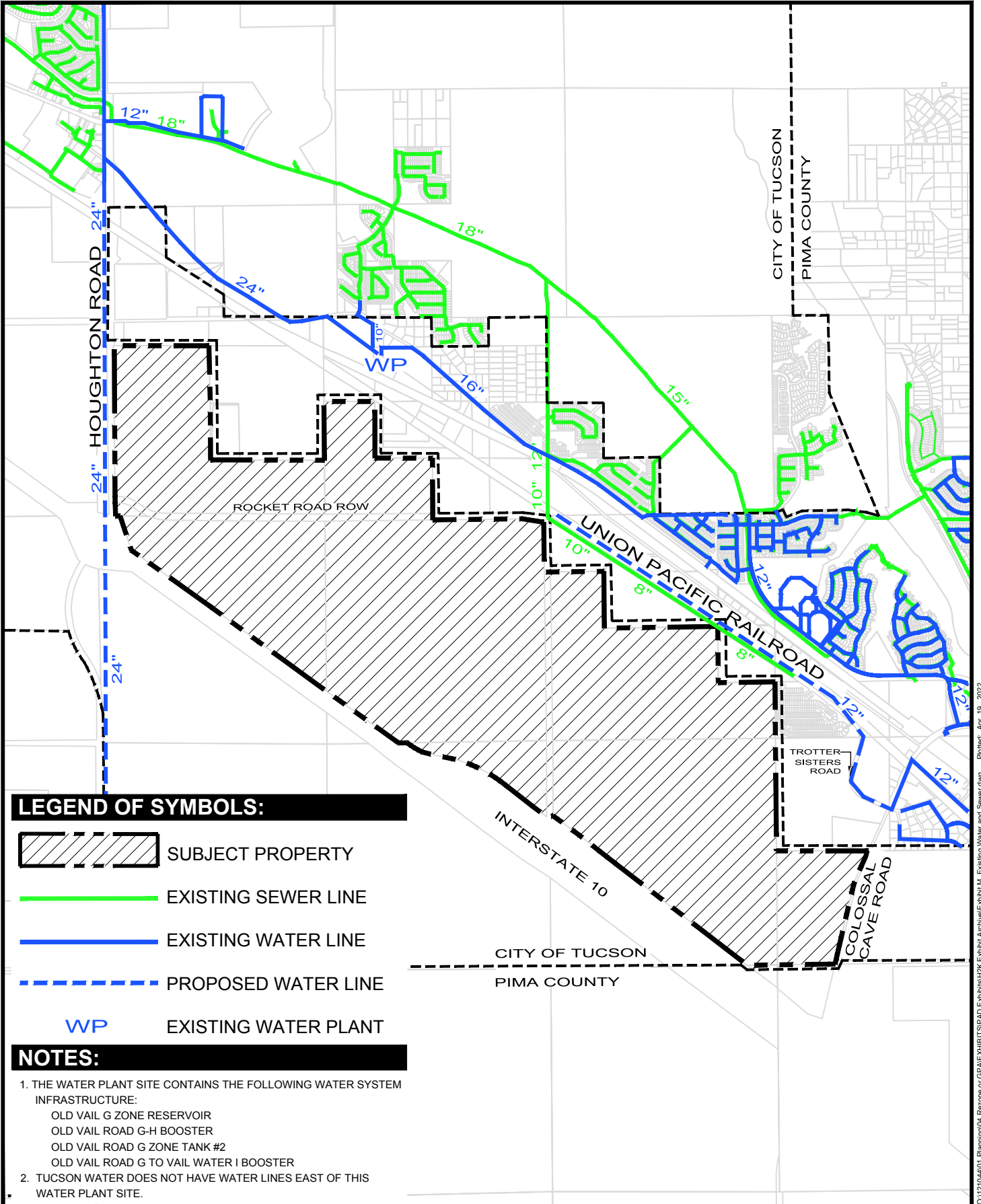









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## Exhibit L Bus Routes





**LEGEND OF SYMBOLS:**

-  SUBJECT PROPERTY
-  EXISTING SEWER LINE
-  EXISTING WATER LINE
-  PROPOSED WATER LINE
-  EXISTING WATER PLANT

**NOTES:**

1. THE WATER PLANT SITE CONTAINS THE FOLLOWING WATER SYSTEM INFRASTRUCTURE:
  - OLD VAIL G ZONE RESERVOIR
  - OLD VAIL ROAD G-H BOOSTER
  - OLD VAIL ROAD G ZONE TANK #2
  - OLD VAIL ROAD G TO VAIL WATER I BOOSTER
2. TUCSON WATER DOES NOT HAVE WATER LINES EAST OF THIS WATER PLANT SITE.

**Exhibit M  
Existing Water and Sewer**

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## F. Environmental Factors

### 1. Topography

The subject property falls approximately 210 feet, generally from southeast to northwest. The high point of the site is near the southeast corner of the property at an approximate elevation of 3240 feet above sea level. The low point of the site is near the northwest corner at an approximate elevation of 3030 feet. The site topography is relatively gentle in nature and there are no areas with significant slopes.

Please refer to *Exhibit N: Topography*.

### 2. Existing Drainage Patterns & Site Hydrology

#### On-Site Characteristics

##### *Federal Emergency Management Agency Floodplains*

This PAD is located within Federal Emergency Management Agency (FEMA) FIRM (Flood Insurance Rate Map) panels 04019C2925L and 04019C2940L. The subject property falls within Zone X, which is an area determined to be outside the 0.2% chance of annual flood.

##### *Local Floodplains and Washes*

Please refer to *Exhibit O: Surface Hydrology*.

The City of Tucson regulates floodplains with 1-percent-annual-chance flood flow rates of over 100 cubic feet per second. The site is located in the Julian Wash Watershed which consists of 27,296 acres or 42.6 square miles. The watershed is classified as balanced.

100-year floodplain limits for the primary washes on the site have been identified using 100-year flow volumes from TSMS nodes and through the use of HEC-RAS. The location of tributaries carrying at least 100 cfs have also been identified. Please refer to *Exhibit O: Surface Hydrology*.

- Julian Wash. According to Tucson Stormwater Management Study Node information, the volume of 100-year flow on the site in this wash ranges from approximately 743 to 2076 cubic feet per second. This wash is subject to Part II Tucson Code, Chapter 29, Article VIII, Watercourse Amenities, Safety and Habitat (WASH Ordinance) and the Environmental Resource Zone (ERZ). The Julian Wash and its tributaries have been identified on the 1994 Shaw maps as potentially containing riparian habitat. The headwaters of the Julian Wash are located approximately 1.5 miles east of this PAD.
- Julian Wash Tributaries. There are two Julian Wash tributaries in the central portion of this PAD currently identified as ERZ washes that carry greater than 100 cfs during a regulatory storm event. These washes and their watersheds begin within this PAD and convey approximately 493 cfs during a regulatory storm event at the point where they connect with the Julian Wash.

There is a third Julian Wash tributary in the western portion of the site near the Houghton Road/Interstate 10 traffic interchange. This wash starts within this PAD and flows west and past

Houghton Road. It carries approximately 743 cfs during a regulatory storm event at the point where it leaves this PAD and connects with the Julian Wash west of Houghton Road.

- The Franco Wash Tributary. This wash is located on the southeastern portion of this PAD and carries approximately 2,290 cfs during a regulatory storm event at the point where it leaves this PAD. Franco Wash Tributary has been identified on the 1994 Shaw maps as potentially containing riparian habitat and it is currently designated as an ERZ wash. The headwaters of the Franco Wash Tributary are located approximately 4 miles east of this PAD.

### **Off-Site Characteristics and Downstream Issues**

#### *Julian Wash*

The headwaters of the Julian Wash begin approximately 1.5 miles east of this PAD. It winds its way through two residential subdivisions before it is channelized adjacent to a commercial business located at the intersection of Colossal Cave Road and the Union Pacific Railroad. It then enters this PAD near the southwest corner of the initial phase of the Hanson Ridge subdivision.

Immediately downstream of the subject property, the Julian Wash is natural for a distance of just over one mile. Just east of Rita Road, the wash was channelized to create developable area for the Target Distribution Center, Arizona Canning Company and the University of Arizona Tech Park. From this point, the wash is largely channelized to the point at which it empties into the Tucson Diversion Channel near the intersection of Kino Parkway and Interstate 10. The Tucson Diversion Channel is channelized from this point to where it empties into the Santa Cruz River in order to accommodate development that has occurred over the years.

Please refer to *Exhibit Q: Julian Wash* for an illustration of where the wash is channelized and where it is natural.

#### *Franco Wash Tributary*

The headwaters of the Franco Wash Tributary begin approximately four miles east of this PAD. It enters the southeastern portion of this PAD and then exits via culverts beneath the frontage road and Interstate 10. Downstream of this PAD, it is free flowing until its natural drainage pattern is altered by the Pima County Fairgrounds. After the Fairgrounds, the wash continues to flow naturally until it empties into the Franco Wash at a point approximately 7 miles from this PAD.

### **3. Plant Communities and Designated Xeroriparian Areas**

The natural vegetation on the site has been relatively undisturbed except for dirt roads that have been constructed to facilitate installation of utilities. Vegetative density and composition vary across the site.

The project vegetation is typical of plants common to the Arizona upland subdivision of the Sonoran Desert scrub biotic community. Most of the project area contains upland plant species typical of a creosote bush (*Larrea tridentata*) association within this community; however, there are two portions of the project area that mostly contain xeroriparian species. The dominant species in the upland portion of the project area are creosote bush and yellow (foothill) palo verde (*Parkinsonia microphylla*). Other plant species include

blue palo verde (*P. florida*), catclaw acacia (*Senegalia greggii*), velvet mesquite (*Prosopis velutina*), saguaro, chain fruit cholla (*Cylindropuntia fulgida*), Engelmann prickly pear (*Opuntia engelmannii*), barrel cactus (*Ferocactus wislizeni*), ocotillo (*Fouquieria splendens*), soaptree yucca (*Yucca baccata*), joint fir (*Ephedra* spp.), triangle bur ragweed (*Ambrosia deltoidea*), desert zinnia (*Zinnia acerosa*), brittlebush (*Encelia fainosa*), burroweed (*Isocoma tenuisecta*), and sandmat (*Chamaesyce* spp.). The dominant xeroriparian species observed along the washes within the project area is foothills palo verde. Other species observed along the washes include velvet mesquite, catclaw acacia, wolfberry (*Lycium* sp.), creosote bush, and brickell bush (*Brickellia* spp.). The off-site vegetation just south of the PAD is classified by Brown as part of the Mixed Scrub Series of the Tropical-Subtropical Desertlands being further sub-classified as part of the *Larrea divaricate-Mixed Scrub Association*. The vegetation in this classification is dominated by foothills palo verde, ironwood, saguaro, and creosote. Other, less frequently occurring species include desert hackberry, barrel cactus, white thorn acacia and triangle-leaf bursage.

While the Tucson Stormwater Management Study Riparian Habitat data layer in Map Tucson does not identify riparian areas within this PAD, there are areas identified as Shaw 1994 indicating the potential for riparian habitat.

Please refer to *Exhibit P: Shaw Potential Riparian Area*.

The Arizona Game and Fish Department’s Heritage Data Management System identifies the plant species in Table 1 as being documented within a three-mile radius of this PAD.

Please note that this report does not indicate the presence of these plants within this PAD. It simply states that this plant may occur in the area of this PAD. Future Native Plant Preservation Plans will be prepared by purchasers of land within this PAD and in accordance with Section 7.7 of the Unified Development Code and other applicable sections.

Table 1: Special Status Species Vegetation					
SCIENTIFIC NAME	COMMON NAME	FWS	USFS	BLM	NPL*
<i>Coryphantha scheeri</i> var. <i>robustispina</i>	Pima Pineapple Cactus	LE**	N/A	N/A	HS***
<i>Echinomastus erectocentrus</i> var. <i>erectocentrus</i>	Needle-spined Pineapple Cactus	SC			SR

- FWS: U.S. Fish and Wildlife Service.
- USFS: U.S. Forest Service.
- BLM: Bureau of Land Management
- NPL: Arizona Native Plant Law (2008)
- LE: Listed endangered.
- SC: Species of concern.

SR: Salvage restricted.  
 HS: Highly safeguarded.

#### 4. Wildlife Characteristics & Corridors

The Arizona Game and Fish Department’s Heritage Data Management and Project Evaluation Program indicates the occurrence of the following Special Status Species within a three (3) mile radius of the PAD site.

Please note that this report does not indicate the presence of these species within this PAD. It simply states they may occur in the area of this PAD.

Table 2: Special Status Species Wildlife				
SCIENTIFIC NAME	COMMON NAME	FWS	USFS	BLM
<i>Agosia chrysogaster</i>	Gila Longfin Dace	SC		S
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S	S
<i>Camptostoma imberbe</i>	Northern Beardless-Tyrannulet		S	
<i>Choeronycteris mexicana</i>	Mexican Long-tongued Bat	SC	S	S
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western DPS)	LT	S	S
<i>Danaus plexippus</i>	Monarch	C		S
<i>Gastrophryne mazatlanensis</i>	Sinoloan Narrow-mouthed Toad			S
<i>Gopherus morafkai</i>	Sonoran Desert Tortoise	C	S	S
<i>Heloderma suspectum</i>	Gila Monster			
<i>Kinosternon sonoriense</i>	Desert Mud Turtle			S
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	SC	S	S
<i>Myotis velifer</i>	Cave Myotis	SC		S
<i>Poeciliopsis occidentalis</i>	Gila Topminnow	LE		
<i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat			
<i>Terrapene ornata luteola</i>	Desert Box Turtle			S

FWS: U.S. Fish and Wildlife Service.

USFS: U.S. Forest Service.  
BLM: Bureau of Land Management.  
SGCN: Species of greatest conservation need.  
LE: Listed endangered.  
LT: Listed threatened.  
SC: Species of concern. S: Sensitive. C: Candidate species.

## 5. Cultural Resources, Sites, etc.

A Class III archaeological survey shall be completed by a qualified archaeological consulting firm permitted by the Arizona State Museum on the entire site prior to any development (including grading, trenching, or digging). If cultural resources are identified during the survey, a mitigation strategy such as avoidance and/or data recovery would be developed and implemented prior to construction. Plans for mitigation should be reviewed by the City Historic Preservation Officer. If any archaeological remains are discovered during project work, all work will stop within the area of the remains and Arizona State Museum will be contacted. Future purchasers of land will also be required to meet any City of Tucson requirements regarding cultural resources.

## 6. Underlying Geology, Soils & Geotechnical Considerations

Prior to construction on the site, future purchasers of land within this PAD will have a geotechnical report prepared that assesses the soils conditions on the property. This report will also provide recommendations pertaining to road pavement and base course thickness, pad preparation, foundation type and thickness and other recommendations as may be required to develop on the property.

## G. Visual Analysis

### 1. Visibility from Surrounding Properties & Land Uses

This PAD site is visible from I-10, Houghton Road, and Colossal Cave Road, including close views of adjacent areas and distant views of the interior of the property. Visibility from south of I-10 is limited by the elevated roadbed. Visibility from west of Houghton Road is similarly restricted by the elevated approach to the I-10 traffic interchange. The east end of the site is visible from east of Colossal Cave Road. The site is visible from adjacent properties to the north that are south of the railroad tracks including Acacia Elementary School and the Hanson Ridge subdivision. Visibility from north of the railroad tracks is limited by the elevated railbed.

*Appendix A: Photograph Location Key Map and Site Photos.*

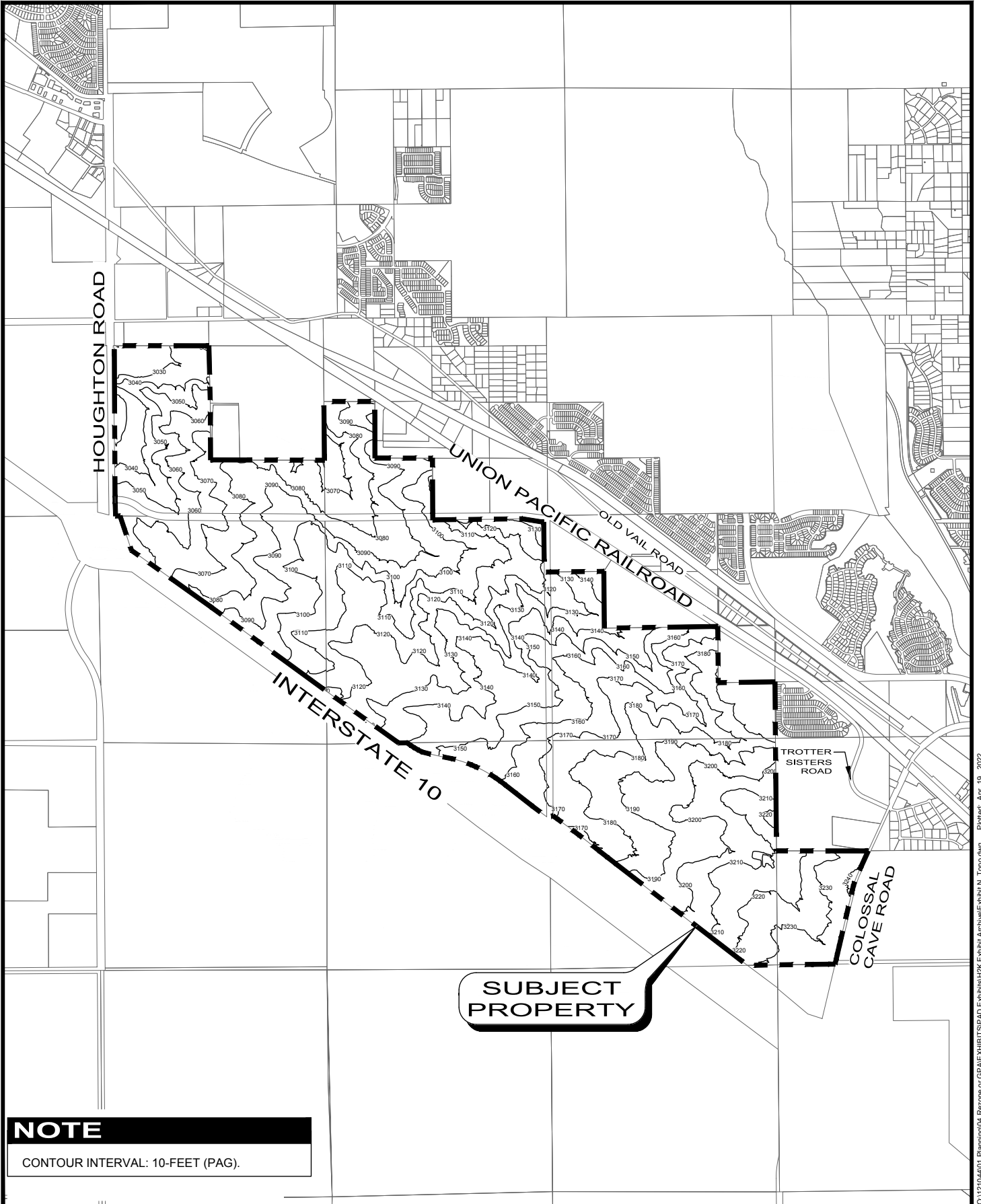
### 2. Viewsheds

#### Onto/Across Site from Surroundings

Given the scale of the site, views across the site are generally distant views. The existing high-voltage electrical transmission lines will remain the most visually dominant built feature of the site.

#### Distant Viewsheds from Site

The Rincon Mountains to the north-northeast are visible from the entire site, as are the Catalina Mountains beyond to the north, and the Tucson Mountains to the northwest. Distant views of each of these mountain ranges are visible from this site because the Tucson basin generally drops away from the site to the north and west. The Santa Rita Mountains are visible to the south.



**NOTE**  
 CONTOUR INTERVAL: 10-FEET (PAG).

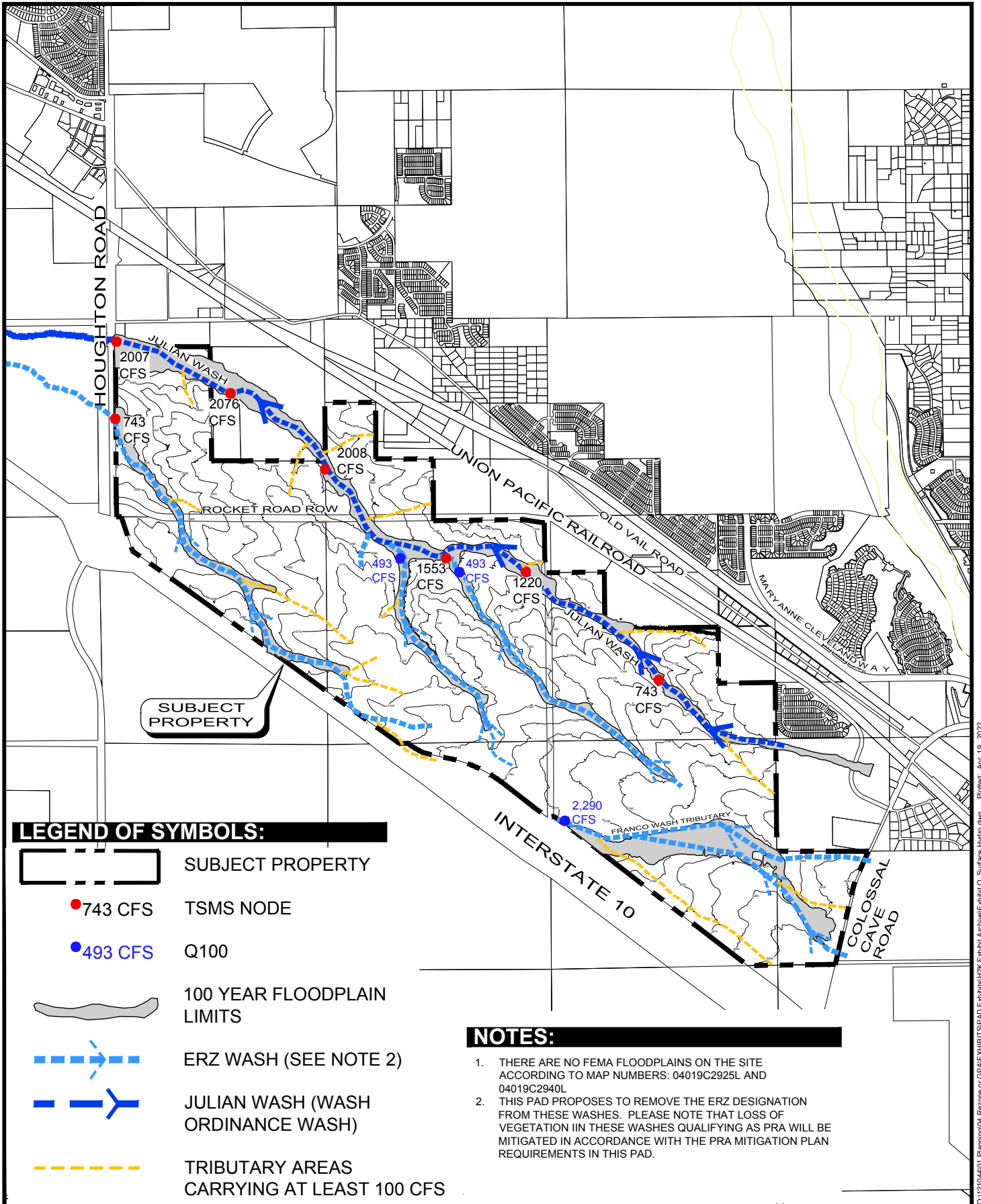
**SUBJECT  
 PROPERTY**

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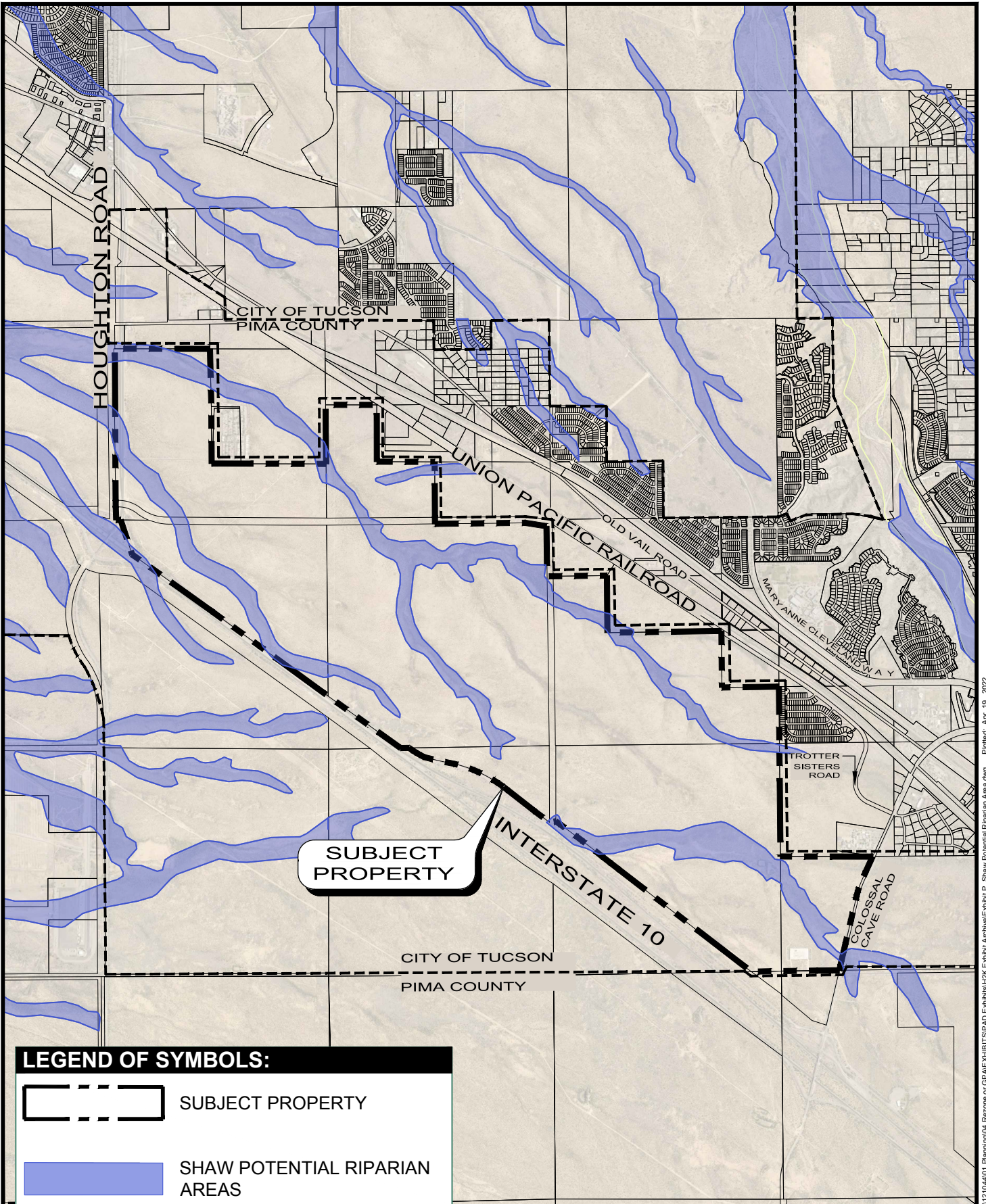
**Exhibit N  
 Topography**





