Introduction

Chapter 1: Introduction, Overview, Background and History

Key Subjects

- ✓ Purpose
- ✓ Brief History and Overview of Pima County
- ✓ Native Peoples
- ✓ Recent Pima County Planning Efforts

Important Notes:

1. At the time of the preparation of the infrastructure study that served as the core of this background document, the Tohono O'odham Nation was treated as a planning area for statistical purposes only. The Tohono O'Odham Nation is a sovereign nation. However, though the County recognizes the importance of the Nation to the region, the County has no jurisdiction over the Nation.

2. All Exhibits referenced in this chapter are included at the end of the chapter.

1.1 Purpose

This background and current conditions document serves to provide a compendium of primarily local and regional information that was used to develop the Pima County Comprehensive Plan, Pima Prospers. The plan covers a diverse array of topics and most are intrinsically interlinked in terms of service delivery. No individual or information source can provide all the background necessary on a single topic, let alone discuss its interrelationships with other topics.

This document is one component of the plan making process and does not serve as the only source of information. Public comment; stakeholder input; dialog with professional colleagues and subject matter experts in the county, other agencies and the private sector; professional journals and trends in the planning profession and in other professions covered in the plan content; the planning history of the county; and the state statutory framework for county comprehensive planning are some of the other source material critical to the genesis of this update to the Pima County Comprehensive Plan. Plan making is very much an interactive process that builds on the past, recognizes present conditions and looks to a future that may or may not resemble past and present.

Much of the document contains information compiled in the *Pima County Infrastructure Study*, a multi-year, multidisciplinary effort meant to be a precursor to the Comprehensive Plan. This infrastructure study was based on twelve of the thirteen "planning areas" used in the Comprehensive Plan (i.e. the twelve in eastern Pima County). The thirteenth planning area is Ajo-Why, a critical part of Pima Prospers. Some of the data refer to a fourteenth "planning area" but it is not, in fact, an actual planning area. The fourteenth area includes Tohono O'odham lands and just like the incorporated jurisdictions, Pima Prospers does not plan for the Tohono O'odham Nation lands. The fourteenth area is included for the purpose of data calculations. Initially based solely on watershed boundaries, the planning areas were altered to use major geographic or political boundaries such as a major road to create planning areas with some commonality of interest. It is recognized that these planning areas work best for certain types of physical infrastructure and less for human infrastructure. Economic development, a key component of the Plan, is best addressed regionally although planning areas have differing potentials due to the historic development pattern within each.

Exhibits 1.1.a Planning Areas (East) and 1.1.b Planning Areas (West), included at the end of this chapter, show the location of these planning areas.

1.2 Brief History and Overview of Pima County

Pima County is named after the Pima Native Americans who are indigenous to this area. The land that is now Pima County has a long history of human settlement but became part of the United States as part of the Gadsden Purchase. On December 30, 1853, the United States purchased from Mexico a strip of land lying south of the Gila River. The cost was $10 million in gold. Pima County, as originally formed, actually included all of the Gadsden Purchase. In 1863, the Territory of Arizona was created, and Pima was designated one of the original four counties of the Territory by the first Territorial Legislature the following year. Over the years during Territorial days, all or portions of five newer counties were created from Pima County, leaving the county in approximately its present configuration. Today, Pima County encompasses an area of approximately 9188 square miles. Pima County by itself is larger than the six smallest states and is larger than the three smallest states combined. The county is bounded on the north by the counties of Maricopa and Pinal; on the east by Graham and Cochise Counties; on the south by Santa Cruz County and the Mexican State of Sonora, and on the west by the County of Yuma. The only municipality for most of the County's existence and for years prior to that, the City of Tucson was the capital of the Arizona Territory from 1867 to 1877, and today is the second largest city in the state.

Pima County is one of the oldest continuously inhabited areas of the United States. Native Americans have lived in this region from prehistoric times to the present. Pima County today is the home of the bulk of the Tohono O'odham reservation, the third largest in the nation, and of the Pascua Yaqui Tribe.

In the middle of the 18th century, the discovery of silver and gold in the region drove development to this region, and the County has been growing ever since. From a population of 395 in 1820, Pima County has a population of slightly more than 980,000, per the 2010 Census population count. The bulk of the population resides in eastern Pima County, in and around the City of Tucson and the suburban municipalities surrounding the city. Approximately one third or more of the population lives in the unincorporated area, mostly in the form of suburbs in Tucson and the Green Valley area south of Tucson. The population is projected to reach 1.4 million by 2041.

Located in the Southwest United States, in Southern Arizona, Pima County is one of the oldest continually inhabited areas in North America. Hohokam Indians lived and farmed the land for 4,000 years before Spanish missionaries and soldiers arrived in the late 1600s. In the 1700s, the Spanish established the Presidio San Agustín del Tucson and the Mission San Xavier del Bac -- the two most iconic and historic structures in the region. "The Old Pueblo," as the adobe-walled Tucson Presidio became known, is Tucson's nickname to this day.

At the time of statehood for Arizona in 1912, Pima County had a population of 23,000, most of whom were located in Tucson. Mining, farming, ranching, and the businesses necessary to support and sustain these endeavors contributed significantly to the economy. People came to Tucson and Pima County for health reasons, as tuberculosis patients arrived to take advantage of the arid climate as well as people with other respiratory ailments like asthma. Tourism, especially dude ranches became popular as more people owned automobiles and had the ability to travel greater distances. Davis-Monthan Air Force base developed during World War II and remains an important part of the community.

Some of the area's most popular attractions are on Pima County property. Residents and visitors can catch a game or a concert at Kino Sports Complex, the area's largest sports and entertainment venue, or marvel at the technological wonders at the Pima Air & Space Museum, or take a closer look at some of our unique wildlife at the Arizona-Sonora Desert Museum.

Today, a focal point for technology, live sciences, and innovation, Pima County benefits from major observatories like Kitt Peak National Observatory, the University of Arizona, The University of Arizona Science and Technology Park, The University of Arizona Solar Zone, the Biosphere II, Davis–Monthan Air Force Base, and the Bioscience Center in Innovation Park.

Pima County consists of several jurisdictions, of which Tucson is the largest and county-seat. The vast majority of the county population lies in and around the city of Tucson, filling much of the eastern part of the county with urban development. Tucson, Arizona's second largest city, is a major commercial and academic center. There are five jurisdictions in Pima County. These are the City of Tucson, the Town of Marana, the Town of Oro Valley, the Town of Sahuarita, and South Tucson. The County also includes two sovereign nations: The Tohono O'odham Nation and the Pascua Yaqui Tribe.

Over the years, a number of factors have contributed to how the development of Pima County has been molded and shaped. The County's topography; the nature of the economic eras in which we grew or failed to grow; land ownership patterns, notably public and state trust land holdings; community and political decisions on development, infrastructure and conservation matters; entrepreneurial private sector initiatives notably in real estate shaping the region; the diverse population; the success or failure of planning initiatives; zoning; incorporation and annexation; the climate our dominate Sonoran desert and sky islands; mining, farming and ranching; and tourism provide an incomplete but illustrative list.

Today, private land makes up approximately 13.6% of the county. As the county is 9188 square miles, private land makes up approximately 1250 square miles (800,000 acres). Additionally, much of Arizona state trust land, held in trust for supporting public institutions notably including the K-12 education system, is potentially available for sale or lease for urban scale development. It comprises an additional 14.7% of the land mass of the county. The most highly valued trust land within and close to the county's municipalities is the most likely to be open for eventual development.

An excellent history of the growth, development and form of Pima County through the year 2000 was prepared by the Pima County Development Services Department (Frank P. Behlau, AICP, principal author), can be found on line at www.pima.gov/cmo/sdcp/reports/d12/029HIS.PDF.

Native Peoples

The Tohono O'odham Nation and the Pascua Yaqui Tribe contribute significantly to the diversity of culture of the County's population and to its economic prosperity. The Nation in particular makes up a major part of the land mass of the county, and together the nation and Pascua Yaqui Tribe land ownership is over 42% of the county.

The Tohono O'odham Nation

"Tohono O'odham" means "Desert People." The Tohono O'odham people reside primarily in the Sonoran Desert of southeastern Arizona and northwest Mexico. A United States reservation residing on a portion of its people's original Sonoran desert lands, the Tohono O'odham Nation within the United States is organized into twelve districts and include the new Hia-Ced District established recently. The land lies in three counties in Arizona: Pima County, Pinal County, and Maricopa County. The main reservation is located between Tucson and Ajo, Arizona, with its administrative center in the town of Sells. A few of the districts are not contiguous with the main reservation: The San Xavier District southwest of Tucson, the San Lucy District near the city of Gila Bend, and the Florence Village near the city of Florence.

The reservation's land area is 11,534.012 square kilometers (4,453.307 sq. mi), the third-largest Indian reservation area in the United States (after the Navajo and the Uintah and Ouray). The Tohono O'odham Nation occupies most of the western portion of Pima County.

The 2010 census reported 10,201 people living on reservation land. The Nation's enrollment office tallies a population of 25,000, with 20,000 living on its Arizona reservation lands.

The Pascua Yaqui Tribe

The Yoem People (now known as Yaqui) have lived in an area including what is now the southwestern United States and northern Mexico for generations. The original boundaries of the Yaqui stretched from north as far as Durango, Colorado; west as far as Yuma, Arizona and some parts of California; east through New Mexico and Arizona and south as far as the southern tip of Sonora, Mexico.

From 1740 on, thousands of Yaquis moved into what is now Sonora, Mexico and southern Arizona to work in the silver mines, where they excelled as both miners and craftsmen. In 1825, as the Spanish Government moved to parcel out Yaqui land, a Yaqui rebellion was provoked that resulted in

intermittent war with the Spanish and Mexican Governments that lasted 100 years. This war caused many Yaqui to travel to established settlements farther north, in order to work and buy ammunition, food and needed supplies to further the cause of the Yaqui in the warring areas farther south. This migration resulted in a substantial increase in the populations of the northern Yaqui settlements located in what is now Arizona.

When the U.S. boundary line was fixed and located by agreement with Mexico through the Gadsden Purchase in 1854, it divided the territory occupied by Yaquis between the United States and Mexico, even though the continuing occupancy of the Yaquis and others was recognized by both countries. As a result of the conflict between the Yaquis and the government of Mexico, between 1880 and 1910, the United States granted asylum to these thousands of Yaquis from the south.