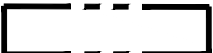



**Exhibit O**  
**Surface Hydrology**



**SUBJECT PROPERTY**

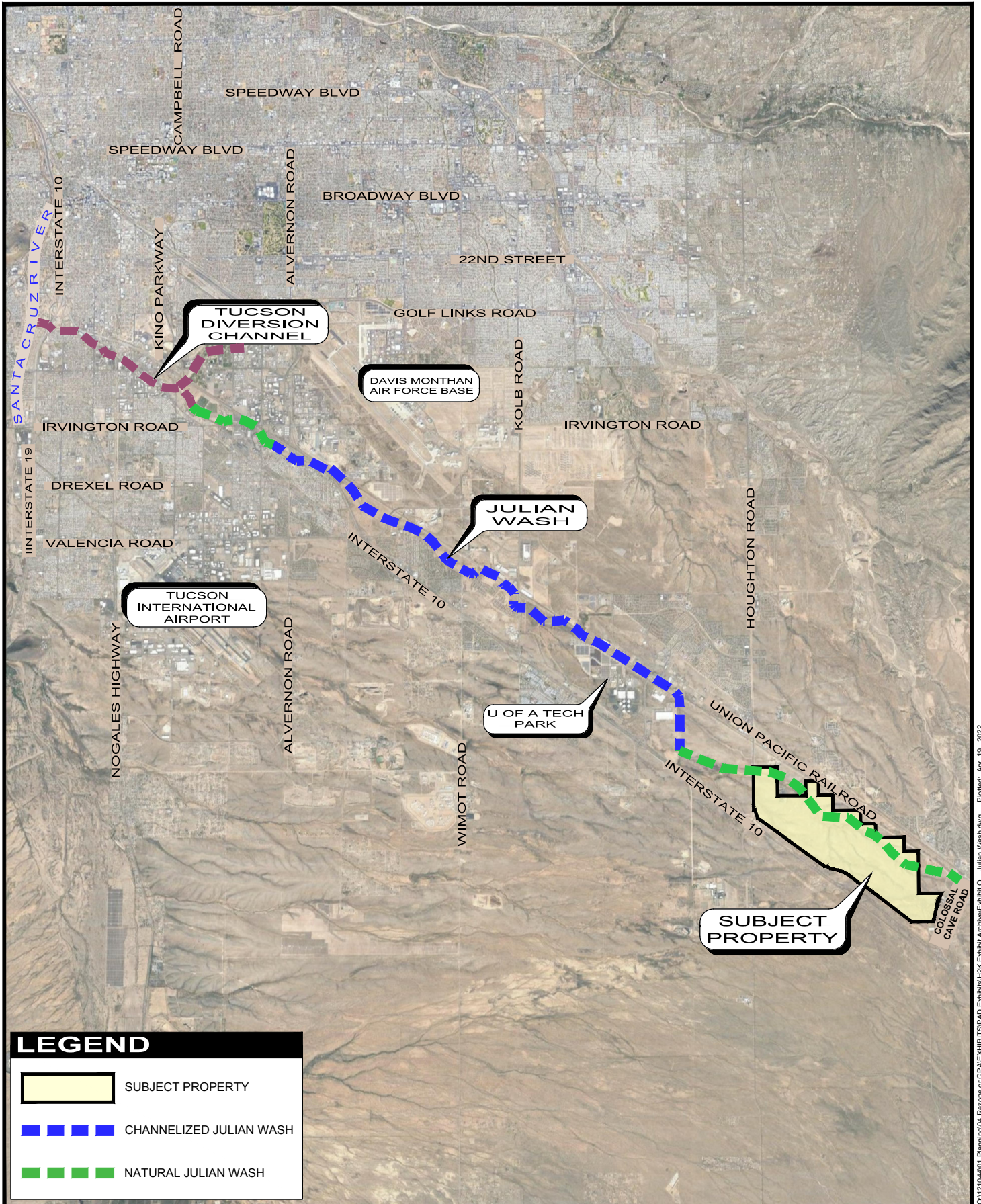
**LEGEND OF SYMBOLS:**

-  SUBJECT PROPERTY
-  SHAW POTENTIAL RIPARIAN AREAS

**Exhibit P  
Shaw Potential Riparian Areas**



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# Exhibit Q Julian Wash

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## Section III – PAD District Proposal

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## A. Proposed PAD Overview

### 1. Major Land Uses and Facilities

This PAD establishes Development Units (proposed development areas within this PAD) and associated development standards which are intended to establish the foundation primarily for park and light industrial uses as described in the City of Tucson Unified Development Code. This PAD is modeled after the City's Park Industrial Zone (P-I) and Light Industrial Zone (I-1) permitted uses and standards. Industrial uses are generally anticipated to consist of manufacturing/wholesaling activities and corporate business centers while light industrial uses would consist of uses that are industrial in nature and not offensive to surrounding land uses. There are two uses from the Heavy Industrial Zone (I-2) that are permitted, which are heavy equipment manufacturing and primary manufacturing.

The permitted uses in this PAD are identified in Section III.B.2 of this PAD. The Use Specific Standards as defined in Section 4.9 of the Unified Development Code applicable to particular uses shall also apply to the uses permitted in this PAD. The Use Specific Standards are intended to provide additional standards for certain permitted and special exception land uses, including those industrial in nature, in order to mitigate any adverse impacts on adjacent land uses, on the immediate neighborhood, and on the community.

As previously mentioned, some of the factors that make this site highly suitable for industrial uses include the following:

- Proximity to Interstate 10 with direct access to the Houghton Road and Colossal Cave Road traffic interchanges. The Houghton Road/Interstate-10 traffic interchange was recently improved and offers excellent access to and from the site.
- Proximity to the Union Pacific Railroad and the ability to construct a spur line into the property.
- Frontage on Houghton Road, a major section line arterial road that has undergone recent improvements.
- Existing dry and wet utility infrastructure in close proximity to the site.
- The relatively gentle topographic nature of the land.
- The opportunity to balance the provision of large developable area for potential large-scale industrial/advanced manufacturing users with preservation and enhancement of the Julian Wash corridor and its associated vegetation, and enhancement of the Franco Wash Tributary, through a unique partnership between the City of Tucson and the ASLD.

The Development Units shown in this PAD do not contain specific site plans or detailed layouts since it is not yet known exactly what type of specific development will occur in the Development Units. This detail will be provided by future purchasers of land within this PAD.

Please refer to *Exhibit R: Development Unit Plan* for location and arrangement of the Development Units.

Once property is purchased from the State Land Department at auction, the purchaser of land will be responsible for creating more detailed master plans and reports for the entire Development Unit during a process referred to as Secondary Planning. These reports include but may not be limited to the following:

- Vehicular and Pedestrian Circulation.
- Surface Drainage/Environmental Resources.
- Water.

- Wastewater.
- Trails.
- Establishment of Architectural and Landscape Architectural Design Guidelines and Standards and Design Review Process.

The purchaser of property will also be required to prepare plans and reports comprising the Development Package and conform with the subdivision platting process as required by the City of Tucson. These plans and reports generally include the following:

- Tentative plat/final plat.
- Development package (grading, paving and drainage improvement plans).
- Traffic impact analysis.
- Drainage report.
- Rainwater harvesting plans.
- Water improvement plans.
- Plans for the collection and conveyance of wastewater.
- Landscape plans.
- Native plant preservation plans.
- Geotechnical reports.
- Archaeology reports.
- Land surveys.
- PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan.

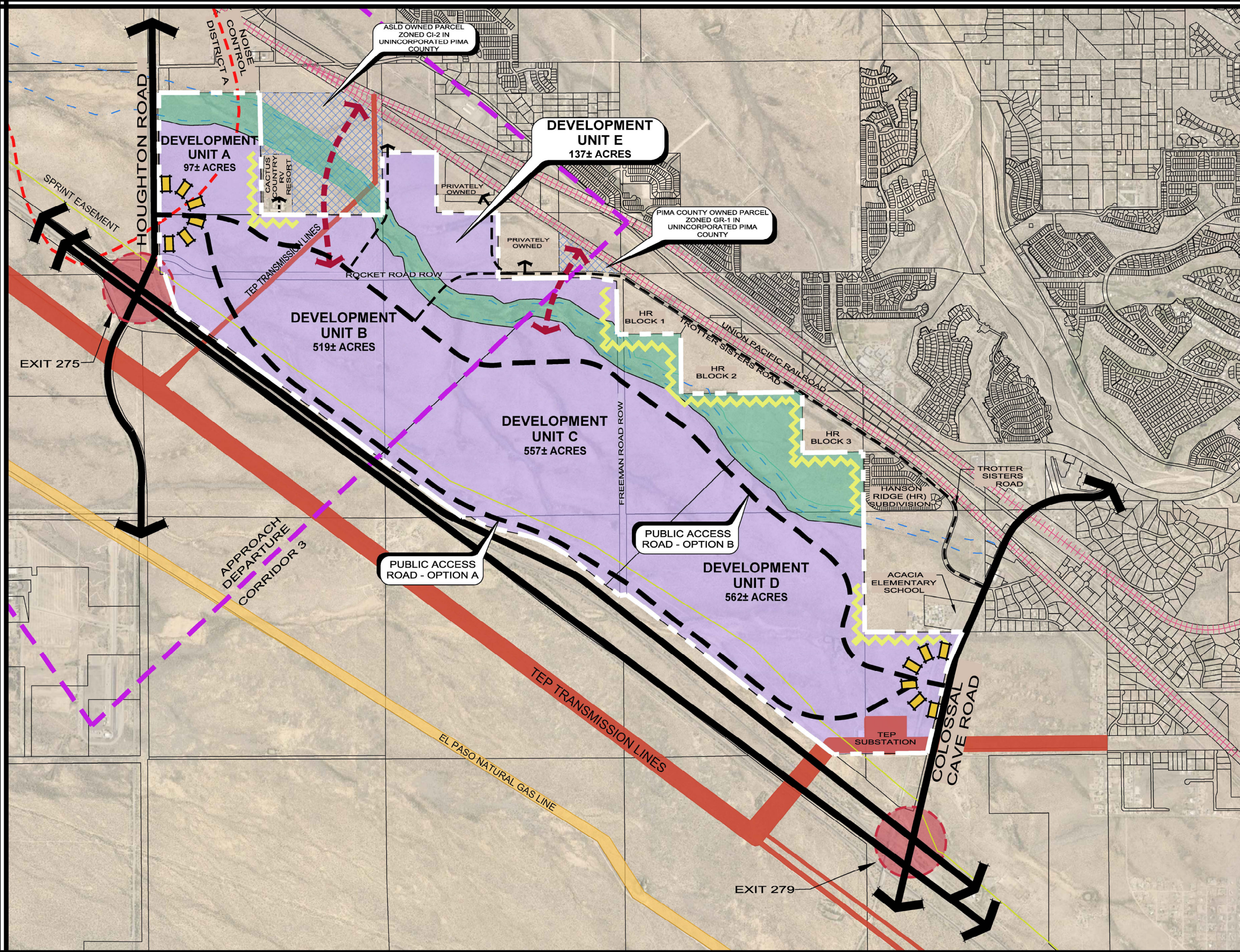
This PAD provides for a variety of industrial land uses. The flexible design requirements enabled by this PAD offer more focused regulations compared to conventional zoning standards, and directly promote the appropriate and efficient use of land and infrastructure. This PAD implements Plan Tucson policies providing for land uses that meet the City’s growth goals, and policies that provide guidance for detailed planning of development of the site.

Please also note that future purchasers will pay the rezoning/PAD fees required by the City of Tucson.

## 2. Development Unit Plan

The Development Unit Plan for this PAD is included as *Exhibit R: Development Unit Plan*. This plan identifies the following items:

- Configuration and size (in acres) of Development Units.
- Primary points of vehicular access to the property.
- The Julian Wash and Franco Wash Tributary corridors.
- Continued provision of access to adjacent privately held properties.
- Two conceptual alternatives for an onsite public access road.
- Potential spur line connections to the Union Pacific Railroad.
- Location of buffer areas that will offer transition to and protection of adjacent residential and educational facilities.
- Approach Departure Corridor 3 as defined by Davis – Monthan Air Force Base.
- Noise Control District A as defined by Davis – Monthan Air Force Base.



### LEGEND OF SYMBOLS

- PROPERTY BOUNDARY
- DEVELOPMENT UNIT AREA
- TEP EASEMENT
- EL PASO NATURAL GAS EASEMENT
- JULIAN WASH CORRIDOR
- POTENTIAL RAILROAD SPUR
- 100 YEAR FLOODPLAIN LIMITS
- SPRINT EASEMENT
- BUFFER/LAND USE TRANSITION
- APPROACH DEPARTURE CORRIDOR 3
- NOISE CONTROL DISTRICT A
- EXISTING ROAD
- PROPOSED ROAD
- ACCESS TO PRIVATE PARCEL
- PRIMARY ACCESS
- I-10 TRAFFIC INTERCHANGE

### DEVELOPMENT UNIT TABLE

DEVELOPMENT UNIT	ACRES
A	97±
B	519±
C	557±
D	562±
E	137±
ONSITE JULIAN WASH CORRIDOR	287±

NOTE: ALL PERMITTED USES IN THIS PAD ARE ALLOWED IN ALL DEVELOPMENT UNITS.



### **3. Flexible Land Use Entitlement**

This PAD creates a flexible land use entitlement that allows for a variety of uses, primarily those permitted in the P-I and I-1 Zones. This flexibility offers the following benefits:

- It contributes to the economic development goals of the City of Tucson by providing a broad range of industrial land uses.
- It creates an opportunity for large-scale industrial/advanced manufacturing development coupled with the opportunity for protection and enhancement of a significant reach of the Julian Wash through a unique partnership between the City of Tucson and the ASLD.
- It sets realistic expectations of the development potential of an area for future residents, the development community and decision-makers.
- It allows the property to respond to market conditions in the City of Tucson as the land is sold by the ASLD.
- It provides both certainty and flexibility that allows the ASLD to protect land values for the Trust while leaving site specific planning to future purchasers and end users who are better suited to perform such functions at a later stage.
- It defers detailed planning for infrastructure to the Secondary Planning and City of Tucson Development Package stage.
- It minimizes the entitlement risk of future purchasers of State Land.

### **4. Compatibility with Adjoining Land Uses**

This PAD and its intended industrial uses will be compatible with existing surrounding land uses.

- This PAD is bounded by Interstate 10 to the south and an interstate highway is compatible with industrial development.
- The northern boundary of this PAD is in close proximity to the Union Pacific Railroad, a facility compatible within industrial development.
- The permitted uses in this PAD are required to adhere to the Use Specific Standards in the Unified Development Code which are intended to provide additional standards for certain permitted and special exception land uses, industrial included, in order to mitigate any adverse impacts on adjacent land uses, on the immediate neighborhood, and on the community.
- The Hanson Ridge residential subdivision lies adjacent to the northeastern boundary of this PAD. In addition to the Use Specific Standards, buffering will be provided in the area adjacent to the subdivision to provide transition of land use.
- The Cactus Country RV Park lies adjacent to the northwestern boundary of this PAD. In addition to the Use Specific Standards, buffering will be provided in the area adjacent to the park to provide transition of land use.

- The Acacia Elementary School lies adjacent to the eastern area of this PAD. In addition to the Use Specific Standards, buffering will be provided in the area adjacent to the school to provide transition of land use.
- Parcels of land privately owned and owned by Pima County are located adjacent to the north boundary of this PAD and in the “stair step pattern.” Public vehicular access will be maintained to these parcels.

## **5. Anticipated Phasing**

This PAD may be purchased by a single entity or several entities. It is unknown at this point. If purchased by several entities, the property may be developed in phases. Once this PAD is approved by the City of Tucson, the zoning entitlements for the property will be established and the ASLD will have the tools necessary to develop a preliminary disposition plan. Decisions for how and when to sell the land will be made by the ASLD based on careful consideration of how to best achieve the Department’s fiduciary responsibility to the beneficiaries of the Trust Land. The ASLD retains full authority to determine which Development Units (or portions thereof) are sold, and when the sale will occur. This is based on a careful assessment of market conditions and determining which State Land holdings may be most attractive to future purchasers. The post-PAD planning and development of this property would begin following the disposition of a parcel.

Regardless of the actual order of development of the Development Units within this PAD, future purchasers of each Development Unit or portion of Development Unit will design and construct infrastructure (i.e. roads, water, sewer, etc.) necessary to not only serve the Development Unit or portion thereof itself, but also to facilitate the development of adjacent Development Units where appropriate and required. Where needed, infrastructure will be sized to serve other Development Units and will be designed so that it can easily be extended to reach and serve other Development Units.

## **6. Subdivision Block Platting & Public Right-of-Way Dedications**

Subdivision platting and/or Development Packages will be completed by future purchasers of property within this PAD and will comply with Article 8: Land Division, Land Split and Subdivision Standards of the Unified Development Code.

## **7. Owner Maintenance Responsibilities**

The construction of future roads within this PAD will comply with City of Tucson standards, as will right-of-way dedications for public roads. Public roads, once constructed and accepted by the City of Tucson, will be owned and maintained by the City.

The maintenance of public utilities will be the responsibility of the servicing utility company.

Trails that are intended to serve the larger community will be designed to City of Tucson standards and dedicated to the City of Tucson in accordance with applicable ASLD requirements and procedures for ongoing maintenance.

## 8. Financial Assurances

Financial assurances will be provided in the future in forms acceptable to the City of Tucson as identified in Section 8.6.2 of the Unified Development Code. This includes third party trusts.

## 9. City of Tucson Waiver of Claims

Future purchasers of land within this PAD shall execute and record a separate agreement in a form acceptable to the City of Tucson to waive claims against the city for zoning amendments in conformance with ARS Section 12-1134(I).

# B. Land Use Regulations

## 1. Planned Area Development Zoning Districts

This PAD utilizes existing City of Tucson Zoning Districts as the basis for the permitted land uses within the Development Units. The following City of Tucson Zoning Districts are permitted in this PAD:

- Park Industrial Zone (P-I).
- Light Industrial Zone (I-1).

Both zoning districts are permitted in all Development Units identified in this PAD.

Special Exception Land Uses, as defined and identified by the City of Tucson Unified Development Code, shall be processed in accordance with the Special Exception Review Procedures as per the City of Tucson Unified Development Code.

## 2. Development Standards

### *a. Permitted Uses*

- All permitted uses in the P-I Zone and I-1 Zone of the City of Tucson Unified Development Code, including Special Exception Land Uses without requiring the approval process identified in the UDC.
- Heavy equipment manufacturing and primary manufacturing as defined in the City of Tucson Unified Development Code.
- Rail spur in connection with any of the permitted uses in this PAD.

### *b. Uses Not Permitted*

- A railroad yard or switching yard as a primary use. A railroad yard or switching yard is defined in this PAD as a large-scale railroad operation with a complex series of railroad tracks for storing, sorting, loading and unloading of railroad cars and locomotives.
- Hazardous material manufacturing and any other I-2 permitted use, except heavy equipment manufacturing and primary manufacturing.

iii. Billboards are not a permitted use in the PAD project area. The three (3) existing nonconforming billboards within the project area (COT #592, COT #591, and COT #588) shall be removed as a condition of this PAD rezoning, subject to the following timelines and procedures. The three (3) existing billboards are under a Special Land Use Permit (SLUP) issued by ASLD. These billboards are to be eliminated from the ASLD SLUP at the time of a successful auction for the parcel(s) on which the billboard(s) is located, but in no event later than three (3) years from the effective date of the ordinance adopted by Mayor and Council to approve this PAD. In the event of a successful auction, the purchaser shall acquire all of the necessary approvals and remove the billboard within 60 days of the auction. If an auction does not occur within three (3) years of the effective date of the ordinance adopted by Mayor and Council to approve this PAD, and one or more of the billboards is not otherwise removed during this time, ASLD will provide to the City permission to enter upon the subject property, through a separate Right of Entry agreement to be granted within ten (10) business days of the City request, for the City’s removal of the billboard(s). ASLD shall further provide to the City on a timely basis a copy of the amended SLUP that eliminates the subject billboards. In no event is ASLD responsible for physical removal of the billboard(s).

iv. Marijuana Facility: Dispensary Off-site Cultivation Location.

*c. Use Specific Standards*

Article 4.9 Use Specific Standards of the Unified Development Code shall apply.

*d. Dimensional Standards*

Article 6 Dimensional Standards and Measurements of the Unified Development Code shall apply with the following exception:

i. Maximum building height (including property within ADC – 3): 140 feet. A maximum of 200 feet is permitted for non-habitable structures.

*e. Approach Departure Corridor – 3 (ADC – 3) Performance Standards*

ADC – 3 Performance Standards for the DMAFB Environs from UDC Article 5.6.8 shall apply to property within ADC – 3 except for the following:

- i. Consistent with the UDC dimensional standards which do not limit lot coverage for Industrial Zones, there is no maximum FAR.
- ii. There is no requirement for underground meeting and function areas.
- iii. The maximum permitted building height of 62 feet does not apply. Maximum building heights are established in Section III.B.2.d.i above.
- iv. Storage of hazardous materials in association with the permitted uses herein is allowed.

**3. Surface Drainage/Environmental Resources**

a. Protected Riparian Area. In balancing the purpose of this PAD and the purpose of the environmental resource regulations in Chapters 26 and 29, Article VIII of the Tucson Code, Unified Development Code, and the City’s Technical Standards Manual, an Environmental Resource Report (ERR) has been prepared for this PAD. The ERR identifies areas on the site that meet the City of Tucson definition of Protected Riparian Area (PRA) (Section 4-02.2.3 of the Technical Standards Manual). The disturbance

of PRA within this PAD shall comply with the Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan requirements identified in Section III.B.4 of this PAD.

- b. Julian Wash. The Julian Wash, including its channel, banks and areas within its 100-year floodplain, shall not be disturbed except for the following activities: road crossings, railroad crossings, utility crossings, drainage infrastructure and introduction of new plants or transplanted plants installed as part of the PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan intended to enhance the Julian Wash, including irrigation systems that will be required to support newly introduced plants.
- c. Environmental Resource Zone (ERZ) Washes. This PAD proposes the removal of portions of the ERZ designations on the Julian Wash tributaries and the Franco Wash Tributary within this PAD as shown on *Exhibit S: Modification of ERZ Wash Designations*. The removal of these ERZ designations is part of the balanced development strategy for this PAD. PRA in these washes that is disturbed by development would be mitigated via the provisions of the Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan. The ERZ and WASH designation on the Julian Wash will remain in place. This proposed modification of ERZ designations is in accordance with Section 5.7.2.D of the UDC.