Although the Yaqui People are now settled together in several communities throughout their aboriginal territory in the Southwest, including both sides of the international border, the largest concentrated population of Yaquis on the U.S. side of the border live in Pascua Pueblo and in Pascua Yaqui tribally recognized communities in and around Greater Tucson/Pima County and the Maricopa/Pinal County regions. In Pima County, the Pascua Yaqui Tribe includes Pascua Pueblo, the largest Tribal community, growth center of the Tribe, located southwest of Tucson and the site of the Pascua Yaqui Reservation. Pascua Pueblo and Pascua Yaqui tribally recognized communities include lands held in fee by the Tribe. Pascua Yaqui tribally recognized communities include: Yoem Pueblo; Old Pascua and Barrio Libre/16th & 44th. The Tribe's Tortuga Ranch is also included in Pima County.

The Pascua Pueblo and the Pascua Yaqui Tribally Recognized Communities within Pima County encompass a total of 8,844.89 acres. Of this total, 1,818.33 acres, or approximately 21 percent, are Reservation lands located in Pascua Pueblo and 7,026.56 acres, or approximately 79 percent, are lands held in fee by the Tribe. Pascua Yaqui tribally recognized communities within Pima County encompass a total of 305.47 acres. There are no Reservation lands outside the Pima County.

According to 2010 Census counts and the Pascua Yaqui Tribe Enrollment Office, of the total 4,667 persons living in the Pima County region, 4002 persons, or 85.7 percent live in Pascua Pueblo and 665, or 14.2 percent, live in Tribally Recognized Communities. Of the 4,667 total, 4,002, or 85.7 percent live in Pascua Pueblo; 45, or 1 percent, live in Yoem Pueblo; 430, or 9.2 percent live in Old Pascua; and 190 or 4.1 percent live in Barrio Libre and 16th & 44th. There is no population living in the Tribe's Tortuga Ranch.

1.3 Recent County Planning Efforts

Since the last update of the Pima County Comprehensive Plan in 2001, a number of major initiatives spearheaded or jointly led by the county have transpired. This section begins with the content and focus of that Comprehensive Plan.

The Pima County Comprehensive Plan 2001

Pima County's last Comprehensive Plan update charted a course for Sonoran Desert habitat protection and brought the County's Plan into compliance with Arizona's new Growing Smarter statutes. Adopted by the Board of Supervisors in December 2001, the Pima County Comprehensive Plan 2001 includes three working documents: the Regional Plan Policies; the Land Use Intensity Legend; and Rezoning and Special Area Policies. The Plan focuses primarily on land use and conservation and includes the Sonoran Desert Conservation Plan and the Conservation Lands System.

The 2001 plan update process took over from what was accomplished with the 1992 update process which was to combine and standardize the many neighborhood and community plans and policies into one document, to establish a common planned land use designation system, and to update many outdated plans.

The Sonoran Desert Conservation Plan

The geographic scope of the **award winning** Sonoran Desert Conservation Plan (SDCP) is impressive; it encompasses nearly 5.9 million acres located in Pima County, Arizona including the Tucson metropolitan area. It sets a common regional vision for balancing the preservation of our natural resource and cultural heritage while maintaining the community's economic viability. This vision uniquely lends continuity to other endeavors that plan for future growth, infrastructure services, economic development, resources conservation, cultural heritage preservation and other efforts related to improving the community's health and well-being now and into the future. Initial emphasis tended to focus on park expansion, ranch preservation, archaeological and cultural resources, wildlife habitat and biological corridors, and riparian restoration. Land acquisition, funded by voter-approved bonds, was an important tool in addressing many of these focal areas.

Today, however, as the County continues to be concerned about the conservation and preservation of parks and natural and cultural resources, more attention is being devoted to addressing economic-related concerns. Job growth and retention are at the forefront of the County's Economic Plan. See *Pima County Economic Plan* (page 1.13 of this chapter) for more details.

The SDCP is a visionary step forward for the citizens of Pima County and leaves us better prepared to protect the lifestyle and quality of life that makes Pima County a unique and wonderful place to live and visit.

Water & Wastewater Infrastructure, Supply and Planning Study (WISP)

In April 2008, the City of Tucson Mayor and Council and the Pima County Board of Supervisors initiated a multi-year study of water and wastewater infrastructure, supply and planning issues. The ultimate goal of this effort is to assure a sustainable community water source given continuing pressures on water supply caused by population growth.

The first two phases of the study focused on collecting basic facts related to the condition and capacity of water, wastewater and reclaimed water infrastructure, and of available water supplies. Information on critical factors related to planning for a sustainable water future also was collected. Phase II of the study culminated in a final report from the Oversight Committee and staff that sets forth a new paradigm for planning for a sustainable water future and a set of common city/county goals and recommendations. The County has been monitoring progress on the recommendations outlined in the final document. Pima Prospers includes a number of those items by reference, in policy or in implementation strategies.