*Julian Wash Tributaries*

Based on a review of Section 5.7.1 and 5.7.2 of the UDC and the purpose and applicability of ERZ washes, the removal of the ERZ designations for the Julian Wash tributaries is justified for the following reasons:

- i. Minimal significant, healthy vegetation within the ERZ areas and entire PAD.
- ii. Minimal high value, critical riparian area within the ERZ areas and entire PAD.
- iii. Generally low 100-year flow volumes and insignificant amount of groundwater recharge in the ERZ areas.
- iv. Lack of upstream connectivity.
- v. Lack of connectivity with Tucson’s public lands and preserves.

Disturbed PRA identified within the Julian Wash tributaries shall comply with the Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan Requirements identified in Section III.B.4 of this PAD.

*Franco Wash Tributary*

Based on a review of Section 5.7.1 and 5.7.2 of the UDC and the purpose and applicability of ERZ washes, the removal of the ERZ designation for the Franco Wash Tributary is justified for the following reasons:

- i. Minimal significant, healthy vegetation within the ERZ areas and entire PAD.
- ii. Minimal high value, critical riparian area within the ERZ areas and entire PAD.
- iii. Lack of connectivity with Tucson’s public lands and preserves.

Disturbed PRA identified within the Franco Wash Tributary shall comply with the Protected Riparian Area Mitigation and Julian Wash Enhancement Plan Requirements identified in Section III.B.4 of this

PAD, except that mitigation planting would occur in the Franco Wash Tributary corridor or in the tributary to the Franco Wash Tributary located near the Interstate 10 traffic interchange with Colossal Cave Road.

**4. Protected Riparian Area Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan Requirements**

A PRA Mitigation and Julian Wash Enhancement Plan shall be submitted to the City of Tucson Planning and Development Services Department by the future purchaser or purchasers of property within this PAD. The overall purpose and intent of the PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan is as follows and is illustrated on *Exhibit T: PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Concept*.

- To compensate for the loss of PRA within this PAD by introducing new or relocated plants to mitigation areas within this PAD in the Julian Wash and the Franco Wash Tributary corridors.
- To support and enhance healthier vegetation, wildlife habitat and connectivity in the Julian Wash and Franco Wash Tributary corridors by directing as much stormwater flow as possible from developed areas into the Julian Wash and Franco Wash Tributary and drainage basins located adjacent to these wash corridors. This would comply with Chapter 26 Floodplain, Stormwater and Erosion Hazard Management of the Tucson City Code. This would also comply with applicable sections of the UDC, TSM and other City of Tucson drainage design documents unless modified by this PAD.
- To create the opportunity for recreational use in this reach of the Julian Wash corridor by locating Trail 16 Gas Line Trail in the Julian Wash corridor rather than along Interstate 10, or by extending the Julian Wash Greenway (G027) into this PAD.

The PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan shall be submitted and reviewed by the City of Tucson Planning and Development Services Department. Approval of the PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan is administrative and granted by the Director of the City of Tucson Planning and Development Services Department.

The PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan shall include the following information:

- a. The boundary of the site proposed for development, including an aerial photograph, taken within three years of submittal.
- b. The location of proposed development areas.
- c. The location of 100-year floodplain limits as regulated by the City of Tucson. Flood resource areas identified by the Pima County Regional Flood Control District should also be identified.
- d. The location and amount of PRA within the boundary of the site proposed for development. The PRA shown is to be as per the PRA identified in the H2K ERR that is to be approved by the City of Tucson. If additional PRA is identified during the preparation of the PRA Mitigation and Julian

Wash and Franco Wash Tributary Enhancement Plan, it will be identified as such and be handled in accordance with these mitigation plan requirements.

- e. An inventory of living plants within the PRA areas proposed for disturbance that meet the following criteria:
  - i. Canopy, or over-story vegetation consisting of perennial, woody plants (such as mesquite, foothill palo verde or desert hackberry) that are six feet or more in height and have a basal trunk diameter greater than two inches. Caliper of trees is measured at six inches for single-trunked and multitrunked specimens above grade level at the base of the tree.
  - ii. Mid-story, or understory vegetation consisting of perennial woody plants (such as catclaw and whitethorn acacia) that are six feet or more in height, excluding the following perennial woody plants: burrobush, creosote bush, desert broom and triangle-leaf bursage.

The inventory shall include the identification number, genus and species, size, transplantability (considering health, vigor, form, soil conditions at the base of the tree and topography). Please note this inventory is separate from the Native Plant Preservation Plan (NPPP) that is required by the City of Tucson. The protected plant list and caliper and height requirements are different than would be used in the preparation of the NPPP.

- f. Identification of plants within the PRA areas to be transplanted to mitigation areas and ones to be removed from the site.
- g. Identification of mitigation areas and individual plants that will recreate the disturbed PRA areas. The revegetation effort will create habitat that approximates the predisturbed habitat in square footage, plant density, diversity and volume. Mitigation areas are to be in accordance with *Exhibit T: PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Concept*.
  - i. Trees with basal trunk diameters ranging from two to four inches and shrubs shall be replaced at a two to one ratio. Mitigation plants can come from on-site inventory (minimum caliper 0.25" for trees measured at six inches above grade) or nursery containers (minimum size is 1 gallon).
  - ii. Trees with basal trunk diameters larger than four inches shall be replaced at a three to one ratio. Mitigation plants can come from on-site inventory (minimum caliper 0.5" measured at six inches above grade) or nursery containers (minimum size is 5 gallon).
  - iii. Cacti shall be replaced at a one-to-one ratio.
  - iv. All revegetation areas require hydroseeding using the Native Seed List from the UDC (5-02.6.0).

- v. All salvaged and new mitigation plants shall be irrigated for three years from the time of installation. An automatic drip irrigation system will be designed and included as part of the Plan.
- vi. Once the inventory of living plants is completed and the extent of PRA is specifically determined, the ASLD working in conjunction with the with the City of Tucson may hire a qualified biologist or botanist to assess the number of mitigation plants required in accordance with the aforementioned mitigation ratios. A biologist or botanist familiar with native plants of this region would determine the ultimate number of mitigation plants that can be sustained by the Julian Wash corridor and identified receptor areas to ensure long-term health of existing and newly planted species. If a biologist or botanist determines that a lesser amount than is called for in the mitigation ratios would be more beneficial for the overall habitat, then the mitigation ratios may be amended, subject to review and approval by the City of Tucson.
- h. Preliminary design of surface water management system. The design of surface water management systems and location/function of flood detention/retention systems shall comply with City of Tucson requirements. This includes the use of passive water harvesting techniques found in Section 4-01.2.1 of the City of Tucson Technical Standards Manual. The overall strategy for the PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan is to direct as much surface water as possible from developed areas to the Julian Wash and Franco Wash Tributary. In order to regulate the volume and velocity of flow in these washes, a series of drainage basins in the area adjacent to them will be employed. These basins will be multi-purpose in that they will serve to collect and meter water into the Julian Wash and Franco Wash Tributary, will retain water for water harvesting and will be included in the receiving areas for mitigation plants. Basins will be designed in compliance with standards contained within the Stormwater Detention/Retention Manual, including the following standards:
  - i. Basins will be unfenced and designed with curvilinear shapes, rather than geometric ones, and follow existing contours wherever possible.
  - ii. Varying side slope gradients will be provided with smooth transitions between grades.
  - iii. Side slope gradients will, wherever possible, be 3:1 or flatter.
  - iv. Basins are not to be located within the Erosion Hazard Setback, where possible.
  - v. Basins require hydroseeding using the Native Seed List from the UDC (5-02.6.0).
  - vi. Where possible, basins will be located in areas without significant existing vegetation to minimize disturbance of existing plants.
  - vii. Basins will vary in depth and where possible will be shallow and allow additional surface water to enter the Julian Wash, thereby providing additional water to existing plants. The addition of water to the Julian Wash could be accomplished via a detention waiver based on regional



detention basin credits available in the Julian Wash and without causing harm to downstream properties.

- i. A summary table indicating the existing plants within the PRA areas, salvaged plants, plants to be removed and mitigation plants as required by these PRA mitigation standards.
- j. The mitigation plan should also address the following:
  - i. Best Management Practices (BMP) including long term planning for integrated invasive plant management.
  - ii. Personnel working within this PAD should be trained and educated to be made aware of the potential for sensitive and/or threatened and endangered species within this PAD. This would include the Sonoran Desert Tortoise, Burrowing Owl, Pima Pineapple Cactus and Needle Spined Pineapple Cactus. Protocols should be in place in the event that personnel working within this PAD encounter said species.
- k. A monitoring/maintenance program for the revegetated mitigation areas shall be created as part of the Plan. The program shall include the following:
  - i. On-site monitoring during salvaging and replanting.
  - ii. Provisions for regular inspection and removal of invasive species.
  - iii. Regular inspection of the irrigation system to ensure it is operational for the 3-year period previously specified.
  - iv. Provisions for native plant replacement for the first 3 years following installation to successfully establish the mitigation vegetation. The mitigation plan shall be considered successful if at least 80% of the plants area living and actively growing at the end of the 3-year monitoring period.
  - v. Monitoring reports shall be submitted to the City of Tucson Planning and Development Services Department on an annual basis for the first 3 years following installation. The format of the monitoring reports should follow the reporting requirements found in the Pima County Regional Flood Control District, Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines.

## **5. Agua Verde Creek Open Space Preservation Plan**

Through this PAD, certain sections of State Trust Land in the Agua Verde Creek corridor have been identified as valuable areas for open space conservation. As outlined below, portions of these sections of State Trust Land will be included as part of the disposition of land within this PAD for open space conservation. These open space areas would help to protect the long-term ecological viability of the Sonoran Desert and make the following contributions to the greater Tucson area:

- Open space preservation.
- Habitat conservation and protection.
- Protection and preservation of wildlife linkages.
- Protection of major wash corridors.
- Provision of buffers between private land and public parks and other public lands.

The Agua Verde Creek Open Space Preservation Plan would be administered as follows:

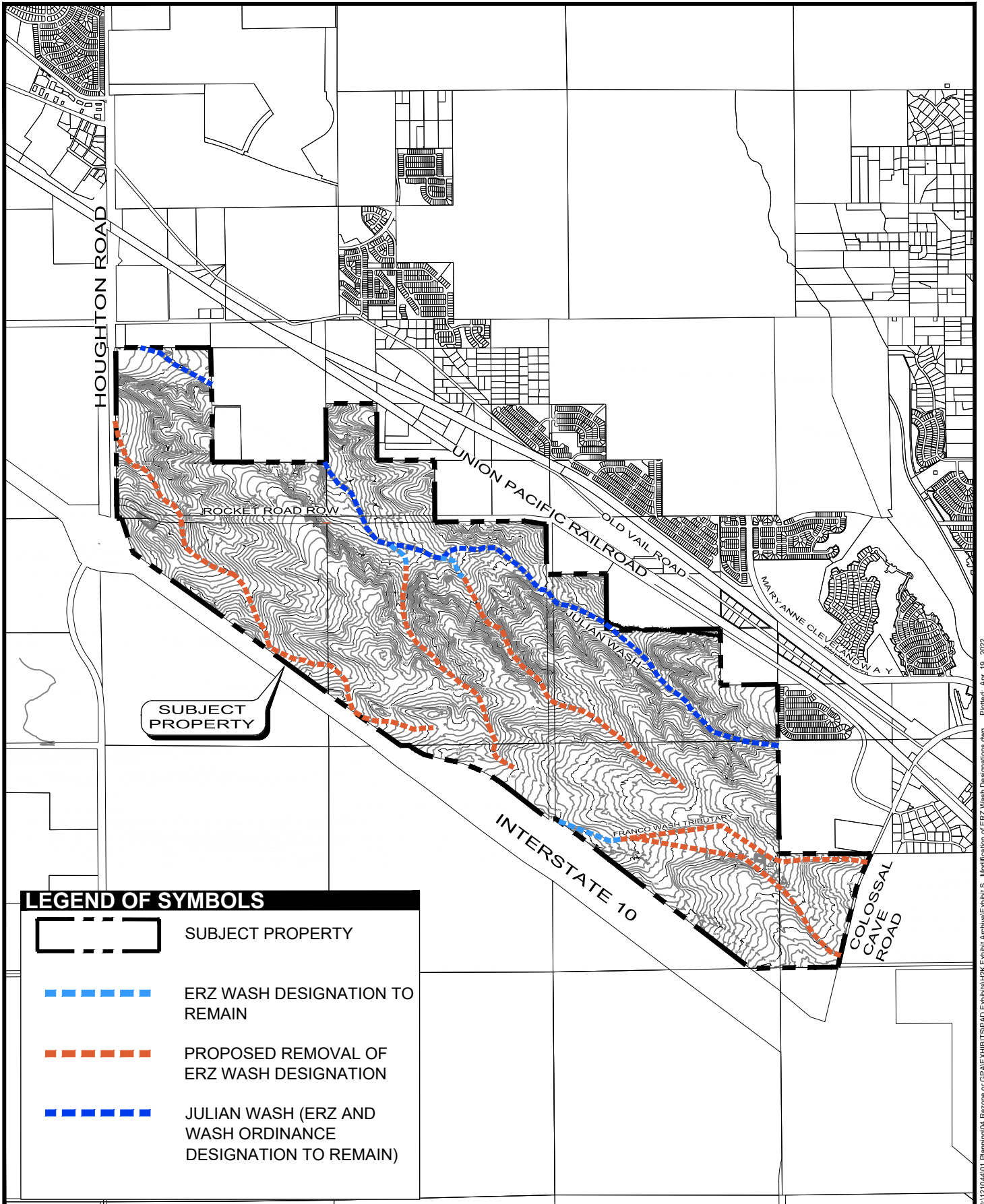
- a. The amount of Pima County Regulated Riparian Habitat (RRH) disturbed by proposed development within this PAD would be identified and quantified in number of acres.
- b. For each acre of RRH that is disturbed, 5 acres of offsite open space would be identified and preserved.
- c. The State Trust Land eligible for use by this Plan is focused on land within the Agua Verde Creek corridor. More specifically, State Trust Land located in the following sections is eligible for use by this Plan:

Township 16 South, Range 16 East  
Section 13

Township 16 South, Range 17 East  
Sections 10, 11, 12, 13, 14, 15 and 16

Township 16 South, Range 18 East  
Section 16

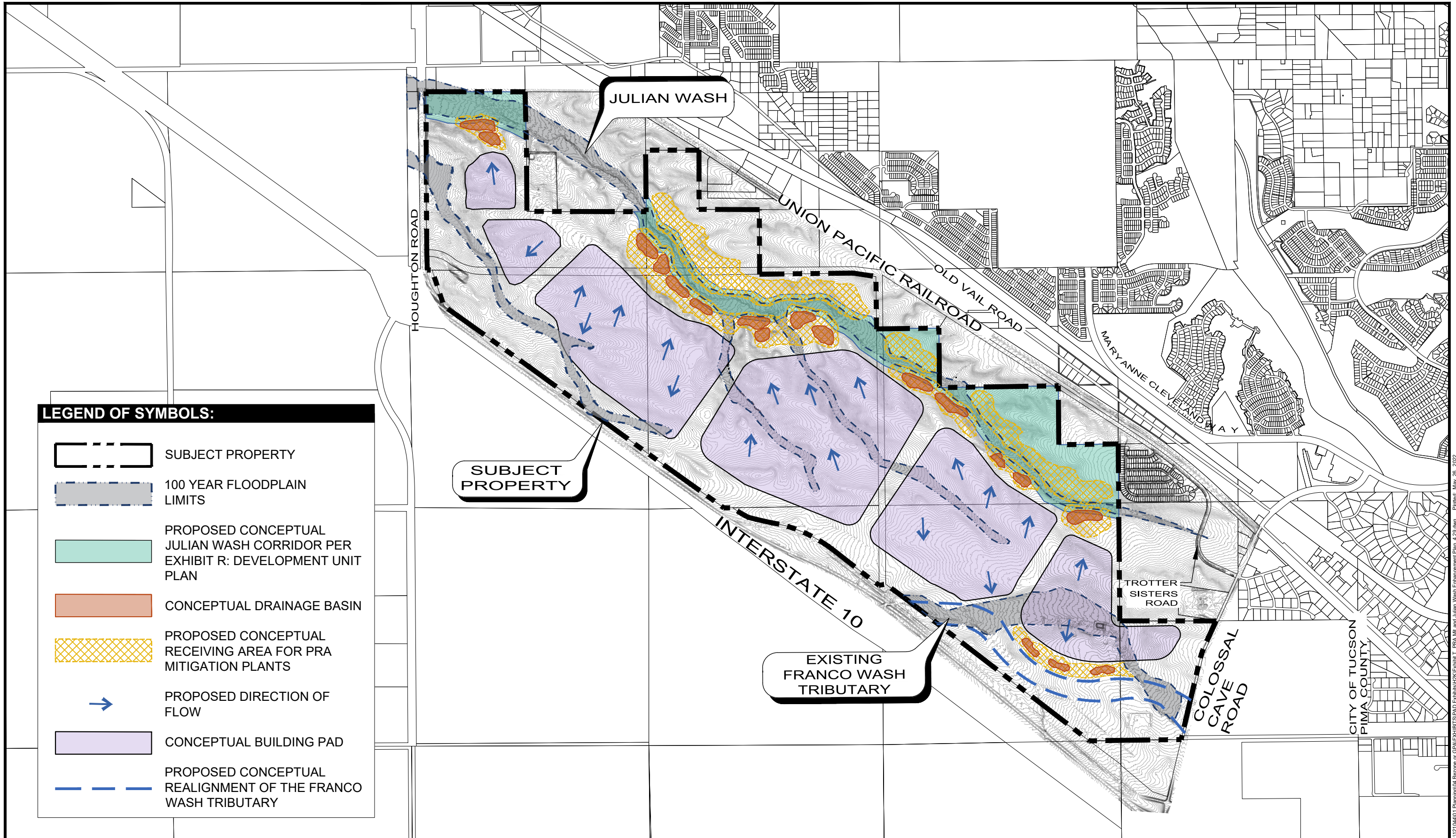
- d. Based on the previously mentioned RRH disturbance amount and 5:1 ratio, the ASLD Commissioner will determine which land in the Agua Verde Creek corridor described above will be used for open space preservation.
- e. The aforementioned land would be appraised and included in the property within this PAD sold at auction to a future purchaser or purchasers. Once land is acquired from the ASLD, the future purchaser or purchasers would then deed this land in the Agua Verde Creek to an entity that would conserve the land as open space in perpetuity.



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**Exhibit S**  
**Modification of ERZ Wash Designations**





**Exhibit T**  
**PRA Mitigation and Julian Wash and Franco Wash Tributary Enhancement Plan**



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## C. Transportation Infrastructure Analysis

This will be completed as part of the Vehicular Circulation Master Plan to be prepared during the Secondary Planning stage. The initial purchaser of land in this PAD will prepare this master plan to address not only the Development Unit containing the initial disposition property, but also other Development Units that are affected by or may make use of the transportation infrastructure constructed to serve the initial disposition property. The intent is to ensure that transportation infrastructure can easily be extended to serve Development Units that are yet to be developed. This Master Plan will also ensure that access to adjacent private parcels is maintained.

Traffic impact analyses will be prepared in accordance with the Development Package and/or subdivision platting process as required by the City of Tucson.

The Vehicular Circulation Master Plan will also address the designation of Rocket Road (right-of-way for this road currently exists but the road does not) on the City of Tucson Major Streets and Routes Plan as a future scenic arterial street. A preliminary assessment of Rocket Road suggests that it may not function as an arterial street, primarily since it will likely not cross the railroad and connect with Vail Vista Road, and since it is anticipated to function as an access road to the Development Units in this PAD. The potential removal of the future scenic arterial street designation for Rocket Road will be in accordance with applicable City of Tucson procedures.

## D. Conceptual Drainage Solution, Associated Improvements and City of Tucson Code Chapter 26

The drainage solution will be further defined as part of the Surface Drainage/Environmental Resources Master Plan to be prepared during the Secondary Planning stage. The Surface Drainage/Environmental Resources Master Plan will not only address the Development Unit containing the initial disposition property, but also upstream and downstream Development Units, or portions of Development Units, as appropriate. This will ensure that drainage infrastructure is designed and constructed to easily connect with future upstream and downstream development.

The overall drainage strategy for this PAD is to collect and direct stormwater flows created by impervious surfaces toward the Julian Wash and Franco Wash Tributary. Stormwater flows would be collected in drainage basins and then released into these washes in locations and volumes that simulate existing flow conditions. This will assist in protecting and enhancing the hydrologic function of the wash and in enhancing the health of both existing and introduced vegetation.

Development within this PAD shall comply with City of Tucson Code, Chapter 26, Floodplain, Stormwater and Erosion Hazard Management as well as applicable sections of the UDC and Technical Standards Manual. A variance is not required because the proposed surface drainage strategy for this PAD complies with the requirements of Section 26-5.2 Floodway Fringe Development.

Stormwater detention and retention will comply with Section 4-03.0.0 of the City of Tucson Technical Standards Manual.

Drainage design shall comply with the City of Tucson, *City of Tucson Standards Manual for Drainage Design and Floodplain Management in Tucson, Arizona* (Ref. 1). Drainage design will consider Pima County Regional Flood Control District Design Standards for Stormwater Retention/Retention Facilities, June 2014, Section D.4 and amendments.

## E. Proposed Utility Infrastructure

The Water Master Plan and Wastewater Master Plan will be prepared during the Secondary Planning stage and address the provision of water and wastewater infrastructure. These master plans will ensure that water and wastewater infrastructure is sized and located in a manner to not only serve the Development Unit containing the initial disposition property, but also the undeveloped Development Units.

Pima County Regional Wastewater Reclamation Department will provide wastewater collection and treatment for this PAD. The following conditions apply:

- a. The owner(s) shall not construe any action by Pima County as a commitment to provide sewer service to any new development within the rezoning area until Pima County executes an agreement with the owner(s) to that effect.
- b. The owner(s) shall obtain written documentation from the Pima County Regional Wastewater Reclamation Department that treatment and conveyance capacity is available for any new development within the rezoning area, no more than 90 days before submitting any rezoning, tentative plat, development plan, preliminary sewer layout, sewer improvement plan, or request for building permit for review. Should treatment and / or conveyance capacity not be available at that time, the owner(s) shall enter into a written agreement addressing the option of funding, designing and constructing the necessary improvements to Pima County's public sewerage system at his or her sole expense or cooperatively with other affected parties. All such improvements shall be designed and constructed as directed by the Pima County Regional Wastewater Reclamation Department.
- c. The owner(s) shall time all new development within the rezoning area to coincide with the availability of treatment and conveyance capacity in the downstream public sewerage system.
- d. The owner(s) shall connect all development within the rezoning area to Pima County's public sewer system at the location and in the manner specified by the Pima County Regional Wastewater Reclamation Department in its capacity response letter and as specified by the Pima County Regional Wastewater Reclamation Department at the time of review of the tentative plat, development plan, preliminary sewer layout, sewer construction plan, or request for building permit.
- e. The owner(s) shall fund, design and construct all off-site and on-site sewers necessary to serve the rezoning area, in the manner specified at the time of review of the tentative plat, development plan, preliminary sewer layout, sewer construction plan or request for building permit.
- f. The owner(s) shall complete the construction of all necessary public and/or private sewerage facilities as required by all applicable agreements with Pima County, and all applicable regulations, including the Clean Water Act and those promulgated by ADEQ, before treatment and conveyance capacity in the downstream public sewerage system will be permanently committed for any new development within the rezoning area.

## F. Protected Riparian Area Regulations and Mitigation

As previously mentioned, an Environmental Resource Report has been prepared for this property. This Environmental Resource Report identifies the Protected Riparian Area (PRA). If PRA remains undisturbed, then no mitigation is required. Disturbed PRA will be mitigated in accordance with Section III.B.4 of this PAD.

## G. Proximity to a Navigation Facility

This PAD is subject to the Airport Environs Zone (AEZ) as per Article 5.6 of the City of Tucson Unified Development Code. More specifically, it is impacted by the Davis - Monthan Air Force Base environs. A portion of this PAD is located in Approach Departure Corridor - 3 (ADC – 3) and in Noise Control District – A (NDC A). Section III.B of this PAD contains development standards related to permitted uses, height, floor area ratio and meeting/function areas in Davis – Monthan Air Force Base environs.

According to the Federal Aviation Administration (FAA) Notice Criteria Tool, this project area is located in proximity to a navigation facility and could impact navigation signal reception. As the project site develops every project applicant shall file FAA Form 7460 with the FAA at least 45 days before construction activities begin for every proposed project unless FAA staff, with the Obstruction Evaluation / Airport Airspace Analysis (OE/AAA), provides the project applicant with written communication that filing FAA Form 7460 is not required. It is highly recommended that the applicant file earlier than 45 days to provide the applicant with sufficient time to respond to any concerns which are identified by the FAA. Any cranes which are used must also be identified with Form 7460. Please file Form 7460 at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

## H. Municipal Services Site

If needed by the City of Tucson, a 10 to 15 acre site would be reserved within this PAD for public safety facilities or other municipal services. The exact location of this site would be determined via discussions between the ASLD, future purchasers and the City of Tucson.