Regional Wastewater Reclamation Plan

Pima County Regional Wastewater Reclamation Department (RWRD) has completed all the mandated projects in the regulatory-driven Regional Optimization Master Plan (ROMP). This aggressive plan was designed and constructed to expand and upgrade infrastructure to meet new and regulatory mandates and potential future requirements. It also provides for the wastewater capacity needs of the community for the next several decades. All of the regulatory-required infrastructure is now in operation, and work on other ROMP-related projects is wrapping up. The completed ROMP projects met original scope goals and objectives and were completed on or ahead of schedule. Almost all were completed significantly under budget. To date, the overall ROMP Program has saved more than $114 million from the original $720 million budget. These accomplishments will benefit all the customers of RWRD well into the future.

The ROMP Program was initially commissioned as a result of a new 2005 regulatory requirement to improve the quality of the effluent discharged to the Santa Cruz River from Pima County's Ina Road and Roger Road Wastewater Reclamation Facilities (WRF). The Ina Road WRF was recently renamed the Tres Rios Water Reclamation Facility WRF. In anticipation of the substantial expense to comply with this regulatory requirement, RWRD engaged consultants and impacted stakeholders. The group evaluated the community's aging wastewater infrastructure along with best approaches to meet new

environmental standards. In-depth dialogue and consultation with this diverse group of experts and community partners led to the development of the ROMP.

The following program goals were identified and developed:

- Improve the quality of effluent discharges to the Santa Cruz River from the Ina Road WRF by January 30, 2014 and from the Roger Road WRF by January 30, 2015 in compliance with regulatory requirements. The effluent quality improvement would be realized primarily through the reduction of nutrients in the effluent resulting in improvements to the Santa Cruz River ecosystem and its underlying groundwater aquifer.

- Provide wastewater treatment capacity to meet the needs of a majority of Pima County residents for at least 25 years into the future.

- Upgrade or replace aging infrastructure of both major regional wastewater treatment facilities. Initial components of the Roger Road WRF date back to the early 1950s. Components of the Ina Road WRF date back to the 1970s

- Incorporate features that can more cost effectively integrate projected future regulatory requirements.

- Implement a good neighbor policy for the surrounding communities by incorporating odor control technology in the ROMP facilities to prevent odors from affecting nearby homes and businesses.

- Incorporate architectural features and landscaping that are attractive and compatible with the surrounding communities.

- Provide a safe workplace for employees of the regional systems.

- Develop a program budget and financial plan to fund the improvements while ensuring rate increases do not become a hardship for the system's ratepayers, who pay for the improvements.

As the ROMP was developed, these goals were incorporated into a plan which was finalized with a not-to-exceed budget of $720 million. As a consequence of the goals and resulting plan, the ROMP became the largest and most complex public works program ever undertaken in the history of Pima County.

Sustainability Action Plan for County Operations

Pima County strives to integrate sustainable decision making into all facets of its operations and to achieve a triple bottom line of benefits, enhancing the environment, economy, and quality of life for its citizens. On May 1, 2007, the Board of Supervisors adopted Resolution 2007-84, establishing a far-reaching set of sustainability initiatives, paving the way for the development and adoption of the Sustainable Action Plan for County Operations in August 2008.

This plan represents a systematic approach to integrating the goals of sustainability into virtually all facets of the way Pima County government operates—from the cars driven by County staff, to the energy and water consumed at County facilities, to the construction of County buildings, to the products the County purchases, to the way the County perceives and handles "used" materials.

Through the implementation of this plan and the programs it has generated, Pima County strives to set an example for other communities desiring to achieve a high quality-of-life for their residents, protect their natural and cultural heritage, and provide meaningful economic opportunities.

To date, the County has accomplished the following in its pursuit of creating a sustainable community:

- Achieved a net savings of over $7,136,000 in energy costs.
- Brought 7 megawatts of renewable energy online, more than tripling its renewable energy capacity.
- 44% of the County fleet vehicles are now flex fuel, alternative fuel, or hybrid vehicles.
- Built all new County occupied facilities and new additions greater than 5,000 square feet to LEED Silver standards.
- Became the first public agency in the country to be awarded LEED for Homes provider status by the USGBC.
- Acquired 98,286 acres of parklands and natural areas land for open space conservation.
- Increased the number of County parks served by reclaimed water by 120% compared to the baseline.
- Reduced the quantity of waste sent to landfills by 46%.

Southwest Infrastructure Plan

Pima County's Southwest area has been identified by County planners as a potential and strategic growth area. To accommodate population growth, the existing infrastructure must be improved and expanded. The infrastructure plan provides a basis for infrastructure decision-making related to development in the Southwest area. It quantifies the nature, phasing, financial impacts, and funding possibilities for those flood control, parks and recreation, transportation, wastewater infrastructure and other improvements that are necessary to serve future growth in the area. The plan includes phased infrastructure plans, estimates of probable cost, funding analysis outputs, and provides a model for deployment elsewhere in Pima County. The plan also summarizes readily available data regarding the

provision of other services provided by public, quasi-public, and private agencies such as fire districts, Tucson Water, Tucson Unified School District, and utility providers. The plan included public input, identified stakeholders and subject experts, and numerous County departments.