## I. Architectural Standards and Design Guidelines

Architectural standards and design guidelines will be established by future purchasers of land within this PAD as part of the Secondary Planning process identified in Section IV of this PAD.

## J. Sonoran Desert Conservation Plan

This PAD is within the Sonoran Desert Conservation Plan’s designated Priority Conservation Area for the Pima Pineapple Cactus. Coordination shall occur with US Fish and Wildlife Service, and field surveys and relocation of individual cactus shall be done prior to any ground disturbing activities.

## K. Interpretation and Modification of PAD District Regulations

### 1. Purpose

This section outlines the implementation of this PAD. It identifies the parties responsible for ensuring the PAD is built in coordination with required infrastructure. This section also provides for guidance regarding the general administration of and amendment procedures for this PAD.

## **2. Development Review Procedure**

The development review for this PAD shall be implemented through the review and approval process of Development Packages (tentative plats and site plans) and final plats (if required) and all other plan reviews typically performed by the City of Tucson and through the City of Tucson building permit approval process. Please note that this would occur after the Secondary Planning that is described in Section IV of this PAD. Decisions on grading, drainage, road alignment, re-vegetation, and other matters must be presented on the Development Package and reflected as appropriate on the final plat (if required). All subdivision plats shall be reviewed by the City of Tucson in accordance with City of Tucson procedures.

## **3. General Implementation Responsibilities**

This PAD shall be implemented through the subdivision review process. Please note that this would occur after the Secondary Planning that is described in Section IV of this PAD. This process will allow for the creation of development blocks and lots via the preparation and processing of Development Packages (tentative plats and site plans) and final plats (if required). This PAD will guide the platting process with other official City of Tucson ordinances, policies, maps, and regulations.

The implementation of this PAD is the responsibility of future purchasers in accordance with the regulations and guidance contained within this PAD, unless otherwise noted. The future purchasers, or their successors and assigns, shall be responsible for the engineering and implementation of the project infrastructure.

Approval of a subdivision plat or building permit is subject to the following requirements:

- a. Conformance with this PAD.
- b. Dedication of appropriate rights-of-way for roads, utilities, and drainage by plat or by separate instrument if the property is not to be subdivided.
- c. None of the development requirements contained within this PAD shall have the effect of superseding the requirements of the City of Tucson adopted Building Codes.

Please refer to Section III.H.6.a of this PAD for a description of the ASLD's role in the implementation of this PAD.

## **4. Phasing**

This PAD may be developed in phases. The pace of development will likely be dictated by market conditions and demand. Infrastructure may be constructed in a phased manner as well, where necessary infrastructure is constructed to serve a Development Unit or portion of Development Unit. If this PAD is developed in phases, infrastructure improvements will be located and sized in a manner such that they are easily extended to serve future development within the other Development Units.

## **5. Administration**

If an issue, condition, or situation arises that is not covered or provided for in this PAD, those regulations of the City of Tucson Unified Development Code that are current at the time of development/permitting shall apply.



a. Role of the ASLD

The ASLD will identify land within this PAD for disposition within its sole and absolute discretion and in accordance with this PAD. Throughout the period when ASLD still hold Trust land within this PAD, any Property owner other than ASLD shall not submit requests for interpretation of a PAD amendment without a written document from ASLD approving the request. If a Property owner submits such a request without ASLD concurrence, the City shall notify ASLD immediately.

The ASLD will remain involved in land use decisions within the entire PAD until such time that all land has been sold and the ASLD no longer has ownership of any Trust land within this PAD. As property within this PAD is sold and developed, the ASLD has the authority to reviews plans for consistency with this PAD to not only ensure quality development of the Development Unit, or portion thereof subject to such plans, but also to ensure that plans will have positive influence on the development of future Development Units. The ASLD has the authority to perform the following actions:

- i. To review any Development Packages, site improvement plans, subdivision plats or other plans related to the development of the land within this PAD prior to plans being submitted to the City of Tucson or other agency for review and approval. Applications to the City of Tucson must include an ASLD Planning Authorization Letter.
- ii. To review and approve any proposed land use permitted in this PAD prior to plans being submitted to the City of Tucson.
- iii. To review and approve any proposed amendments to this PAD or other applications affecting land use, development standards and regulations. Any such applications must first be approved by the ASLD prior to formal submittal to the City of Tucson. Applications to the City of Tucson must include an ASLD Planning Authorization Letter.
- iv. To review and approve any and all Master Plans prepared as part of the Secondary Planning process described herein. ASLD approval of Master Plans must be obtained prior to formal submittal to the City of Tucson. Applications to the City of Tucson must include an ASLD Planning Authorization Letter.

b. Development Agreement and Intergovernmental Agreement

The roles, responsibilities, secondary planning, PRA mitigation and other items may be memorialized in a Development Agreement between the winning bidder (i.e. Developer), the ASLD and the City of Tucson and in an Intergovernmental Agreement between the ASLD and the City of Tucson.

c. Enforcement

This PAD shall be enforced by the City of Tucson Planning and Development Services Department in accordance with the provisions of the City of Tucson Unified Development Code.

d. Administrative Change

Certain changes to the provisions in this PAD may be made administratively by the City of Tucson Director of Planning and Development Services, provided said changes are not in conflict with the overall intent expressed in this PAD. Proposed administrative changes shall be submitted to City of Tucson Director of Planning and Development Services for review and approval.

Categories of administrative change include, but are not limited to:

1. The addition of new information (including maps or text) to this PAD that does not change the effect of any regulations or guidelines, as interpreted by the Director.
2. Changes to the infrastructure planning, location and alignment, including on-site roads, drainage, water, and sewer systems that do not increase the development capacity of this PAD.
3. Changes to the Development Unit boundaries.
4. Changes to development standards that are in the interest of the community and have no negative effect on health or safety issues.
5. The determination that a use be allowed which is not specifically listed as permitted but which may be determined to be similar in nature to those uses explicitly listed as permitted.
6. Changes to trail alignments provided that such changes still allow the trail to function in accordance with the intent of the Pima Regional Trail System Master Plan.
7. An increase in building height of up to 10% beyond that permitted in this PAD within the ADC – 3 area, provided such increase is reviewed and approved by Davis – Monthan Air Force Base and the City of Tucson Planning and Development Services Director.

e. Substantial Change

Any substantial changes to this PAD, as defined in the City of Tucson Unified Development Code, may be processed through a PAD amendment pursuant to the City of Tucson Unified Development Code. The Director shall determine whether a proposed amendment is a substantial change. Any amendment request shall include all sections or portions of this PAD that are affected by the change.

f. Interpretation

Interpretations of this PAD shall be made by the City of Tucson Director of Planning and Development Services, and all interpretations shall be based on the purpose and language of this PAD. If this PAD is silent on an issue, then the City of Tucson Unified Development Code shall govern as long as such an interpretation is within the purpose of this PAD. Interpretations shall not be used to permit uses or procedures not specifically authorized by this PAD or the City of Tucson Unified Development Code; however, interpretations can be used to include new land uses that closely resemble permitted uses within this PAD.

The Director shall be responsible for interpreting the provisions of this PAD. Appeals to the Director's interpretation may be made pursuant to the Unified Development Code.

g. Fees

Fees will be assessed as indicated by the City's adopted fee schedule that is in place at the time of development.

The fees that otherwise would be due at the time of rezoning submittal will be paid to the City of Tucson by the private purchaser in accordance with the following:

The base fee for the PAD is \$497,200.00. The total fee will be \$502,958.50 which includes “other fees” such as: Technology/Archive Fee (\$4,972.00), Aerial Photos (\$165.00), Legal Ads (\$275.00), Public Notification (\$220.00), and Ordinance/Resolution Ads (\$126.50).

The deferred fees will be pro-rated at \$232.85 per acre (PAD fee of \$502,958.50 divided by 2160 acres). The deferred fees will be based on the acreage being developed at the time of Development Package submittal, and at the rate of \$232.85 per acre. The fee will be collected and applied to the PAD Rezoning case at the time of Development Package submittal as a separate payment.

h. PAD Development Monitoring Program

The ASLD and the City of Tucson shall work jointly to prepare a written report including:

- The past year’s development activity on property within this PAD.
- Applications for sale or lease of property within this PAD.
- Estimates for the upcoming year in the above categories within this PAD.

This yearly report will be prepared within 30 days of the new calendar year of the adoption of this PAD. Annual reports will not be required after development build-out.



## Section IV – Secondary Planning

This section of the Planned Area Development outlines the responsibilities of the purchasers of property within the PAD with regard to the next level of planning that is required for the property. This next level of planning involves the preparation of a series of Master Plans by purchasers of property within the PAD. Please note that Secondary Planning will occur prior to the development review process.

The Master Plans to be prepared consist of the following:

- Vehicular and Pedestrian Circulation (including trails)
- Surface Drainage/Environmental Resources
- Water.
- Wastewater.
- Trails.
- Architectural, Landscape Architectural and Green Infrastructure Design Guidelines and Standards.

## **A. Process**

The purchase of property within the PAD carries with it a requirement to prepare the above-listed Master Plans. The Master Plans shall be prepared by registered professionals licensed to practice in the State of Arizona. The Master Plans shall be prepared and submitted to the City of Tucson for administrative review and approval prior to a formal application starting the development review process.

Applicants shall attend a pre-application meeting with City of Tucson and the ASLD staff or with an ASLD authorization letter prior to the submittal of the Master Plans to discuss the intent and scope of these Master Plans. The overall intent of these Master Plans is to ensure that infrastructure constructed in the PAD is designed and sized to accommodate development of the PAD at entitled densities and intensities. The Master Plans are intended to be preliminary in nature.

## **B. Master Plan Requirements**

Below is a description of the information that is required to be included within the Master Plans. Please refer to the applicable portions of Part II of this PAD for additional guidance.

### **1. Vehicular and Pedestrian Circulation Master Plan**

- Identification of arterial roads intended to serve the PAD, including ultimate rights-of-way.
- Roadway design cross-sections for an on-site access road.
- Proposed traffic control for intersections of arterial and internal access roads.
- Conceptual phasing of road infrastructure improvements.
- Identification of offsite roadway infrastructure improvements that may be necessary to provide an acceptable level of service to accommodate development within the PAD.
- Use of Complete Streets design features as per the City of Tucson Street Design Guide.
- Provisions for continued access to adjacent private parcels.
- Location of primary trail corridors within the PAD, and identification of connection points to overall trail system for the City of Tucson.
- Coordination with ADOT shall occur due to the proximity of the site to the existing Interstate 10 traffic interchanges.

## 2. Surface Drainage/Environmental Resources Master Plan

- Identification of all watersheds affecting the site with 100-year discharges greater than 100 cubic feet per second.
- Identification of Protected Riparian Area (PRA) as shown in the approved Environmental Resource Report for this PAD and PRA mitigation areas.
- Identification of areas of sheet flooding with average depths.
- Describe any encroachment or modification proposed to major drainage patterns.
- Describe and identify the location of proposed primary drainage infrastructure.
- Describe how the proposed development condition will adhere to the applicable floodplain and erosion hazard management policies and ordinances of the City of Tucson.
- Please note that for WASH ordinance watercourses, the regulated area may be top of bank or ten-year flood boundary and a 50' study area beyond those boundaries.

## 3. Water Master Plan

- Location and size of existing trunk water lines and other major water system infrastructure.
- Capacity response letter from the water service provider.
- Identification of pressure zones in the area immediate to the PAD.
- Location and size of proposed trunk water lines and other major water system infrastructure such as booster stations or pressure reducing valves necessary to serve the anticipated development within the PAD.
- Identification of points of connection to existing water lines.
- Location and size of proposed water line stubs that would serve other Development Units within the PAD.

## 4. Wastewater Master Plan

- Location and size of existing sewer lines.
- Capacity response letter from the wastewater treatment provider.
- Location and size of proposed trunk sewer lines and identification if they are designed for gravity flow.
- Identification of points of connection to existing sewer lines.
- Location and size of proposed sewer line stubs that would serve other Development Units within the PAD.

## 5. Establishment of Architectural, Landscape Architectural and Low Impact Development and Green Infrastructure Design Guidelines and Standards and Design Review Process

Future purchasers of property within the PAD will develop their own design guidelines that will be implemented by that purchaser and developed during the Secondary Planning process. Design guidelines are anticipated to include the following primary items:

- Design review procedures.
- Site planning.
- Building design and architectural character (including Green Building techniques).
- Landscape design (including techniques to reduce urban heat island effect).
- Native plant preservation (including preservation in place where possible and transplant on site).
- Low Impact Development and Green Infrastructure practices and strategies.

One of the purposes of design guidelines is to create a sense of harmony and a consistent theme for certain built elements through this PAD. Built elements in this PAD with a consistent theme will assist in providing visual connection and harmony between the various types of land uses that will be developed in this PAD. The built elements located on the perimeter of this PAD as well as adjacent to the proposed internal spine roads that shall be carried throughout this PAD are as follows:

- Walls (color and materials).
- Plant materials.
- Decorative rock (size and color).

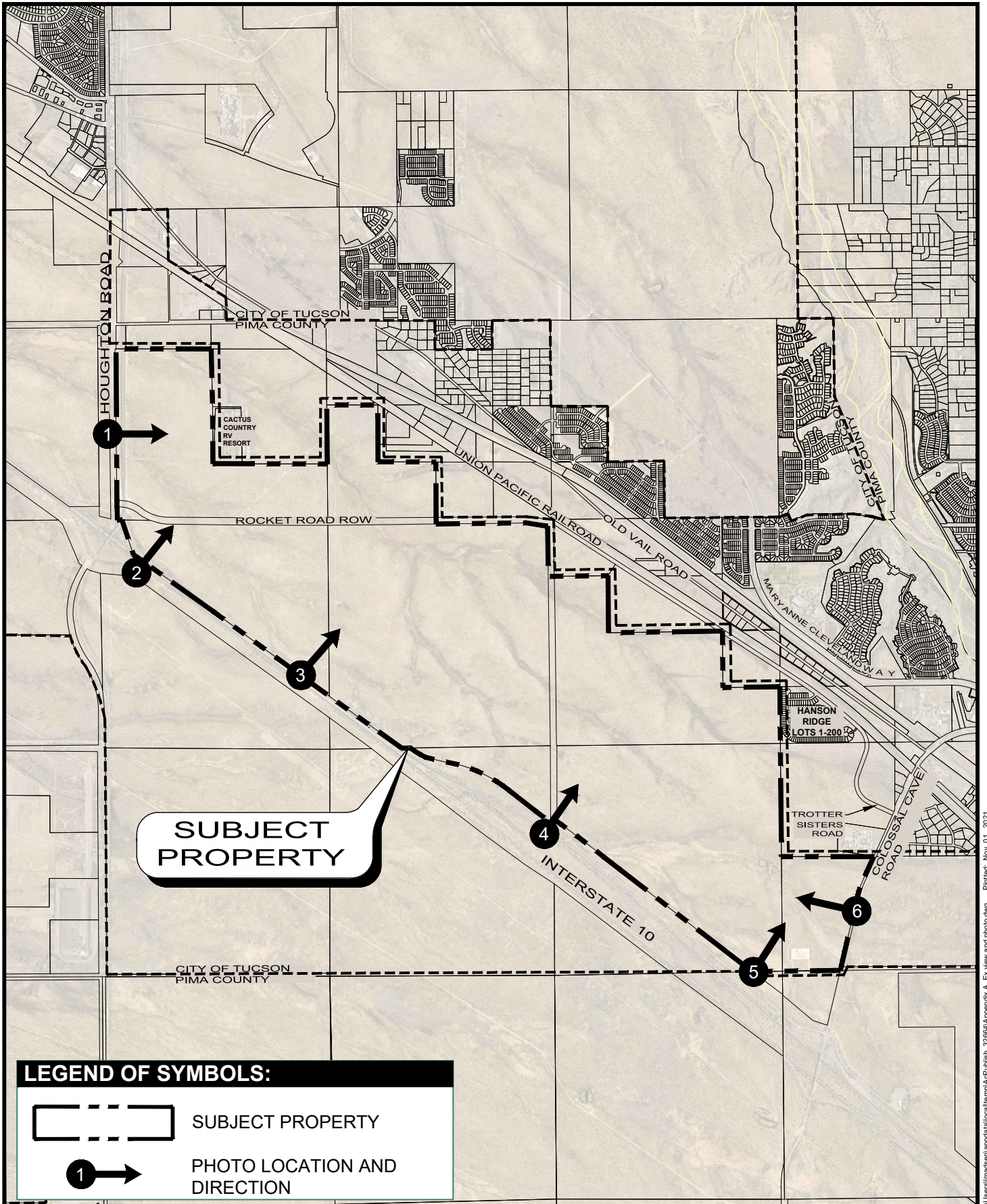
The design guidelines created by the initial purchaser of land in this PAD shall include designs for the items listed above. Future purchasers shall follow these designs in the construction of the above listed items in the areas located on the perimeter of this PAD and adjacent to the proposed internal spine roads.

The design guidelines created by future purchasers shall include a section addressing Low Impact Development and Green Infrastructure practices and strategies proposed for use in this PAD. In order to establish practices and strategies for this PAD, future purchasers of property shall utilize the Pima County/City of Tucson Low Impact Development and Green Infrastructure Guidance Manual (current version dated March 2015 and future updates that may occur) in the preparation of the design guidelines. In addition, future purchasers shall also consider the Green Infrastructure policies in *Plan Tucson: City of Tucson General & Sustainability Plan 2013*, as well as future updates to this plan. Those Low Impact Development and Green Infrastructure practices and strategies most suited to the proposed development with this PAD shall be included in the design guidelines.

## APPENDICES



## APPENDIX A



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## Appendix A Existing Viewsheds & Photo Locations



1. Looking east from Houghton.



2. Looking northeast from I-10.



## Appendix A Existing Viewsheds & Photo Locations

3. Looking northeast from I-10.



4. Looking northeast from I-10.



## Appendix A Existing Viewsheds & Photo Locations

5. Looking northeast from I-10.



6. Looking northwest from Colossal Cave Road.



## Appendix A Existing Viewsheds & Photo Locations

## APPENDIX B

# H2K Planned Area Development Environmental Resource Report

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## **EXHIBITS**

Exhibit A: Location Map

Exhibit B: Shaw Potential Riparian Areas (Dr. William Shaw 1986)

Exhibit C: Regulated Riparian Habitat Per Pima County Ordinance - FC2

Exhibit D: Aerial Photographs

Exhibit E: 100-Year Floodplains and Watershed Boundaries

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## **APPENDICES**

Appendix A: Arizona Game and Fish Environmental Review Report

Appendix B: National Resources Conservation Service Custom Soils Report

## I. INTRODUCTION AND PURPOSE OF THIS REPORT

This Environmental Resource Report (ERR) has been prepared to address certain environmental resources present on an approximately 2,160-acre property located near Houghton Road and Interstate 10 and owned by the Arizona State Land Department (ASLD). Please refer to *Exhibit A: Location Map*.

This report has been prepared in accordance with Section 4-02.0.0: Floodplain, Wash and ERZ Standards of the City of Tucson Technical Standards Manual (TSM), Supplement to the Unified Development Code (UDC). The overall purpose of this report is to accurately identify the areas on the site that qualify as riparian areas, or more specifically Protected Riparian Areas (PRA) as defined by Technical Standards Manual, Section 4-02.2.3. Currently, the property contains the following environmental designations:

- Watercourse Amenities, Safety and Habitat (WASH Ordinance).
- Environmental Resource Zone (ERZ).
- Pima County designated Important Riparian Area (IRA).
- Critical and Sensitive Wildlife Habitat as identified in the 1986 study (Critical and Sensitive Wildlife Habitats of Eastern Pima County) completed by Dr. William Shaw.

Please refer to *Exhibit B: Shaw Potential Riparian Areas (Dr. William Shaw 1986)* and *Exhibit C: Regulated Riparian Habitat Per Pima County Ordinance - FC2* for the location of these environmental designations on the property.

As a matter of background, this property has been identified by the ASLD as ready for development, and as such is currently being planned and rezoned to allow for industrial uses. The ASLD and their consultants have been working with the City of Tucson to develop a foundation for development of the site, which involves the establishment of the H2K Planned Area Development (PAD) for the property which will govern its development. This is directly relevant to this ERR. The regulatory standards for the treatment and mitigation of disturbed PRA in the H2K PAD.

## II. PROPERTY INFORMATION

The subject property is within the incorporated limits of the City of Tucson. Pima County Assessor records list the subject property as tax parcels 305-02-005-E, 305-02-005-D, 305-03-009-0, 305-09-016-0, 305-07-008-0, 305-13-009-A, 305-08-008-0, 305-13-008-0, and 305-13-007-D.

The subject property is located within the following Sections: Section 1, Township 16 South, Range 15 East, Section 12, Township 16 South, Range 15 East, Section 6, Township 16 South, Range 16 East, Section 7, Township 16 South, Range 16 East, Section 8, Township 16 South, Range 16 East, Section 16, Township 16 South, Range 16 East, Section 17, Township 16 South, Range 16 East, Section 18, Township 16 South, Range 16 East Gila Salt River Base and Meridian, Pima County, Arizona.

Please refer to *Exhibits D: Aerial Photograph* for the location of the property and a current aerial photograph of the site.

### III. PROTECTED RIPARIAN AREA

According to Section 4-02.2.3 Protected Riparian Area (PRA) of the TSM:

*The protected riparian area (PRA) is the area that has riparian habitat that is to be preserved. Except for watercourses designated by ordinance as subject to ERZ and WASH regulations, the protected riparian area shall not exceed the 100-year floodplain. Protected riparian areas include areas that provide habitat structure, wildlife food and shelter, and that also aid in supporting wildlife connectivity, erosion control and help to improve stormwater quality. Riparian habitat may include the vegetative resources, mapped areas and wildlife habitat and corridors listed below where such habitat is riparian in nature and function.*

As per Section 4-02.2.3 Protected Riparian Area (PRA) of the TSM, the focus of this ERR was on the areas of the site located within 100-year floodplains and beyond these limits for watercourses designated by ordinance as subject to ERZ and WASH regulations. Please note that the H2K PAD proposes to remove portions of the ERZ designations on site as permitted by UDC Section 5.7.2.D which states:

*Designation, Amendment and Change of Boundaries for ERZ Washes: Designations of new areas subject to this section and changes to existing designations are processed in accordance with Section 3.5, Rezoning (Change of Zoning) Procedure.*

Please note that this ERR still identifies PRA within those washes. *Exhibit E: 100-Year Floodplains and Watershed Boundaries* identifies the areas on the site that are included within 100-year floodplains. These floodplains consist of locally regulated floodplains. The City of Tucson regulates floodplains with 1-percent-annual-chance flood flow rates (Q100) of over 100 cubic feet per second described as follows:

- A local floodplain associated with the Julian Wash. This wash is subject to Part II Tucson Code, Chapter 29, Article VIII, Watercourse Amenities, Safety and Habitat (WASH Ordinance) and the Environmental Resource Zone (ERZ).
- Julian Wash tributaries and associated local floodplains identified as ERZ Washes that carry greater than 100 cubic feet per second. The H2K PAD proposes to remove the majority of the ERZ designation from these two tributaries. Please refer to Section III.B.3.c of the H2K PAD for more information and reasons in support of the removal of the designation.
- A local floodplain associated with the Franco Wash Tributary. Franco Wash Tributary has been identified on the 1994 Shaw maps as potentially containing riparian habitat and it is an ERZ Wash. The H2K PAD proposes to remove the ERZ designation from this wash. Please refer to Section III.B.3.c of the H2K PAD for more information and reasons in support of the removal of the designation.
- An unnamed ERZ Wash located near the Houghton Road/Interstate 10 traffic interchange. This wash starts on the property and flows west and then past Houghton Road. The H2K PAD proposes to remove the ERZ designation from this wash. Please refer to Section III.B.3.c

of the H2K PAD for more information and reasons in support of the removal of the designation.

- Other small tributaries to the above-mentioned washes that carry at least 100 cfs.

Over a period from December 27, 2021 to February 10, 2022, staff from The WLB Group, Inc. conducted a field analysis of the subject property to assess the vegetation on the property with the intent of identifying areas on the site that meet the City of Tucson criteria for PRA. According to Section 4-02.2.3 Protected Riparian Area (PRA) of the TSM, there are certain criteria to be used to make this determination and as such these criteria were used during our field analysis. In accordance with the TSM, the field analysis focused on vegetative resources and mapped areas and wildlife habitat and corridors where riparian habitat may exist. Please refer to the Appendices to this document and to Exhibit H which documents through photographs the PRA areas and areas that do not contain PRA.

Please refer to *Exhibit F: Protected Riparian Area*.