Imagine Greater Tucson Process & Adopted Regional Vision

Imagine Greater Tucson has been a regional visioning process led by a local non-profit 501 (c) 3 corporation. The vision, entitled "Looking Forward" was published and presented in September 2012. A number of county staff participated in the public involvement process leading to the vision and development of the vision itself.

The Vision for a Greater Tucson Region, resulting from the recent Imagine Greater Tucson (IGT) process, is the culmination of more than two years of input and participation by over 10,000 people countywide. The Vision describes the future desired for the region based on shared values. This process resulted in 60 Shared Regional Values, categorized into nine (9) principles:

- Accessibility
- Educational Excellence
- Environmental Integrity
- Good Governance
- Healthy Communities
- Higher Education
- Prosperity
- Quality Neighborhoods
- Regional Identity

The process and the published document outline a preferred future, noting that if the region were to continue to develop without taking a change in path, the future would be inconsistent with the Shared Regional Values. Quoting for the Looking Forward document, the Vision is "an expression of a region's core values and desired direction." "The purpose…is to establish a strong cohesive identity for our region and an agreed-upon basis for public decision making and collective action for the future." The Visioning process covered the metropolitan Tucson area. Among other components of implementation, the vision is meant to be input into jurisdictional comprehensive and general plans.

The Pima County Board of Supervisors accepted the Vision for a Greater Tucson Region, which focuses primarily on development in urbanizing and suburbanizing eastern Pima County.

The Imagine Greater Tucson Looking Forward document discusses process, building blocks of the preferred future, and the key components toward successful implementation which include:

- Creating quality places and neighborhood choices
- Developing a strong and diverse economy
- Conserving resources and the natural environment
- Creating an accessible region
- Improving decision-making and regional collaboration

The document in full may be found on line at http://www.imaginegreatertucson.org/wp-content/uploads/2013/08/Looking-Forward_Vision-for-a-Greater-Tucson-Region.pdf

Pima County Regional Master Trail System and The Loop

Changes in River Park and Greenway standards pointed at the need to update the Eastern Pima County Trail System Master Plan last revised in 1996. In 2010, Pima County Natural Resources, Parks and Recreation Department lead this effort which included revisions to the Pima Regional Trail System Master Plan Trails Map and the conforming modifications to the zoning code. The changes to the zoning code updated the text to reflect the current trail system master plan.

The overall goal of this update was to expand the trail system in the urban core of the area's jurisdictions and to explore new opportunities in outlying areas. The plan builds on the efforts of the previous master plan, taking a detail look at both the areas surrounding the cities in the county and the urban context of downtown and suburban Tucson, and the towns located in the periphery.

The updated system consists of approximately 853 miles of existing and proposed trails, paths, greenways, river parks, bicycle boulevards, and enhance corridors that connect regional destinations, workplaces, parks, schools, and preserve areas. In addition, there are 1,422 miles of single-track trails that connect the urban core to the large and small natural preserves in Eastern Pima County. The trails system includes parks, trailheads and boundary access points to increase user access to the system, as well as detail design standards—including River Park standards—to guide the future development of the system.

Pima County is developing *The Loop* around metro Tucson with 55 miles of biking, walking and running paths connecting the Rillito, Santa Cruz, and Pantano River Parks with the Julian Wash and Harrison Road Greenways. Loop links will extent the network of paths through Marana, Oro Valley, Tucson and South Tucson. These connections are the result of Pima County's cooperative partnerships with these jurisdictions.

The Loop will connect parks, trailheads, bus and bike routes, workplaces, schools, restaurants, hotels and motels, shopping areas, and entertainment venues. Visitors and Pima County residents can enjoy The Loop on foot, bikes, skates and horses. If it doesn't have a motor, it's good to go on *The Loop*.

When completed, *The Loop* will total 131 miles and connect the Rillito River Park, Santa Cruz River Park, and Pantano River Park with Julian Wash and the Harrison Greenway.

Pima County Economic Development Plan

In January 19, 2012, Chuck Huckleberry, the County Administrator, presented an Economic Development report to the Board of Supervisors capturing the past and present actions to promote job growth and retention. Pima County's role in economic development has traditionally been focused on workforce development managing the federal funds that are allocated through the State and funneled to Workforce Investment Boards. Pima County pays an annual contribution to TREO to develop strategies for industry attraction and work with site selectors to match their requirements with the region. The report outlined an aggressive shift to active recruitment and infrastructure commitments to attract and retain large employers. The report proposes actions such as Targeted Transportation Infrastructure Investments, proposed land acquisition, and promoting the importance of Solar Energy.

Pursuant to the objectives, the following actions for example are currently underway:

- Protect Raytheon from urban encroachment through land acquisition, airport planning, road realignment and Aerospace corridor planning
- Protect the military functionality of DMAFB and the Air National Guard Fighter Wing through land acquisitions and noise mitigation funding
- Position the county for new jobs and new industry through maximizing on the current assets such as airports for the Aerospace and Defense Research corridor

Future challenges were identified that would require a regional approach to solve including, for example, developing new investment strategies for transportation funding mechanisms and changing public attitudes regarding infrastructure investment. It also recommends fostering a collaborative environment in which the private sector, local governments, educational institutions and nonprofit agencies work together to stabilize and expand the local economy.