Please note that a native Plant Preservation Plan (NPPP) meeting the requirements of Section 2-11.0.0 of the City of Tucson Administrative Manual has not yet been prepared for the H2K PAD. The NPPP will be prepared and submitted to the City of Tucson for review and approval either with or prior to the Development Package. The NPPP will include plants that are designated as PRA and mitigation of the disturbance of PRA plants will be in accordance with the H2K PAD.

Please also refer to *Exhibit H: Photograph Location Key Map and Ground Level Photographs* for photographs of the areas on site identified as PRA.

The following text contains excerpts from the technical standard containing these criteria. After each of the criteria, we have provided a response describing the conditions of the subject property.

#### **A. Vegetative Resources**

Vegetative Resources are groups of three or more individual plants in close proximity to each other representing any of the plant species (and any combination of associated vegetative structure) listed below.

1. Mesoriparian plant species, including Arizona walnut, Fremont cottonwood, Goodding (black) willow, Arizona sycamore, Arizona ash.

*Results of Analysis: There are no Mesoriparian plant species on the subject property.*

2. Over-story vegetation consisting of closely spaced, perennial, woody that are generally six feet or more in total height, and where the distance between canopy margins of individuals of the predominant over-story plant species is less than two times the height of the tallest individuals.

*Results of Analysis: Please refer to Exhibit F: Protected Riparian Area which identifies areas on the site which meet the City of Tucson criteria for PRA designation. The following plants were identified on the site: Mesquite, Foothill Palo Verde and Desert Hackberry.*

*The effects of prolonged drought conditions are evident on this property. Field observation indicates that the vegetation on this site is stressed by prolonged drought conditions.*

3. Understory vegetation consisting of closely spaced, perennial woody plants that are generally six feet in total height, or less, and where the distance between canopy margins of individuals of the predominant understory plant species is generally less than two times the height of the tallest individuals, excluding nearly pure stands of understory vegetation consisting of the following perennial woody plants: burrow bush, creosote bush, desert broom, or triangle-leaf bursage.

*Results of Analysis: Please refer to Exhibit F: Protected Riparian Area which identifies areas on the site which meet the City of Tucson criteria for PRA designation. The following plants were identified on the site: Whitethorn Acacia and Catclaw Acacia.*

*As stated above, the effects of prolonged drought conditions are evident on this property. Field observation indicates that the vegetation on this site is stressed by prolonged drought conditions.*

4. Combinations of overstory and understory vegetation that together constitute valuable habitat, and tobosa swales.

*Results of Analysis: Please refer to Exhibit F: Protected Riparian Area. The PRA on this exhibit includes combinations of overstory and understory and tobosa swales.*

## **B. Mapped Areas shown on the Critical and Sensitive Wildlife Habitat Maps**

1. Major segments of desert riparian habitat extending from public preserves.

*Results of Analysis: Not applicable since there are no public preserves located near or adjacent to the subject property.*

2. Major segments of desert riparian habitat not extending directly from a public preserve but containing a high density and diversity of plant and animal species.

*Results of Analysis: Not applicable since there do not appear, based on field analysis, to be areas on the subject property containing a high density and diversity of plant and animal species.*

3. Deciduous riparian woodlands.

*Results of Analysis: Not applicable since there are no deciduous riparian woodland areas on the property.*

4. Mesquite bosques.

*Results of Analysis: Not applicable since there are no significant stands of Mesquite trees on the subject property that would qualify as a Mesquite bosque.*

5. Lakes, ponds, or wetlands.

*Results of Analysis: Not applicable since there are no lakes, ponds or wetlands on the subject property.*

### C. Wildlife

Based on the Arizona Game and Fish Department's Online Environmental Review Report, several Special Status Species have been documented within a three-mile radius of the subject property, and they are as follows:

Gila Longfin Dace (*Agosia chrysogaster chrysogaster*)  
The Western Burrowing Owl (*Athene cunicularia hypugaea*)  
Northern Beardless-Tyrannulet (*Camptostoma imberbe*)  
Mexican Long-tongued Bat (*Choeronycteris Mexicana*)  
Yellow-billed Cuckoo (Western DPS)( *Coccyzus americanus*)  
Monarch( *Danaus plexippus*)  
Sinoloan Narrow-mouthed Toad (*Gastrophryne mazatlanensis*)  
Sonoran Desert Tortoise (*Gopherus morafkai*)  
Gila Monster (*Heloderma suspectum*)  
Desert Mud Turtle (*Kinosternon sonoriense sonoriense*)  
Lowland Leopard Frog (*Lithobates yavapaiensis*)  
Cave Myotis (*Myotis velifer* )  
Gila Topminnow (*Poeciliopsis occidentalis occidentalis*)  
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)  
Desert Box Turtle (*Terrapene ornata luteola*)  
Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*)  
Needle-spined Pineapple Cactus (*Echinomastus erectocentrus* var. *erectocentrus* )

Refer to *Appendix A* for full Environmental Review Report. This report is a tool to identify the potential for certain plant and animal species to occur on a property. The report does not necessarily mean that any particular species is present on the subject property. There is no evidence, based on this report, that the subject property supports a significant amount of wildlife.

According to the Sonoran Desert Conservation Plan (SDCP), the eastern portion of the property is part of a critical landscape connection or wildlife corridor on the subject property. The wildlife corridor designation is associated with the Pantano Wash corridor to the east of the property and does not suggest that any of the onsite washes are vital to this corridor. Additionally, the SDGP acknowledges the Pacific Union Railroad and Interstate 10 are major physical barriers to wildlife crossings in this area. The subject property is surrounded by these barriers on its northern and southern boundaries.

The Arizona Game and Fish Department Environmental Review Report identifies Pima County Wildlife Linkages and indicates that the Franco Wash Tributary is a Wildlife Movement Area. The H2K PAD acknowledges this and although the alignment of the Franco Wash Tributary is proposed for potential modification within the H2K PAD, connectivity both upstream and downstream will be maintained. The Franco Wash Tributary within the H2K PAD will continue to support wildlife movement.

## **IV. ENVIRONMENTAL RESOURCE REPORT REQUIREMENTS**

The following information is provided in response to Section 4-02.2.3.B which addresses encroachment in regulated areas. This report identifies the regulated area (area within the 100-year floodplain for watercourses with flows of 100 cfs or more) and PRA within this property. As such, the following information is being provided pursuant to the requirements of Section 4-02.2.3.B.

### **A. The Location of the 100-Year Floodplain**

The location of local 100-year floodplains of the primary washes on the subject property is shown on *Exhibit E: 100-Year Floodplains and Watershed Boundaries*. This exhibit also identifies the location of smaller washes carrying at least 100 cfs. The specific 100-year floodplain limits for these smaller washes would be identified by future drainage reports.

This subject property is located within Federal Emergency Management Agency) FIRM (Flood Insurance Rate Map) panels 04019C2925L and 04019C2940L. The subject property falls within Zone X, which is an area determined to be outside the 0.2% chance of annual flood.

### **B. Soil Conditions and Erosion Potential**

Based on the soil profiles defined in the National Resource Conservation Service Custom Soils Report and minimal slope throughout the property there is no indication of abnormal erosion potential. Please refer to *Appendix B* for the soils report.

### **C. Existing Rights-of-Way or Easement Dedications**

An approximately 2.5-acre Tucson Electric Power sub-station is located in the southeastern portion of the subject property. A set of high-voltage electric transmission lines pass through the substation on an east-west alignment, intersecting with Colossal Cave Road to the east and Interstate 10 to the west. The width of this utility corridor is approximately 250 feet. A second set of high voltage electric transmission lines cross the western portion of the site on a northeast to southwest alignment. The width of this utility corridor is approximately 200 feet.

Underground telecommunications cable for multiple providers are located within 10-foot wide easements that are roughly parallel to and approximately 500 feet from Interstate 10.

An underground interstate petroleum pipeline passes to the north of and through a small corner of the north side of the subject property within a 30-foot wide easement.

#### **D. Existing Drainageway or Proposed Drainageways On or Adjacent to Site**

Currently, the property is not platted and there are no dedicated drainageways on the site.

##### *Julian Wash*

The headwaters of the Julian Wash begin approximately 1.5 miles east of the subject property. It is natural in some areas and then channelized adjacent to a commercial business located at the intersection of Colossal Cave Road and the Union Pacific Railroad.

The Julian Wash leaves the property through culverts under Houghton Road and flows northwest for approximately one mile until it is diverted into a constructed channel. The natural course of the Julian Wash is changed as it is re-routed to the north along the eastern boundary of tax parcel 141-22-0290 (Target Corp). From this point on the wash is diverted to the northwest along the Union Pacific Railroad and adjacent to the UA Science and Technology Park. From this point on, the Julian Wash is largely channelized all the way to its outlet at the Santa Cruz River. There are some places where it is still natural, but the channelization has occurred as the downstream area has developed over the years.

Through regulations established in the H2K Planned Area Development (PAD), the Julian Wash corridor is proposed to be largely preserved and vegetation enhanced in areas where appropriate in accordance with the Protected Riparian Area Mitigation Plan requirements found in Section III.B.4 of the H2K PAD.

##### *Franco Wash Tributary*

The headwaters of the Franco Wash Tributary begin approximately four miles east of the subject property. It enters the southeastern portion of the subject property and then exits via culverts beneath the frontage road and Interstate 10. Downstream of the subject property, it is free flowing until its natural drainage pattern is altered by a diversion channel through the Pima County Fairgrounds. After the Fairgrounds, the wash continues until it reaches the Franco Wash at a point approximately 7 miles from the subject property.

Through regulations established in the H2K Planned Area Development (PAD), the Franco Wash Tributary corridor is proposed to be enhanced in areas where appropriate in accordance with the Protected Riparian Area Mitigation Plan requirements found in Section III.B.4 of the H2K PAD.

#### **E. Previous Hydraulic/Hydrology Studies Affecting the Site**

In 2009 Pima County Regional Flood Control District completed the Lee Moore Wash Basin Management Study to identify the drainage and flooding hazards within the watershed and develop alternatives to address those hazards. The study was intended to provide guidance to



discourage development in flood prone areas by minimizing encroachments into regional floodplains and establishing a watershed-wide drainage system. This report identified the portion of the Franco wash tributary on the subject property as a flood prone area.

The study will be consulted during the development of surface drainage strategies for the site.

A portion of the subject property is located within FEMA (Federal Emergency Management Agency) FIRM (Flood Insurance Rate Map) panels 04019C2925L and 04019C2940L. The subject property falls within Zone X which is outside the 500-year floodplain.

## **F. Groundwater Recharge**

This information is not being provided in this report since the site is being proposed for development and not groundwater recharge. It should be noted, however, that the development of the subject property is likely to increase groundwater recharge potential due to the proposed use of infiltration via retention/water harvesting basins.

## **G. Sediment Transport**

This information is not being provided in this report since sediment transport is not relevant to the primary purpose of this report, which is identification of PRA.

## **H. Existing and Proposed Utilities**

### **A. Sewer**

#### *Existing Infrastructure*

The sewer infrastructure in the area of the subject property is public and owned and maintained by the Pima County Regional Wastewater Reclamation Department (PCRWRD).

- 10-inch PVC sewer line in Trotter Sisters Drive adjacent to site.

#### *Proposed Infrastructure*

Future purchasers of the subject property, or portions of the subject property, will work with the Pima County Regional Wastewater Reclamation Department to plan and design for the extension of sewer infrastructure to serve future development.

### **B. Potable Water**

#### *Existing Infrastructure*

Tucson Water maintains water lines in the area of this PAD described as follows:

- 24" ductile iron water line located in Houghton Road which terminates north of the Union Pacific Railroad.
- 24" ductile iron water line in Old Vail Road. This line terminates at the Tucson Water booster station located at 11210 E Old Vail Road (APN 305-09-006D).

There are no Tucson Water water lines located east of the above-mentioned booster station.

#### *Proposed Infrastructure*

Future purchasers of the subject property, or portions of the subject property, will work with Tucson Water to plan and design for the extension of water infrastructure to serve future development.

### C. Electric

#### *Existing Infrastructure*

An approximately 2.5-acre Tucson Electric Power sub-station is located in the southeastern portion of the subject property. A set of high-voltage electric transmission lines pass through the substation on an east-west alignment, intersecting with Colossal Cave Road to the east and Interstate 10 to the west. The width of this utility corridor is approximately 250 feet. A second set of high voltage electric transmission lines cross the western portion of the site on a northeast to southwest alignment. The width of this utility corridor is approximately 200 feet.

#### *Proposed Infrastructure*

Future purchasers of the subject property, or portions of the subject property, will work with Tucson Electric Power to plan and design for the extension of electric infrastructure to serve future development.

## I. Other Watercourse Characteristics

As previously discussed, the vegetation in the washes on the subject property can be generally characterized as stressed and some lack distinct connectivity with upstream portions of the wash. The following is a description of each of the primary washes on the property.

#### *Julian Wash*

According to Tucson Stormwater Management Study Node information, the volume of 100-year flow on the site in this wash ranges from approximately 743 to 2076 cubic feet per second. This wash is subject to Part II Tucson Code, Chapter 29, Article VIII, Watercourse Amenities, Safety and Habitat (WASH Ordinance) and the Environmental Resource Zone (ERZ). The Julian Wash

and its tributaries have been identified on the 1994 Shaw maps as potentially containing riparian habitat. The headwaters of the Julian Wash are located approximately 1.5 miles east of the H2K PAD.

#### *Julian Wash Tributaries*

There are two Julian Wash tributaries in the central portion of the H2K PAD currently identified as ERZ washes that carry greater than 100 cfs during a regulatory storm event. These washes begin within the H2K PAD and convey approximately 493 cfs during a regulatory storm event at the point where they empty into the Julian Wash. The H2K PAD proposes to remove the majority of the ERZ designation from these two tributaries. Please refer to Section III.B.3.c of the H2K PAD for more information and reasons to support the removal of the designation.

There is an unnamed currently designated ERZ wash located in the western portion of the H2K PAD near the Houghton Road/Interstate 10 traffic interchange. This wash starts within the H2K PAD and flows west and past Houghton Road where it connects to the Julian Wash. It carries approximately 743 cfs during a regulatory storm event at the point where it leaves the H2K PAD. The H2K PAD proposes to remove the ERZ designation from this wash. Please refer to Section III.B.3.c of the H2K PAD for more information and reasons to support the removal of the designation.

#### *The Franco Wash Tributary*

This wash is located on the southeastern portion of the H2K PAD and carries approximately 2,290 cfs during a regulatory storm event at the point where it leaves the H2K PAD. The Franco Wash Tributary has been identified on the 1994 Shaw maps as potentially containing riparian habitat and it is currently designated as an ERZ wash. The headwaters of the Franco Wash Tributary are located approximately 4 miles east of the H2K PAD. Franco Wash Tributary has been identified on the 1994 Shaw maps as potentially containing riparian habitat and it is an ERZ wash. The H2K PAD proposes to remove the ERZ designation from this wash. Please refer to Section III.B.3.c of the H2K PAD for more information and reasons to support the removal of the designation.

### **J. Boundary of Proposed Development**

Refer to *Exhibit E: 100-year Floodplains and Watershed Boundaries*.

### **K. Aerial Photograph**

Refer to *Exhibit D: Aerial Photograph 2020*.

### **L. Ground Level Photographs**

Refer to *Exhibit H3: Photograph Location Key Map and Ground Level Photographs*.

## **M. Basin Management Plan**

Refer to Section E.

## **N. Riparian Resources Map**

Please refer to *Exhibit B: Shaw Potential Riparian Areas (Dr. William Shaw 1986)* and *Exhibit C: Regulated Riparian Habitat Per Pima County Ordinance - FC2*.

Plant inventories for the property will occur when a Native Plant Preservation Plan is prepared in accordance with City of Tucson requirements.

## **O. Delineation of the Proposed Protected Riparian Area**

Please refer to *Exhibit F: Protected Riparian Area* for the location of Protected Riparian Area on the subject property. The total area of the Protected Riparian Area is approximately 39± acres. The regulated area (areas located within the 100-year floodplain of regulated watercourses) on the site consists of approximately 280± acres.

## **P. Delineation of Riparian Resources and Proposed Recreation Areas**

According to the Eastern Pima County Trail System Master Plan, the Gas Line Trail (T016) is proposed to follow the 10-foot utility easement that runs parallel to and approximately 500 feet from Interstate 10. This trail may be relocated align with the Julian Wash corridor on the north end of the property. This would allow the trail to maintain connections to other nearby trails and provide a more suitable recreation path along the Julian Wash.

Power Line Path (P032) will stay in the same location as it coincides with a 250-foot electrical easement containing high voltage electric transmission lines that cross the western portion of the site on a northeast to southwest alignment.

Please note that any trails and/or recreational spaces on State Trust Land require application to ASLD and will be evaluated for impact to the Trust. Trails that may informally exist on the property are not currently permitted uses on State Trust Land.

## **Q. Plant Inventory**

Plant inventories for the property will occur in the future when a Native Plant Preservation Plan is prepared in accordance with City of Tucson requirements and when the Protected Riparian Area Mitigation and Julian Wash Enhancement Plan is prepared in accordance with Section III.B.4 of the H2K PAD.

## **R. Critical and Sensitive Habitats**

Please refer to *Exhibit B: Shaw Potential Riparian Areas (Dr. William Shaw 1986)* and *Exhibit C: Regulated Riparian Habitat Per Pima County Ordinance - FC2*.

## **S. Significant Densities of Wildlife by Species**

Observation of wildlife during site visits did not reveal significant densities of wildlife on the property.

## **T. Description of the Impact on Protected Riparian Area**

The development of this property will impact the Protected Riparian Area. Mitigation standards for the disturbance of PRA are included in Section III.B.4 of H2K PAD.

## **U. Statement from AZ Game and Fish**

Please see *Appendix A: Arizona Game and Fish Environmental Review Tool Report*.

## **V. Mitigation Plan**

As previously mentioned in this report, mitigation standards for the disturbance of Protected Riparian Area on this property are contained in Section III.B.4 of H2K PAD.

## **W. Other Landscaping Requirements**

Any other special landscaping requirements for this property will be addressed in the H2K PAD.

## **BIBLIOGRAPHY**

*Balanced and Critical Basin Map*, Pima County.

*Eastern Pima County Trail Systems Master Plan Map*, Pima County, Parks and Recreation Department (1988).

*Map Guide*, Pima County Department of Transportation.

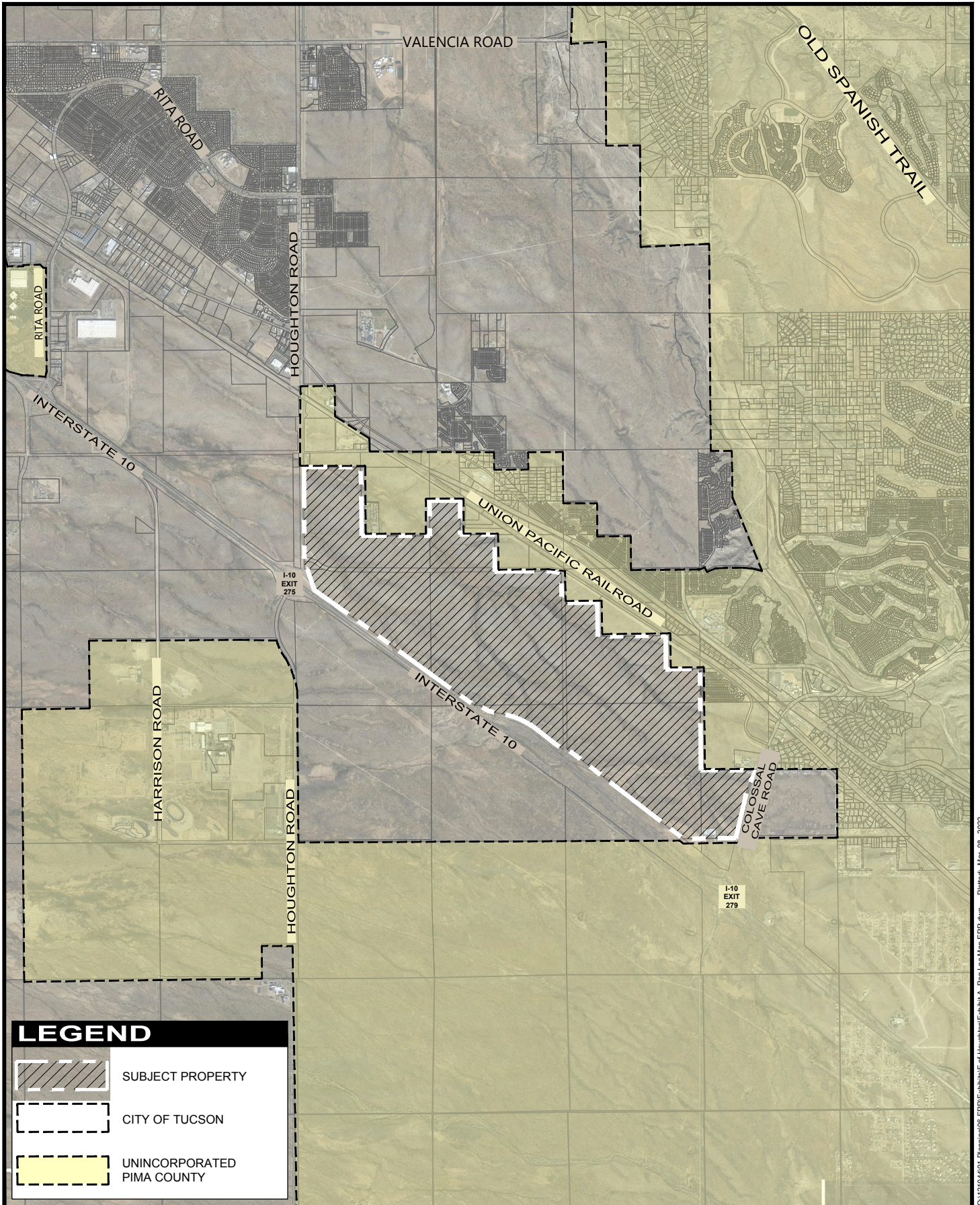
*Sonoran Desert Conservation Plan*, Pima County, Office of Sustainability and Conservation (2001).

*Technical Standards Manual, Supplement to the Unified Development Code (January 2013)*, City of Tucson.

*Tucson Stormwater Management Study-Natural Riparian Habitat Inventory (March 1995)* City of Tucson.

*Unified Development Code*, City of Tucson.

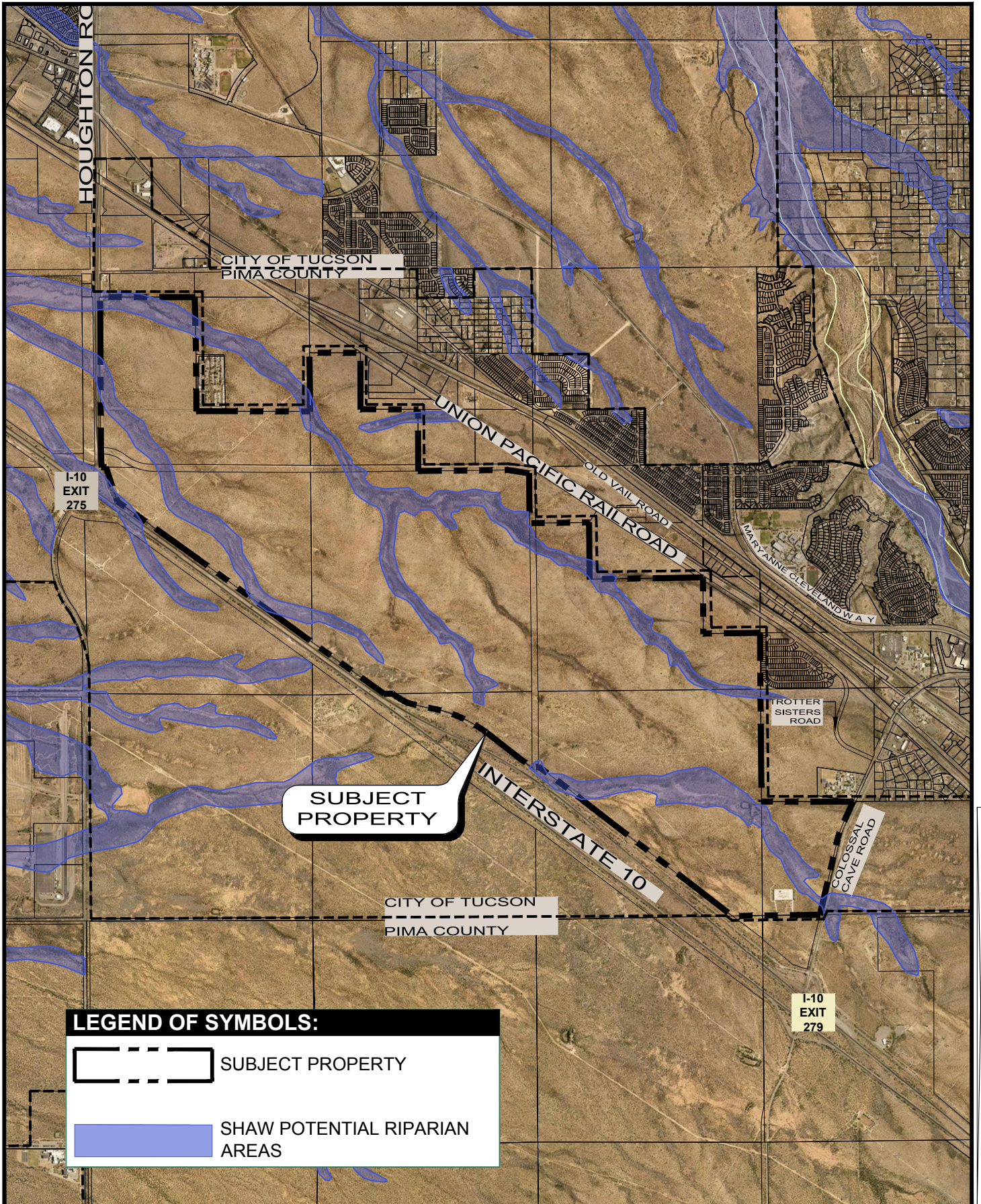
## EXHIBITS





**Exhibit A**  
**Regional Location Map**







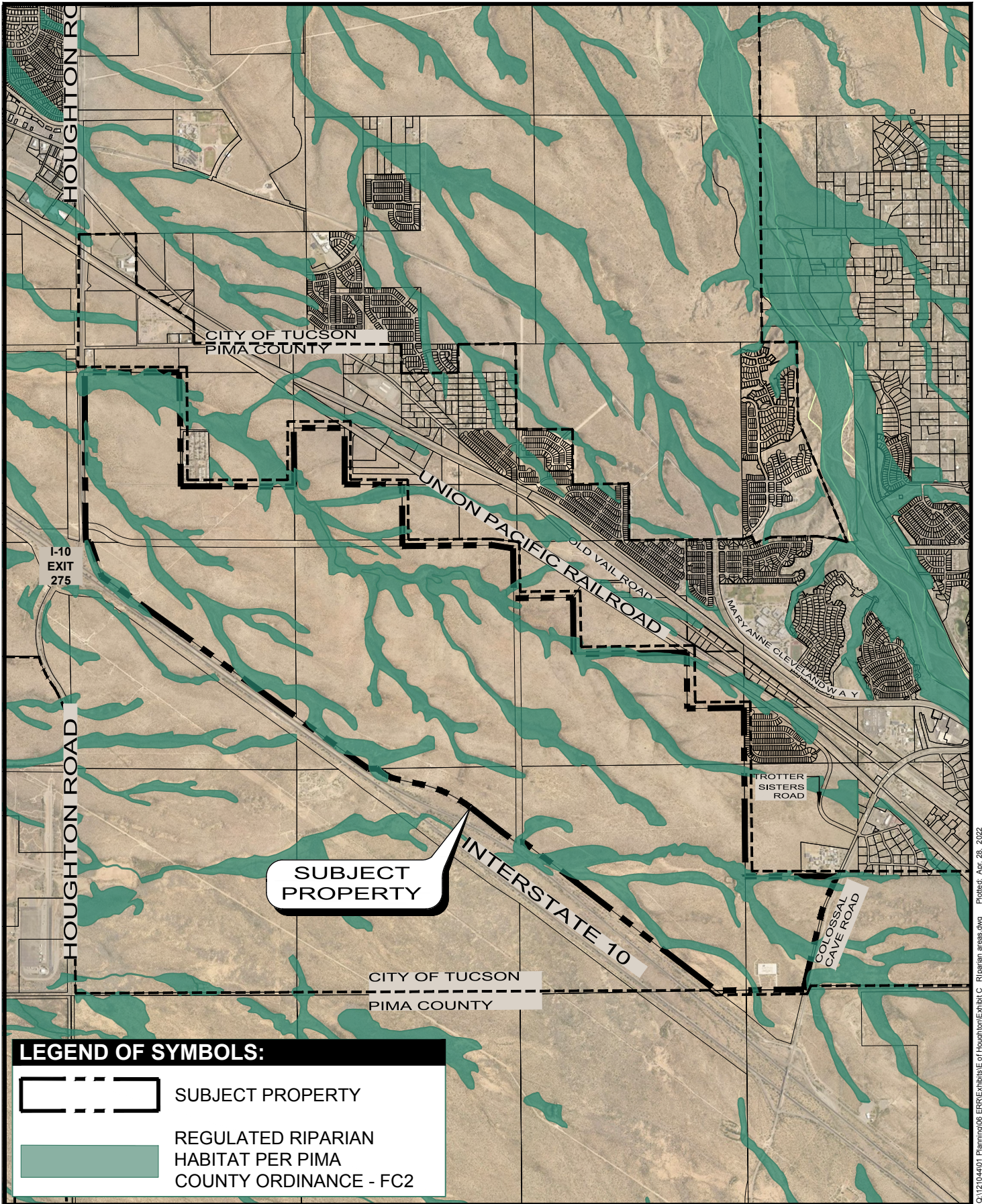
**LEGEND OF SYMBOLS:**

-  SUBJECT PROPERTY
-  SHAW POTENTIAL RIPARIAN AREAS

**Exhibit B**  
**Shaw Potential Riparian Areas**

Aerial Photo Date = 2020

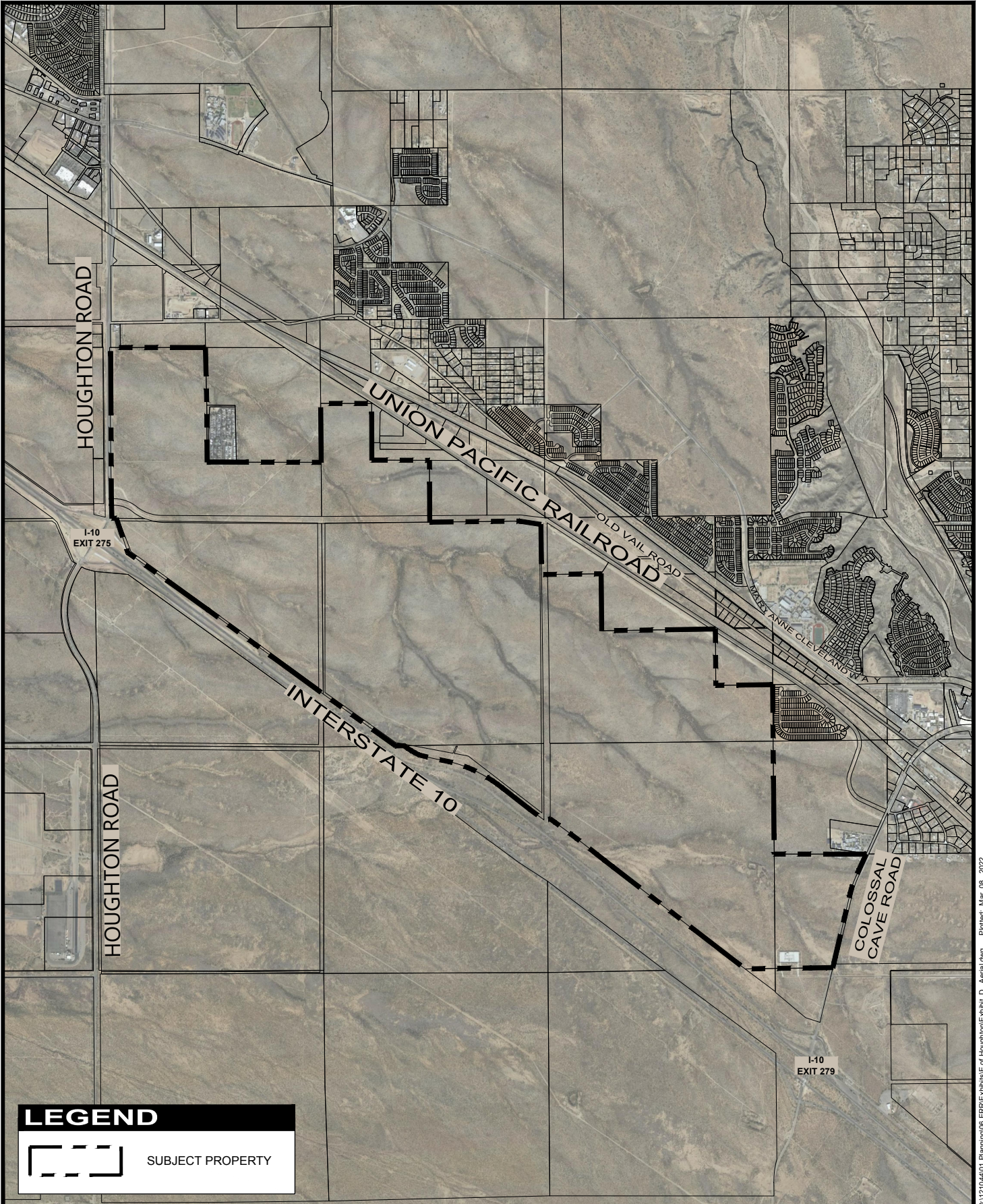




C:\12104401 Planning\06 ERR\Exhibit E of Houghton\Exhibit C\_Riparian areas.dwg Plotter: Apr. 28, 2022

**Exhibit C**  
**Regulated Riparian Habitat Per Pima County Ordinance - FC2**

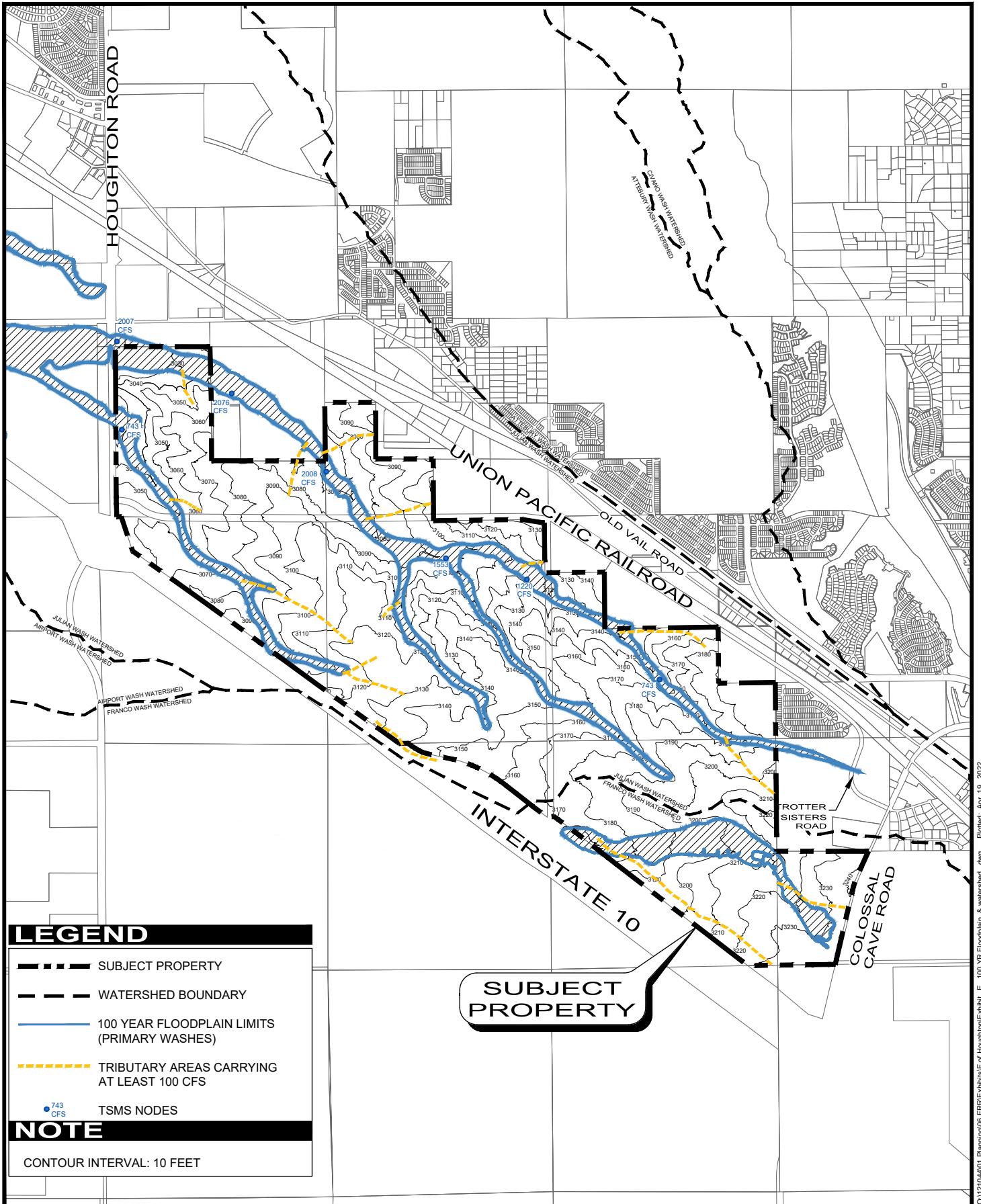




Q:\12104401 Planning\08 ERR\Exhibits\E of Houghton\Exhibit\_D\_Aerial.dwg Plotted: Mar. 08, 2022

**Exhibit D**  
**Aerial Photograph**





**LEGEND**

- SUBJECT PROPERTY
- WATERSHED BOUNDARY
- 100 YEAR FLOODPLAIN LIMITS (PRIMARY WASHES)
- TRIBUTARY AREAS CARRYING AT LEAST 100 CFS
- 743 CFS TSMS NODES

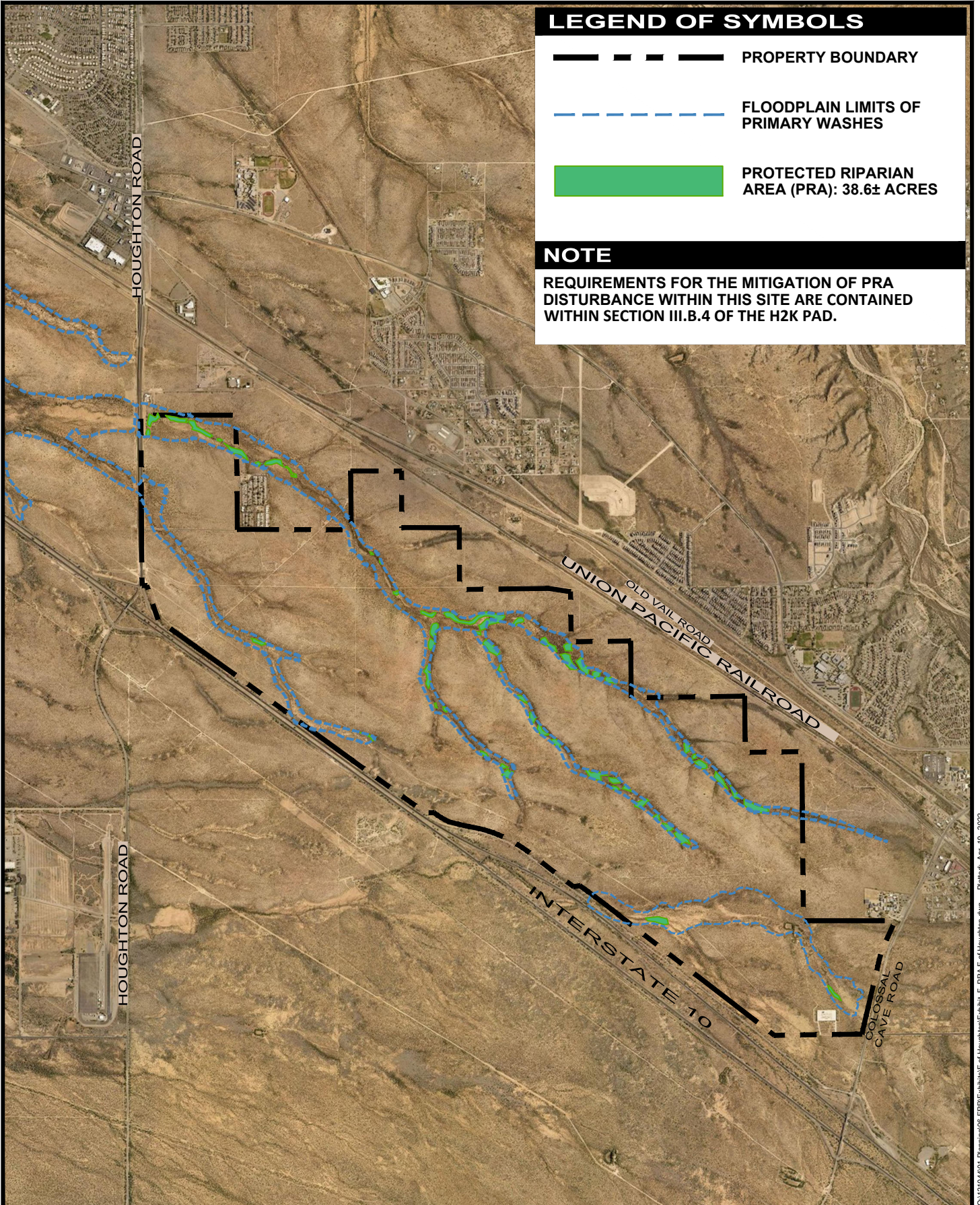
**NOTE**

CONTOUR INTERVAL: 10 FEET




**SUBJECT PROPERTY**

**Exhibit E**  
**100 Year Floodplains & Watersheds**





**LEGEND OF SYMBOLS**

-  PROPERTY BOUNDARY
-  FLOODPLAIN LIMITS OF PRIMARY WASHES
-  PROTECTED RIPARIAN AREA (PRA): 38.6± ACRES

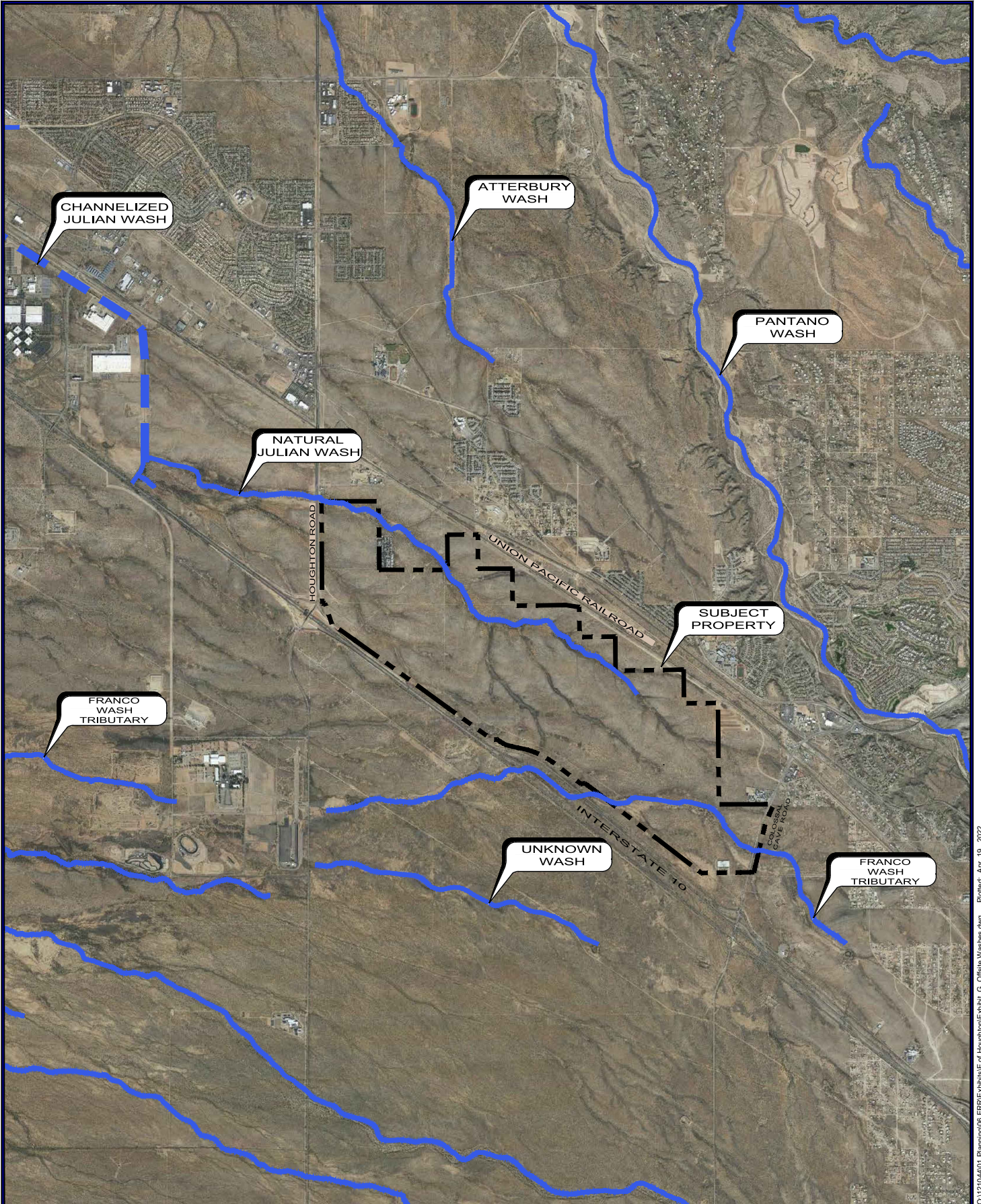
**NOTE**

REQUIREMENTS FOR THE MITIGATION OF PRA DISTURBANCE WITHIN THIS SITE ARE CONTAINED WITHIN SECTION III.B.4 OF THE H2K PAD.