Meant to be a short term strategic plan, a second phase of the Economic Development Plan for 2015-2017 is awaited.

Pima County Multi-Species Conservation Plan and Habitat Conservation Plan

Pima County's Multi-species Conservation Plan (MSCP) is the part of the Sonoran Desert Conservation Plan (SDCP) that addresses endangered species compliance. Under the Endangered Species Act it is illegal to take (harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect) threatened and endangered species. The U.S. Fish and Wildlife Service (Service) may issue permits to take federally listed species provided the taking is incidental to an otherwise lawful activity. Issuing such an incidental take permit to a nonfederal entity, such as Pima County, requires the permit recipient to develop—and commit to—a habitat conservation plan that minimizes and mitigates the effects of incidental take on federally listed species. The MSCP is Pima County's habitat conservation plan, which covers 44 species.

Numerous investigations and research efforts were conducted as part of the SDCP to determine the location, condition, and appropriate conservation measures for a number of key natural resources in Pima County. This information provided the foundation for the MSCP. The MSCP:

- Serves as the document of record for anticipated incidental take, habitat loss, mitigation, management, and monitoring of covered species and their habitats that result from the activities authorized under the permit (i.e., Covered Activities);
- Establishes a phased approach to implementing the Pima County MSCP with appropriate interim milestones for meeting requirements associated with projected impacts; and
- Provides a means for tracking mitigation obligations and credit.

Once approved, the MSCP will be valid for up to 30 years or until impacts from the following activities reach 36,000 acres:

- Ground disturbances on individual, single dwelling lots that occur subsequent to the County's issuance of a building permit that authorizes grading of 14,000 square feet or more provided that the property owner elects to participate in the County's Section 10 permit at the time the property owner applies for the building permit;

- Ground disturbances that occur as part of—and subsequent to—the development of a residential subdivision where such actions are subject to the County's issuance of a site construction permit provided the property owner elects to participate in the County's Section 10 permit after submittal of the site construction permit application but prior to the County's issuance of the site construction permit (see Section 3.4);
- Ground disturbances that occur as part of and subsequent to the development of a non-residential facility where development is subject to the County's issuance of a site construction permit provided the property owner elects to participate in the County's Section 10 permit after submittal of the site construction permit application but prior to the County's issuance of the site construction permit (see Section 3.4);
- Activities of the County including construction, repair, maintenance, and operation of County facilities and infrastructure;
- Construction, operation, and maintenance of renewable energy generation projects located on County-owned lands leased to others specifically for that purpose;
- Relocation of utilities within County rights-of-way, where required by Pima County;
- Monitoring and land management activities including surveys, scientific studies, and other such activities carried out by Pima County and its cooperators for the purposes of this MSCP;
- Restoration activities such as vegetation treatments (including wildland fire) that are intended to improve the biological and ecological values;
- Recreation activities authorized by Pima County; and
- County ranch-management activities—exclusive of livestock herbivory and trampling—on land owned by the County and lands managed by the County through grazing leases issued by the State of Arizona.

Solar One Stop Center

The Solar One Stop is a multi-agency collaborative effort of Pima County and the City of Tucson, originally funded through the U.S. Department of Energy's (DOE) Solar America Communities Initiative and maintained by Pima County. The program's mission is to spread information on affordable, quality, and efficient solar technologies for homes and businesses. The City and County continue to utilize all possible sources of financing for solar on public sites and to better integrate solar into city and county planning processes and green building initiatives.

For the County, the program is also an outgrowth of the Board of Supervisors 2007 Sustainability resolution and the Sustainable Action Plan for County Operations discussed above.