**Exhibit F  
Protected Riparian Area**

Aerial Photo Date = 2020



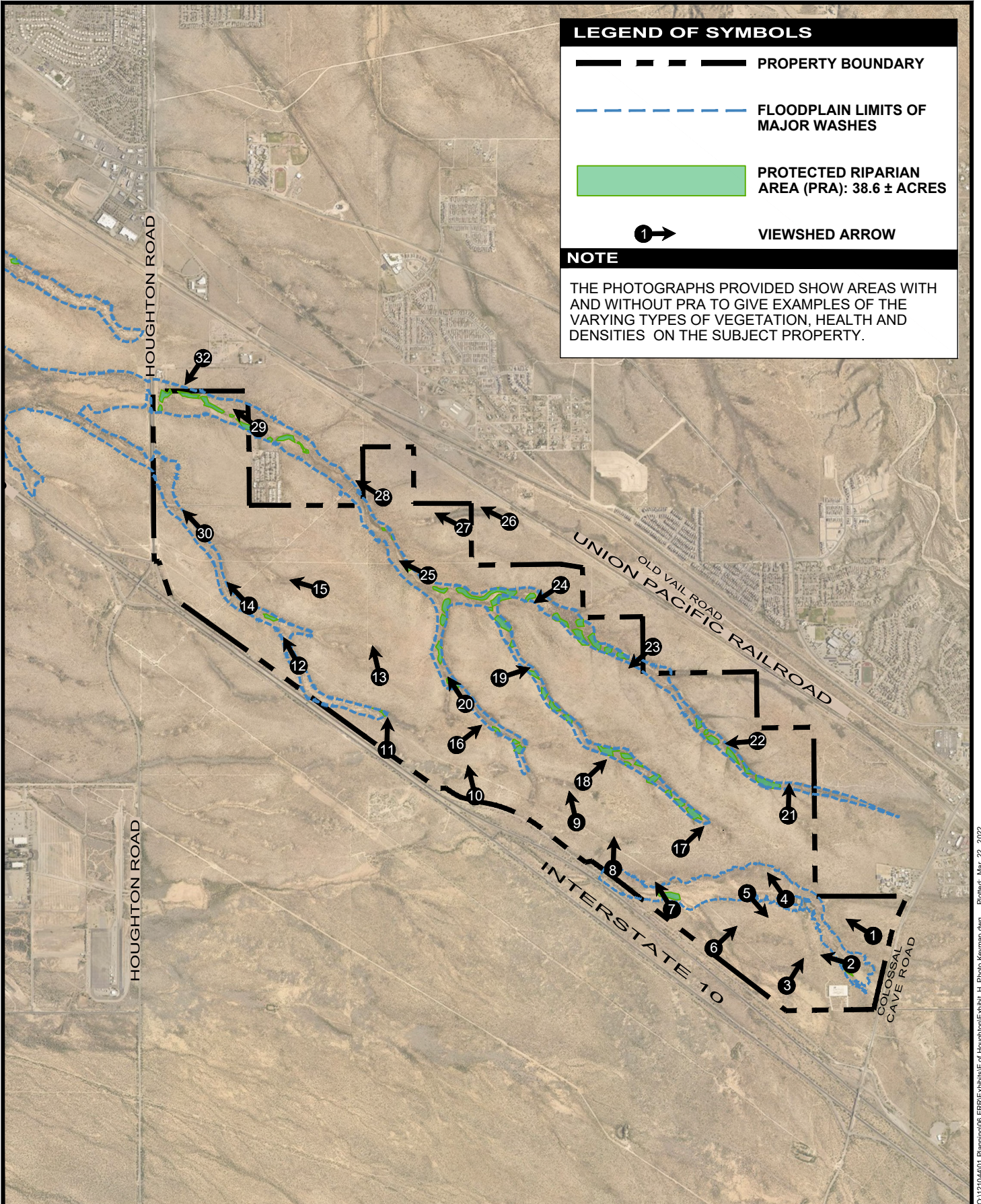


Q:\12104401 Planning\06 ERR\Exhibits\Exhibit\_G\_OffsiteWashes.dwg Plotted: Apr. 19, 2022





**Exhibit G**  
**Offsite Washes**

Aerial Photo Date = 2020





**LEGEND OF SYMBOLS**

-  PROPERTY BOUNDARY
-  FLOODPLAIN LIMITS OF MAJOR WASHES
-  PROTECTED RIPARIAN AREA (PRA): 38.6 ± ACRES
-  VIEWSHED ARROW

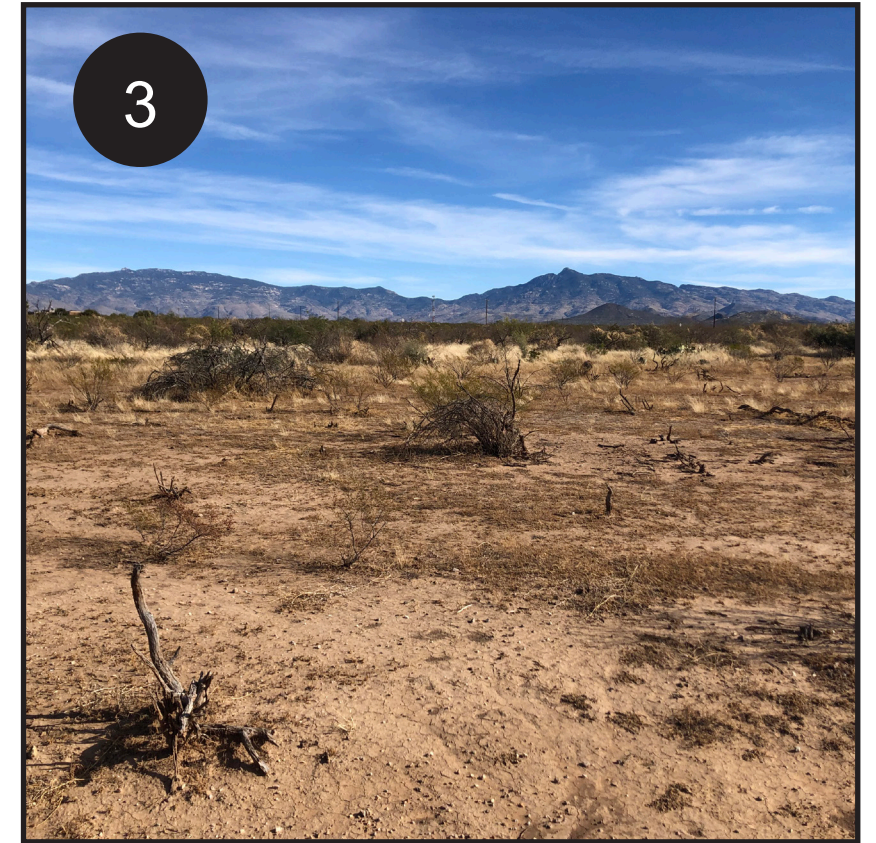
**NOTE**

THE PHOTOGRAPHS PROVIDED SHOW AREAS WITH AND WITHOUT PRA TO GIVE EXAMPLES OF THE VARYING TYPES OF VEGETATION, HEALTH AND DENSITIES ON THE SUBJECT PROPERTY.

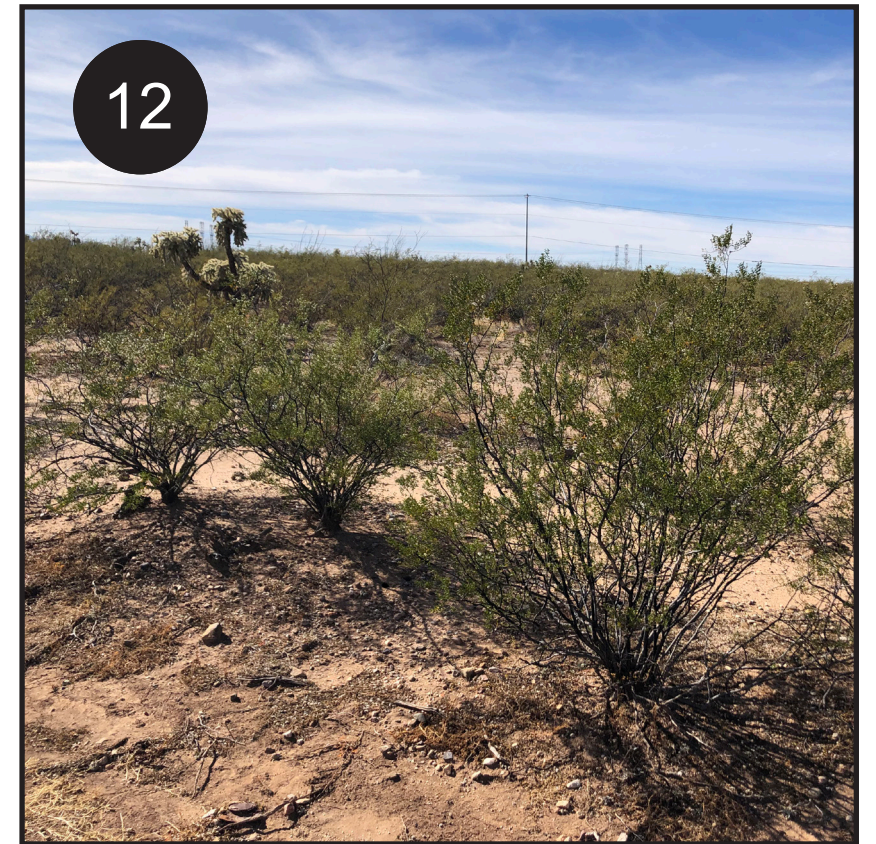
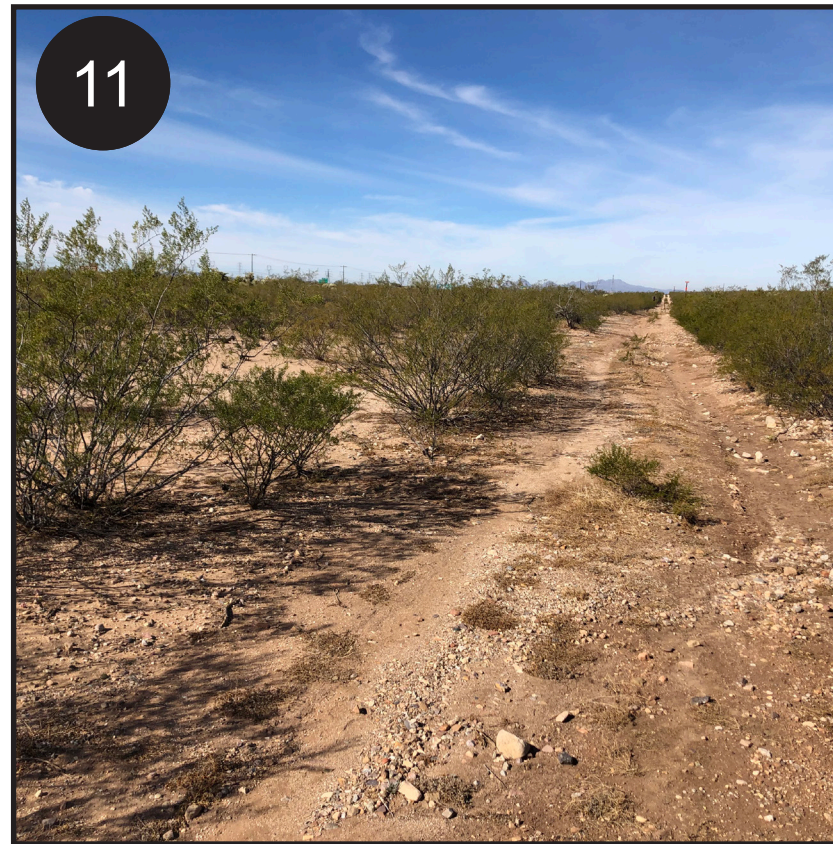
**Exhibit H**  
**Photo Key Map**

Aerial Photo Date = 2020  0'  3000'

Q:\12104401 Planning\08 ERRR\Exhibits\Exhibit\_H\_Photo Keymap.dwg Plotted: Mar. 22, 2022



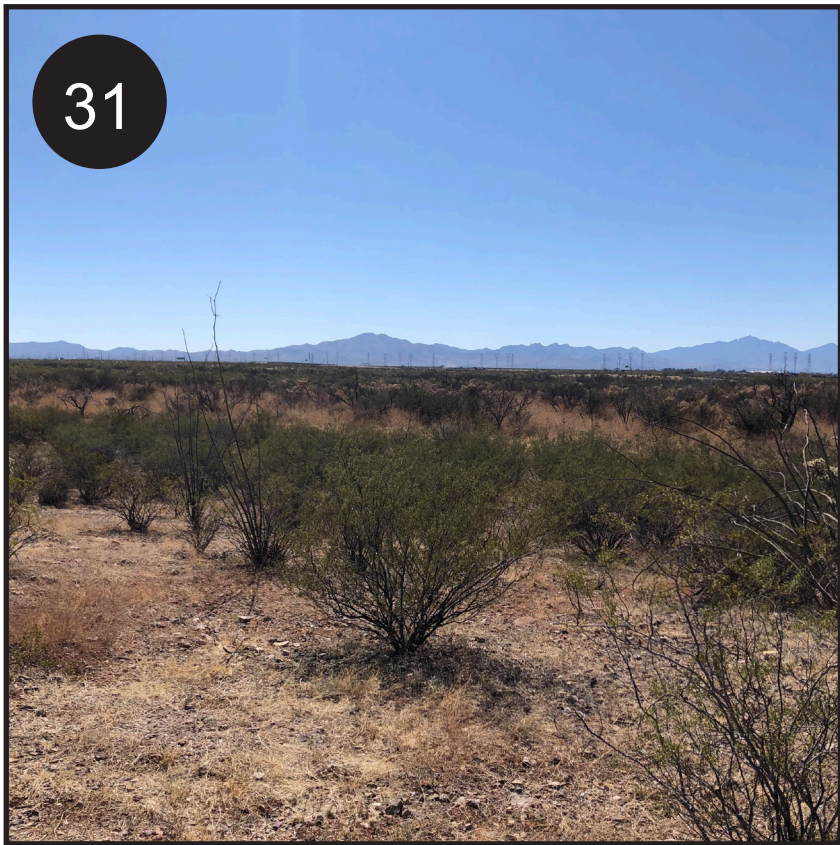












## APPENDICES

**Appendix A**

**Arizona Game and Fish Environmental Review Report**

# Arizona Environmental Online Review Tool Report



## *Arizona Game and Fish Department Mission*

*To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.*

**Project Name:**

Review of H2K Planned Area Development

**User Project Number:**

73806

**Project Description:**

Review of H2K Planned Area Development Project area also associated with HGIS-14797

**Project Type:**

Development Within Municipalities (Urban Growth), Commercial/industrial (mall) and associated infrastructure, New construction

**Contact Person:**

Stacy Campbell

**Organization:**

SWCA

**On Behalf Of:**

CITY

**Project ID:**

HGIS-16248

***Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.***



**Disclaimer:**

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

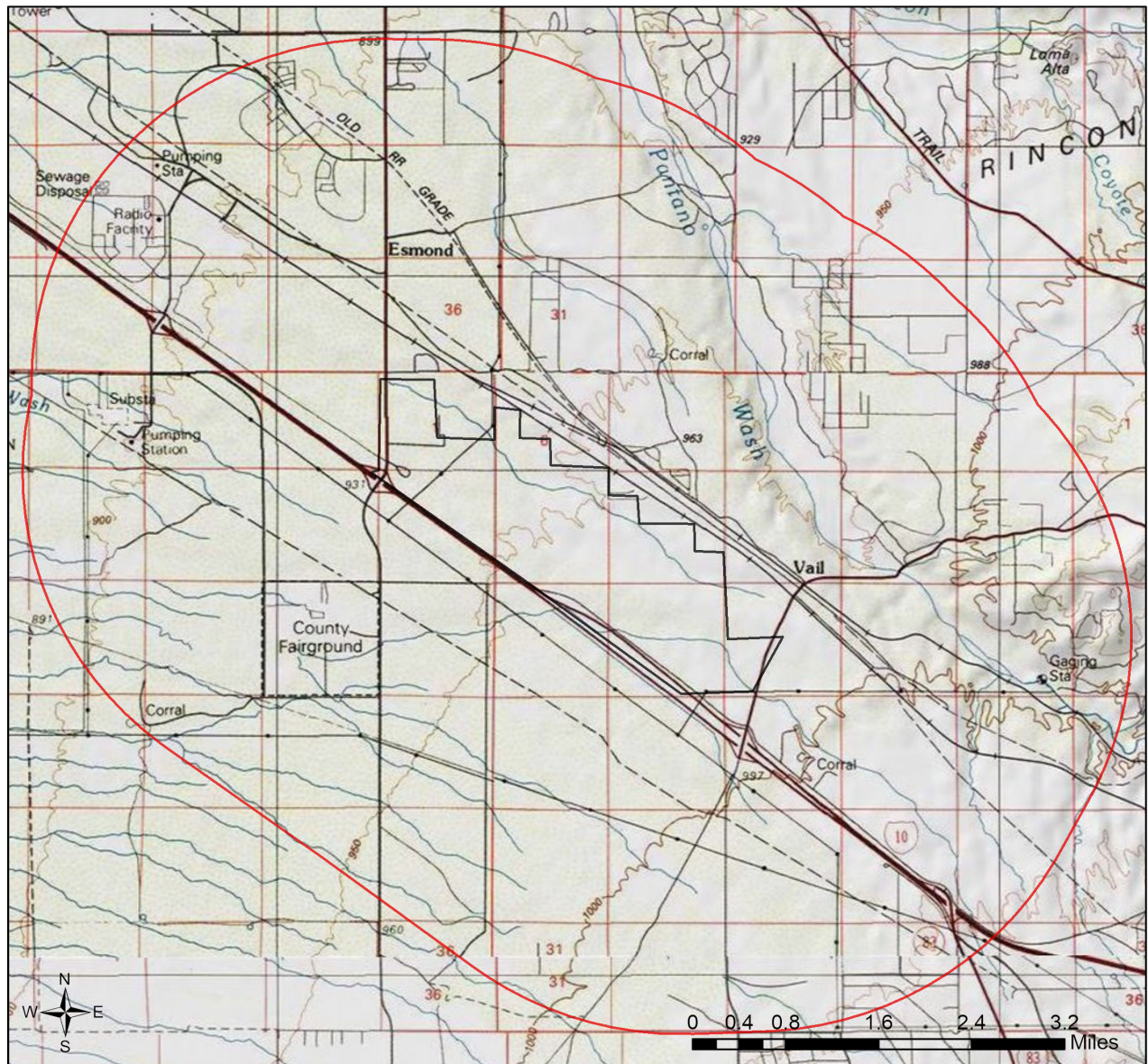
**Locations Accuracy Disclaimer:**

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

**Recommendations Disclaimer:**

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:  
**Project Evaluation Program, Habitat Branch**  
**Arizona Game and Fish Department**  
**5000 West Carefree Highway**  
**Phoenix, Arizona 85086-5000**  
**Phone Number: (623) 236-7600**  
**Fax Number: (623) 236-7366**  
**Or**  
[PEP@azgfd.gov](mailto:PEP@azgfd.gov)
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

## Review of H2K Planned Area Development USA Topo Basemap With Locator Map



- Buffered Project Boundary
- Project Boundary

Project Size (acres): 2,442.89

Lat/Long (DD): 32.0532 / -110.7454

County(s): Pima

AGFD Region(s): Tucson

Township/Range(s): T16S, R15E; T16S, R16E

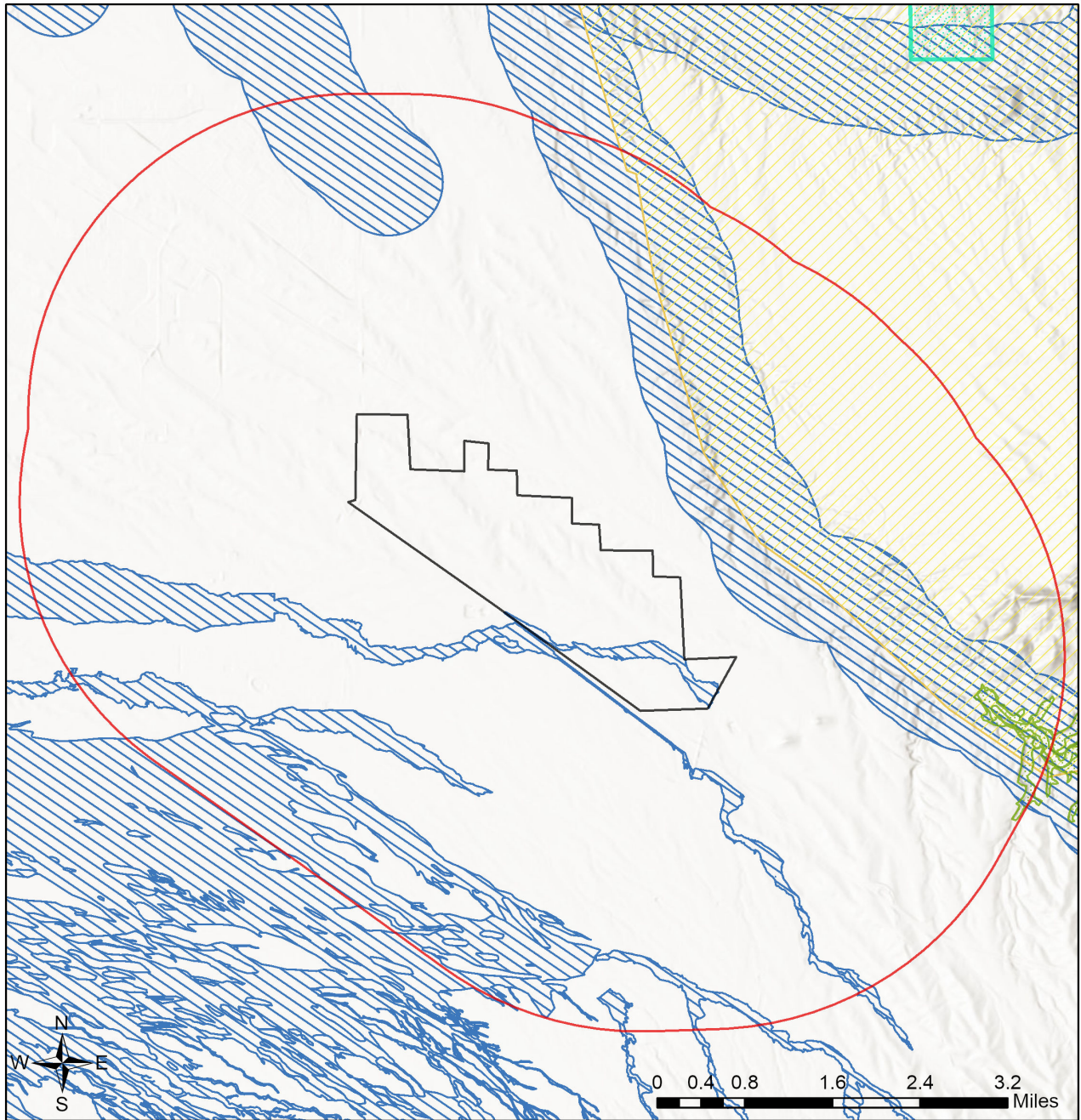
USGS Quad(s): TUCSON SE; VAIL

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community



## Review of H2K Planned Area Development

### Web Map As Submitted By User

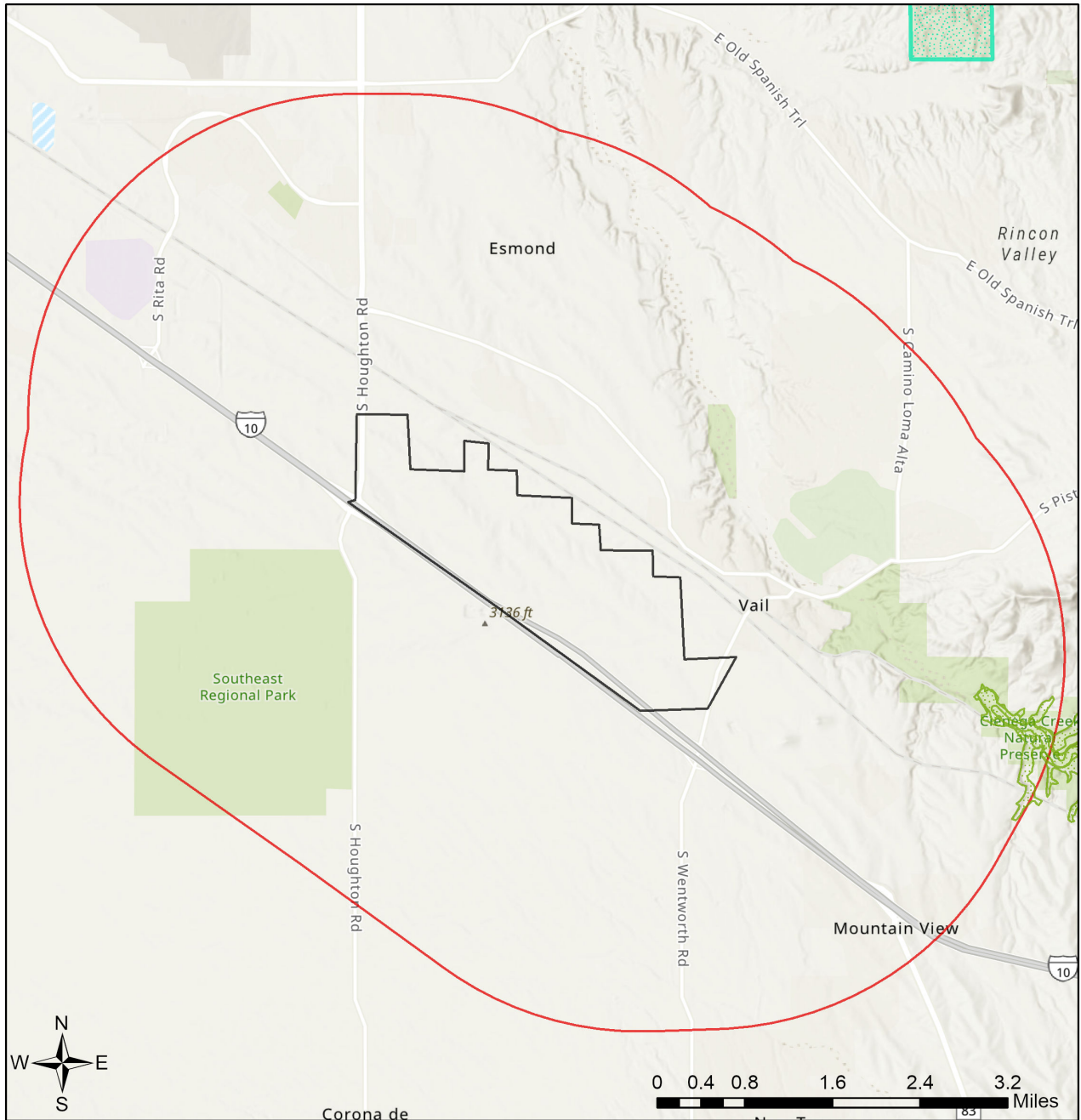


- |                                    |                                        |
|------------------------------------|----------------------------------------|
| Critical Habitat                   | Wildlife Movement Area - Riparian/Wash |
| Important Bird Areas               | Important Connectivity Zones           |
| Wildlife Crossing Area             | Wildlife Connectivity                  |
| Wildlife Movement Area - Diffuse   | Buffered Project Boundary              |
| Wildlife Movement Area - Landscape | Project Boundary                       |

Project Size (acres): 2,442.89  
 Lat/Long (DD): 32.0532 / -110.7454  
 County(s): Pima  
 AGFD Region(s): Tucson  
 Township/Range(s): T16S, R15E; T16S, R16E  
 USGS Quad(s): TUCSON SE; VAIL