The website for the Solar One stop is http://solaronestopaz.org/Home.aspx

EXHIBIT 1.1.a
Planning Areas East

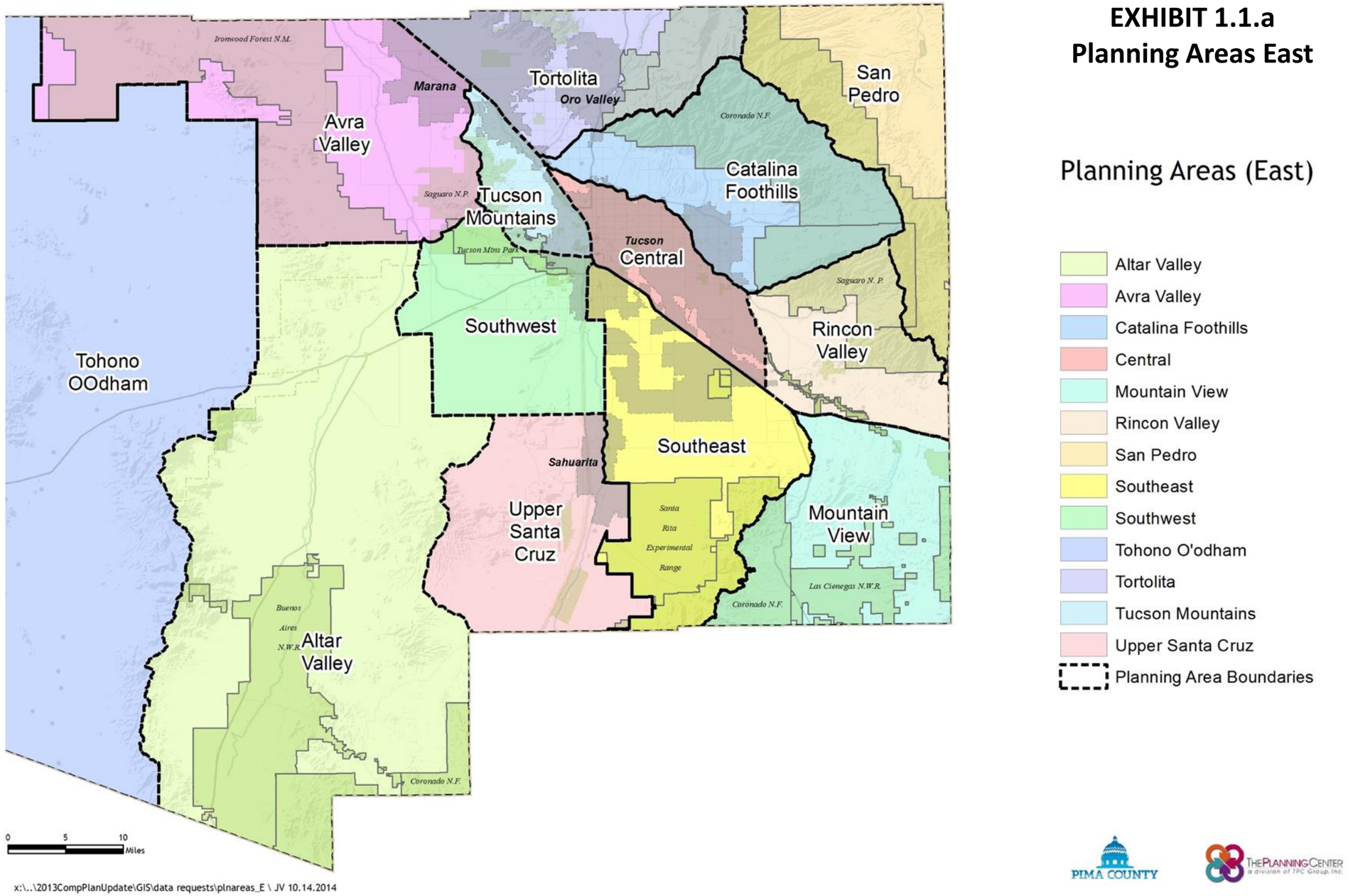
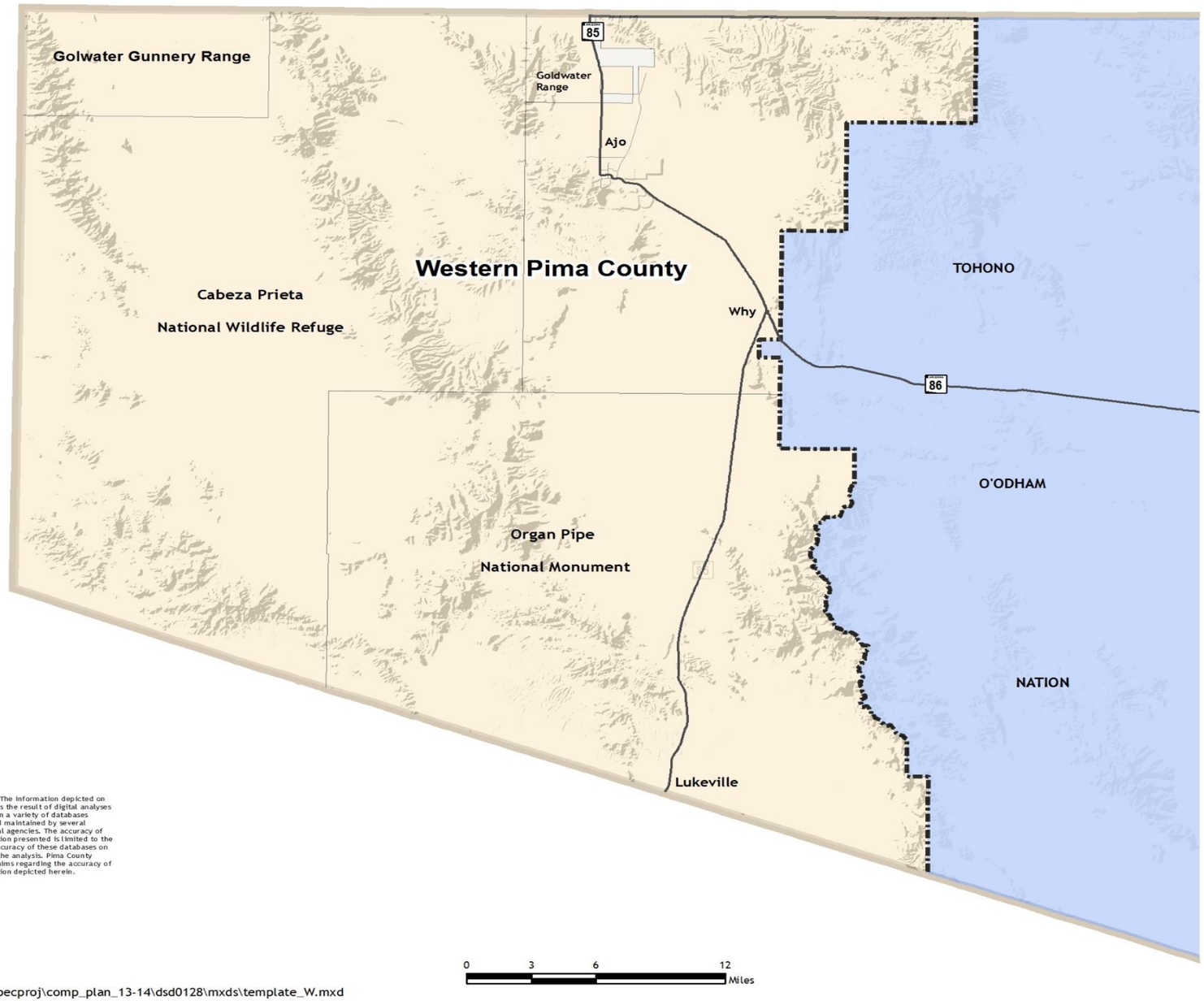