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

## Review of H2K Planned Area Development Important Areas

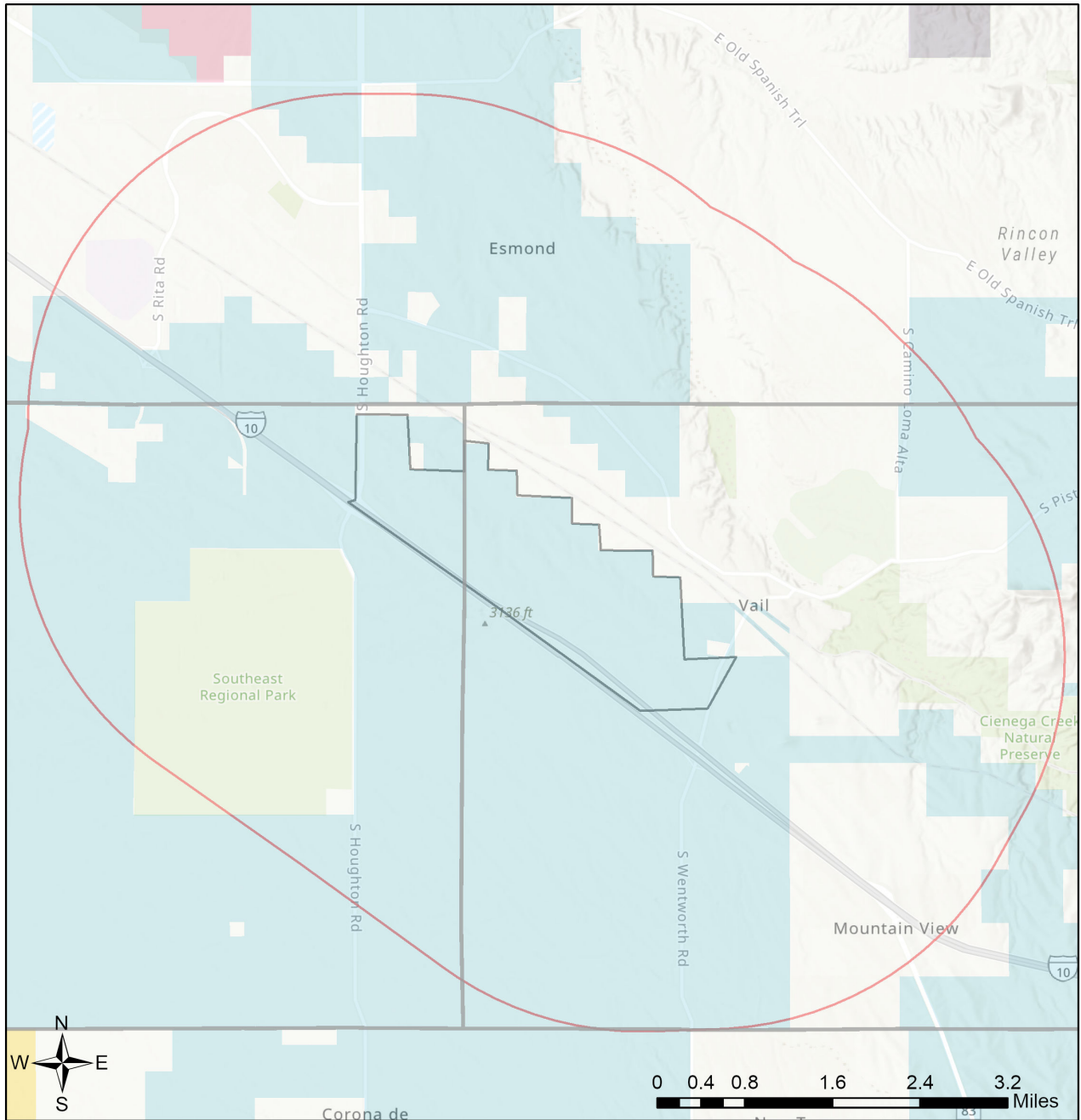


- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 2,442.89  
 Lat/Long (DD): 32.0532 / -110.7454  
 County(s): Pima  
 AGFD Region(s): Tucson  
 Township/Range(s): T16S, R15E; T16S, R16E  
 USGS Quad(s): TUCSON SE; VAIL

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community  
 Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

## Review of H2K Planned Area Development Township/Ranges and Land Ownership



- |                                                                                                                                             |                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Buffered Project Boundary | <span style="background-color: #90EE90; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Mixed/Other            |
| <span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Project Boundary        | <span style="background-color: #D8BFD8; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> National Park/Mon.     |
| <span style="background-color: #D2B48C; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> AZ Game & Fish Dept.  | <span style="background-color: #FFFFFF; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Private                |
| <span style="background-color: #FFFF00; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> BLM                   | <span style="background-color: #A0522D; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> State & Regional Parks |
| <span style="background-color: #D2B48C; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> BOR                   | <span style="background-color: #ADD8E6; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> State Trust            |
| <span style="background-color: #FF8C00; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Indian Res.           | <span style="background-color: #90EE90; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> US Forest Service      |
| <span style="background-color: #FF69B4; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Military              | <span style="background-color: #3CB371; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Wildlife Area/Refuge   |
|                                                                                                                                             | <span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Township/Ranges           |

Project Size (acres): 2,442.89  
 Lat/Long (DD): 32.0532 / -110.7454  
 County(s): Pima  
 AGFD Region(s): Tucson  
 Township/Range(s): T16S, R15E; T16S, R16E  
 USGS Quad(s): TUCSON SE; VAIL

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community  
 Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

**Special Status Species Documented within 3 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC		S		1B
Athene cucularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Bat Colony						
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		1C
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S		1A
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS	
Danaus plexippus	Monarch	C		S		
Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC			SR	
Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad			S		1C
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Myotis velifer	Cave Myotis	SC		S		1B
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Terrapene ornata luteola	Desert Box Turtle			S		1A

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/>

**Special Areas Documented that Intersect with Project Footprint as Drawn**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Lee Moore Wash Flow Corridors	Pima County Wildlife Movement Area - Riparian/Wash					

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/>

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Amazilia violiceps	Violet-crowned Hummingbird		S			1B
Ammospermophilus harrisi	Harris' Antelope Squirrel					1B
Anthus spragueii	Sprague's Pipit	SC				1A
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Aspidoscelis stictogramma	Giant Spotted Whiptail	SC	S			1B

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Aspidoscelis xanthonota</i>	Red-backed Whiptail	SC	S			1B
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S	S		1B
<i>Buteo swainsoni</i>	Swainson's Hawk					1C
<i>Calypte costae</i>	Costa's Hummingbird					1C
<i>Chilomeniscus stramineus</i>	Variable Sandsnake					1B
<i>Colaptes chrysoides</i>	Gilded Flicker			S		1B
<i>Coluber bilineatus</i>	Sonoran Whipsnake					1B
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC	S	S		1B
<i>Crotalus tigris</i>	Tiger Rattlesnake					1B
<i>Cynanthus latirostris</i>	Broad-billed Hummingbird		S			1B
<i>Dipodomys spectabilis</i>	Banner-tailed Kangaroo Rat			S		1B
<i>Euderma maculatum</i>	Spotted Bat	SC	S	S		1B
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	SC		S		1B
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC	S	S		1A
<i>Glaucidium brasilianum cactorum</i>	Cactus Ferruginous Pygmy-owl	PT	S	S		1B
<i>Gopherus morafkai</i>	Sonoran Desert Tortoise	CCA	S	S		1A
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC, BGA	S	S		1A
<i>Heloderma suspectum</i>	Gila Monster					1A
<i>Hypsiglena sp. nov.</i>	Hooded Nightsnake					1B
<i>Incilius alvarius</i>	Sonoran Desert Toad					1B
<i>Lasiurus xanthinus</i>	Western Yellow Bat		S			1B
<i>Leopardus pardalis</i>	Ocelot	LE				1A
<i>Leptonycteris yerbabuenae</i>	Lesser Long-nosed Bat	SC				1A
<i>Lepus alleni</i>	Antelope Jackrabbit					1B
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	SC	S	S		1A
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC		S		1B
<i>Melanerpes uropygialis</i>	Gila Woodpecker					1B
<i>Melospiza lincolni</i>	Lincoln's Sparrow					1B
<i>Melospiza aberti</i>	Abert's Towhee		S			1B
<i>Micrathene whitneyi</i>	Elf Owl					1C
<i>Micruroides euryxanthus</i>	Sonoran Coralsnake					1B
<i>Myiarchus tyrannulus</i>	Brown-crested Flycatcher					1C
<i>Myotis occultus</i>	Arizona Myotis	SC		S		1B
<i>Myotis velifer</i>	Cave Myotis	SC		S		1B
<i>Myotis yumanensis</i>	Yuma Myotis	SC				1B
<i>Notiosorex cockrumi</i>	Cockrum's Desert Shrew					1B
<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat					1B
<i>Oreoscoptes montanus</i>	Sage Thrasher					1C



**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Peucaea carpalis	Rufous-winged Sparrow					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Progne subis hesperia	Desert Purple Martin			S		1B
Setophaga petechia	Yellow Warbler					1B
Sphyrapicus nuchalis	Red-naped Sapsucker					1C
Spizella breweri	Brewer's Sparrow					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Terrapene ornata	Ornate Box Turtle					1A
Thomomys umbrinus intermedius	Southern Pocket Gopher					1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox	No Status				1B

**Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Callipepla squamata	Scaled Quail					1C
Odocoileus hemionus	Mule Deer					
Patagioenas fasciata	Band-tailed Pigeon					1C
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

**Project Type: Development Within Municipalities (Urban Growth), Commercial/Industrial (mall) and associated infrastructure, New construction**

**Project Type Recommendations:**

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (<https://new.azwater.gov/>).

**The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly at [PEP@azgfd.gov](mailto:PEP@azgfd.gov).**

**Project Location and/or Species Recommendations:**

HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:

Arizona Department of Agriculture  
1688 W Adams St.  
Phoenix, AZ 85007  
Phone: 602.542.4373

<https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf> starts on page 44

Analysis indicates that your project is located in the vicinity of an identified **wildlife habitat connectivity feature**. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer

to: <https://www.azgfd.com/wildlife/planning/habitatconnectivity/identifying-corridors/>.

Please contact the Project Evaluation Program ([pep@azgfd.gov](mailto:pep@azgfd.gov)) for specific project recommendations.

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at <https://www.fws.gov/office/arizona-ecological-services> or:

**Phoenix Main Office**

9828 North 31st Avenue #C3  
Phoenix, AZ 85051-2517  
Phone: 602-242-0210  
Fax: 602-242-2513

**Tucson Sub-Office**

201 N. Bonita Suite 141  
Tucson, AZ 85745  
Phone: 520-670-6144  
Fax: 520-670-6155

**Flagstaff Sub-Office**

SW Forest Science Complex  
2500 S. Pine Knoll Dr.  
Flagstaff, AZ 86001  
Phone: 928-556-2157  
Fax: 928-556-2121

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: <https://www.azgfd.com/wildlife/nongamemanagement/tortoise/>

HDMS records indicate that **Western Burrowing Owls** have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at:

<https://www.azgfd.com/wildlife/speciesofgreatestconservneed/burrowingowlmanagement/>.

## Appendix B

### National Resources Conservation Service Custom Soils Report



United States  
Department of  
Agriculture

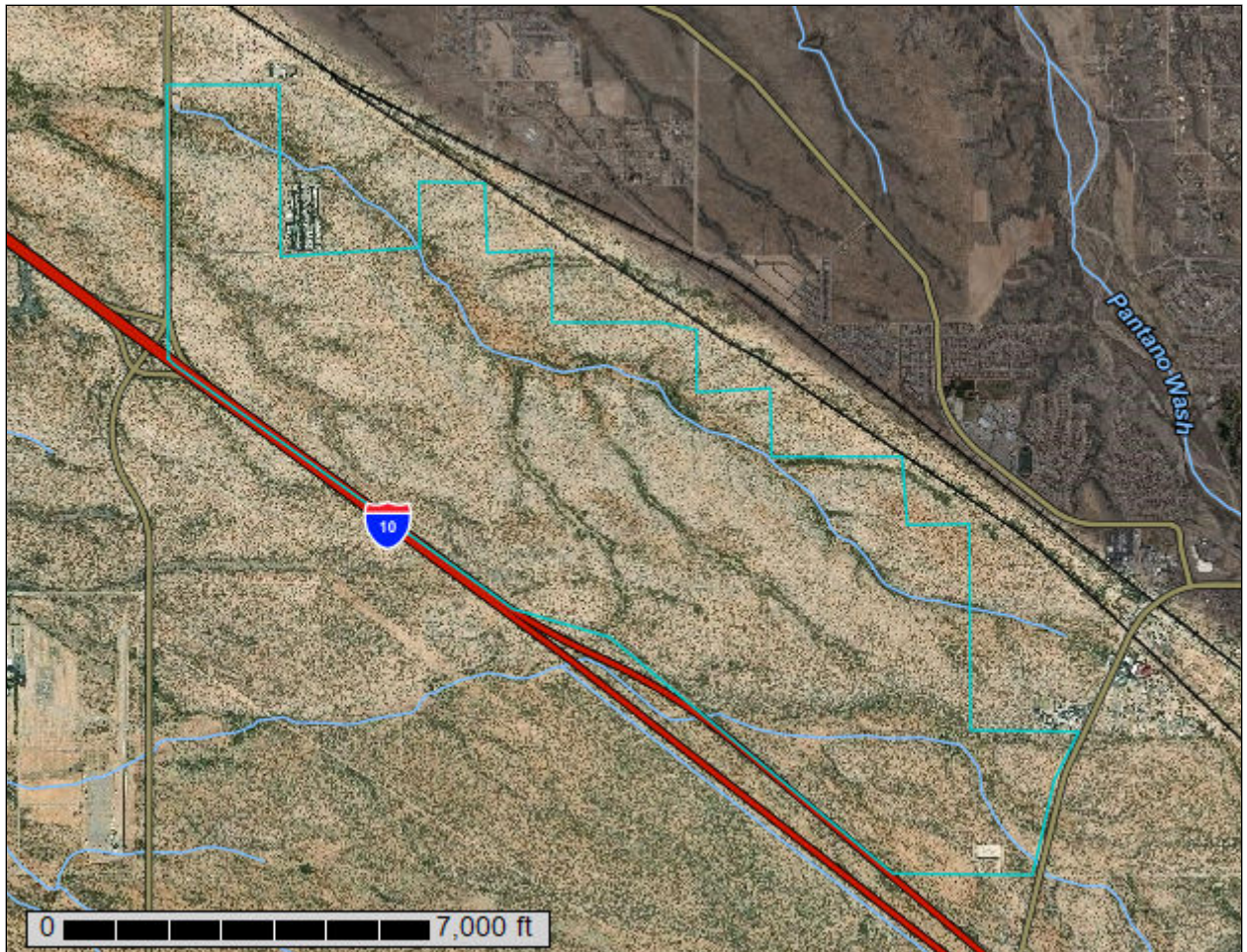
**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Pima County, Arizona, Eastern Part

H2K ASLD



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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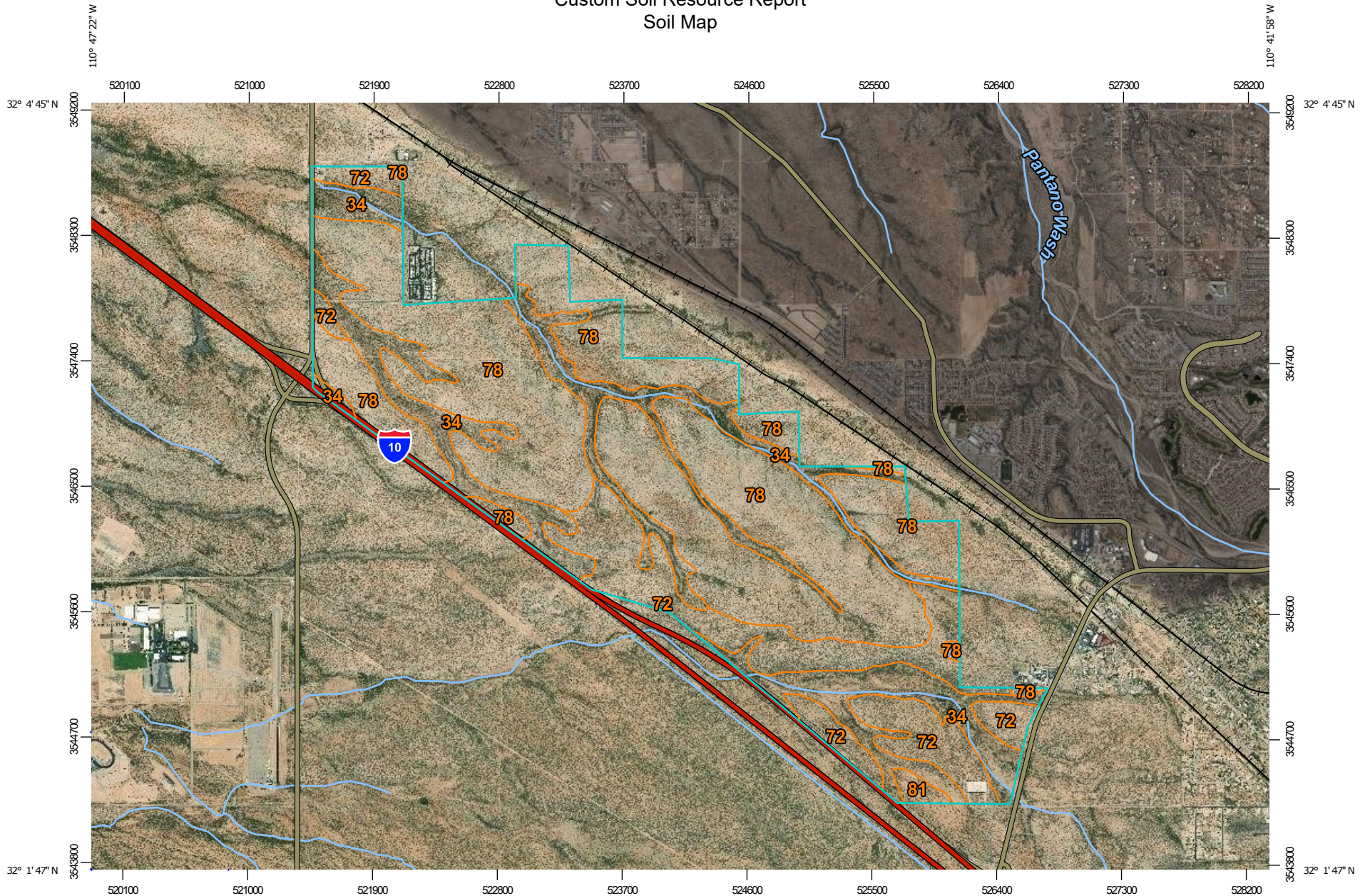
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

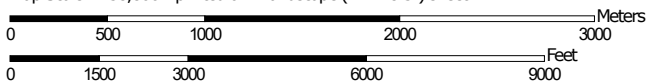
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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map




Map Scale: 1:38,800 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**Special Point Features**






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pima County, Arizona, Eastern Part  
 Survey Area Data: Version 20, Sep 16, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—May 1, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Hantz loam, 0 to 1 percent slopes	556.4	24.1%
72	Sahuarita soils, mohave soils and urban land, 1 to 5 percent slopes	424.5	18.4%
78	Stagecoach-Sahuarita association, 1 to 8 percent slopes	1,310.4	56.8%
81	Tubac gravelly loam, 1 to 8 percent slopes	15.3	0.7%
<b>Totals for Area of Interest</b>		<b>2,306.6</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Pima County, Arizona, Eastern Part

### 34—Hantz loam, 0 to 1 percent slopes

#### Map Unit Setting

*National map unit symbol:* 1t00

*Elevation:* 2,400 to 3,600 feet

*Mean annual precipitation:* 10 to 12 inches

*Mean annual air temperature:* 64 to 70 degrees F

*Frost-free period:* 220 to 280 days

*Farmland classification:* Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

#### Map Unit Composition

*Hantz and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Hantz

##### Setting

*Landform:* Swales, alluvial fans, flood plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread, dip

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Mixed alluvium

##### Typical profile

*A1 - 0 to 5 inches:* loam

*A2 - 5 to 12 inches:* clay loam

*C1 - 12 to 45 inches:* clay

*C2 - 45 to 60 inches:* clay

##### Properties and qualities

*Slope:* 0 to 1 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* OccasionalNone

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Gypsum, maximum content:* 4 percent

*Maximum salinity:* Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 13.0

*Available water supply, 0 to 60 inches:* Moderate (about 8.9 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 3w

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* C

*Ecological site:* R040XA102AZ - Clayey Swale 10"-13" p.z.



*Hydric soil rating:* No

**Minor Components**

**Unnamed soils**

*Percent of map unit:* 20 percent

*Hydric soil rating:* No

**72—Sahuarita soils, mohave soils and urban land, 1 to 5 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 1t27

*Elevation:* 2,200 to 2,800 feet

*Mean annual precipitation:* 10 to 12 inches

*Mean annual air temperature:* 64 to 70 degrees F

*Frost-free period:* 220 to 280 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Sahuarita and similar soils:* 34 percent

*Urban land:* 33 percent

*Mohave and similar soils:* 33 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Sahuarita**

**Setting**

*Landform:* Fan terraces

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Mixed alluvium

**Typical profile**

*A - 0 to 3 inches:* very gravelly fine sandy loam

*Bk - 3 to 28 inches:* fine sandy loam

*2Btkb - 28 to 45 inches:* sandy clay loam

*2Btb - 45 to 60 inches:* very gravelly sandy clay loam

**Properties and qualities**

*Slope:* 1 to 5 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 35 percent

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*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 3.0  
*Available water supply, 0 to 60 inches:* Moderate (about 8.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* R040XA108AZ - Limy Fan 10"-13" p.z.  
*Hydric soil rating:* No

### Description of Urban Land

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Hydric soil rating:* No

### Description of Mohave

#### Setting

*Landform:* Fan terraces  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Mixed alluvium

#### Typical profile

*A - 0 to 3 inches:* loam  
*BA - 3 to 6 inches:* sandy loam  
*Btk - 6 to 40 inches:* clay loam  
*C - 40 to 60 inches:* loam

#### Properties and qualities

*Slope:* 1 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 25.0  
*Available water supply, 0 to 60 inches:* High (about 9.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7c  
*Hydrologic Soil Group:* C  
*Ecological site:* R040XA114AZ - Loamy Upland 10"-13" p.z.  
*Hydric soil rating:* No

## 78—Stagecoach-Sahuarita association, 1 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 1t2f  
*Elevation:* 2,200 to 3,200 feet  
*Mean annual precipitation:* 10 to 12 inches  
*Mean annual air temperature:* 64 to 70 degrees F  
*Frost-free period:* 220 to 280 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Stagecoach and similar soils:* 50 percent  
*Sahuarita and similar soils:* 25 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Stagecoach

#### Setting

*Landform:* Fan terraces  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Mixed alluvium

#### Typical profile

*A/Bw - 0 to 10 inches:* very gravelly sandy loam  
*Bk1 - 10 to 19 inches:* very gravelly loam  
*Bk2 - 19 to 40 inches:* extremely gravelly loam  
*2C - 40 to 60 inches:* very gravelly loamy sand

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 35 percent  
*Gypsum, maximum content:* 5 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 13.0  
*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

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### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* A  
*Ecological site:* R040XA106AZ - Limy Upland, Deep 10"-13" p.z.  
*Hydric soil rating:* No

### Description of Sahuarita

#### Setting

*Landform:* Fan terraces  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Mixed alluvium

#### Typical profile

*A - 0 to 3 inches:* very gravelly fine sandy loam  
*Bk - 3 to 28 inches:* fine sandy loam  
*2Btkb - 28 to 45 inches:* sandy clay loam  
*2Btb - 45 to 60 inches:* very gravelly sandy clay loam

#### Properties and qualities

*Slope:* 1 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 35 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 3.0  
*Available water supply, 0 to 60 inches:* Moderate (about 8.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* R040XA108AZ - Limy Fan 10"-13" p.z.  
*Hydric soil rating:* No

### Minor Components

#### Unnamed soils

*Percent of map unit:* 25 percent  
*Hydric soil rating:* No

## 81—Tubac gravelly loam, 1 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 1t2n  
*Elevation:* 2,400 to 3,200 feet  
*Mean annual precipitation:* 10 to 12 inches  
*Mean annual air temperature:* 64 to 70 degrees F  
*Frost-free period:* 220 to 280 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Tubac and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tubac

#### Setting

*Landform:* Fan terraces  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Mixed alluvium

#### Typical profile

*A1 - 0 to 2 inches:* gravelly loam  
*A2 - 2 to 14 inches:* loam  
*Bt - 14 to 31 inches:* clay  
*2Btk - 31 to 60 inches:* gravelly sandy clay loam

#### Properties and qualities

*Slope:* 1 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Gypsum, maximum content:* 1 percent  
*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 10.0  
*Available water supply, 0 to 60 inches:* Moderate (about 7.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

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*Land capability classification (nonirrigated): 6s*

*Hydrologic Soil Group: C*

*Ecological site: R040XA114AZ - Loamy Upland 10"-13" p.z.*

*Hydric soil rating: No*

### **Minor Components**

#### **Unnamed soils**

*Percent of map unit: 20 percent*

*Hydric soil rating: No*

# References

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