EXHIBIT 1.1.b
Planning Areas West



Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.

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Planning Areas (West)

Tohono O'odham Nation

Western Pima County

Inventory and Analysis

Chapter 2: Inventory, Demographics and Socio-Economic Analysis

Key Subjects

- ✓ Location and Regional Context
- ✓ Planning Areas and Settlements Description
- ✓ Physical Constraints (Topography, Hydrology and Conservation Areas)
- ✓ Demographics
- ✓ Socio-economic Conditions

Important Notes:

1. At the time of the preparation of the infrastructure study that served as the core of this background document, the Tohono O'odham Nation was treated as a planning area for statistical purposes only. The Tohono O'Odham Nation is a sovereign nation. However, though the County recognizes the importance of the Nation to the region, the County has no jurisdiction over the Nation.

2. All Exhibits referenced in this chapter are included at the end of the chapter.

Base Mapping and Inventory

2.1 Location and Regional Context

Pima County is located in the south central region of Arizona and encompasses a total of 5,879,797.69 acres or 9,188.83 square miles (23,799.0 km2). The county is named after the Pima Native Americans which are indigenous to this area. It borders between southwestern Arizona and northwestern Mexico's Sonora state. Municipalities within Pima County include the City of Tucson (the largest and the county seat), the City of South Tucson, the Town of Marana, the Town of Oro Valley, and the Town of Sahuarita. The vast majority of the county population lies in and around the City of Tucson, filling much of the eastern part of the county with urban development. Pima County includes two sovereign nations: The Tohono O'odham Nation and the Pascua Yaqui Tribe.

Private land makes up approximately 13.6% (1250 square miles) of the county. Additionally, much of Arizona state trust land, held in trust for supporting public institutions, is potentially available for sale or lease for urban scale development. It comprises an additional 14.7% of the land mass of the county.

According to the 2000 census, of the total 9,188.83 square miles (23,799.0 km2) within Pima County, approximately 9,186.27 square miles (23,792.3 km2) (or 99.97%) is land and 2.57 square miles (6.7 km2) (or 0.03%) is water. The United States Office of Management and Budget designated Pima County as the Tucson, AZ Metropolitan Statistical Area. The United States Census Bureau ranked the Tucson, AZ Metropolitan Statistical Area as the 53rd most populous metropolitan statistical area of the United States as of July 1, 2012.

The Office of Management and Budget further designated the Tucson, AZ Metropolitan Statistical Area as a component of the more extensive Tucson-Nogales, AZ Combined Statistical Area, the 53rd most populous combined statistical area and the 59th most populous primary statistical area of the United States as of July 1, 2012.

Exhibit 2.1, included at the end of this chapter, shows Comprehensive Plan study area and regional context and depicts municipalities, Tribal Lands, and major parks and protected areas.

2.2 Planning Areas

For planning purposes, Pima County is divided in thirteen distinct planning areas. Only eastern Pima County and therefore twelve of these planning areas were identified in the *Pima County Infrastructure Study*. Western Pima County, the Ajo-Why planning area, was added for Pima Prospers. A fourteenth "planning" area is included in some of the statistical data for this document. However, just as with the incorporated jurisdictions, Pima Prospers does not plan for The Tohono O'odham Nation lands. While not part of the county land use plan, the Tohono O'odham and the other jurisdictions are very important entities in the planning process. Each planning area presents unique opportunities and challenges. In addition to addressing flood control, transportation, wastewater, libraries, health and other countywide services provided by Pima County, this Comprehensive Plan also assesses opportunities within each planning area. This layered approach provides a more comprehensive picture of future needs.

TABLE 2.2: Planning Area Acreages

Planning Area	Total Acres
1. Avra Valley	316,549.11
2. Tucson Mountains	50,615.58
3. Southwest	150,723.67
4. Altar Valley	712,465.73
5. Upper Santa Cruz	176,765.50
6. Mountain View	183,813.05
7. Southeast	221,883.14
8. Central	79,887.01
9. Catalina Foothills	200,399.81
10. Rincon Valley	122,162.78
11. Tortolita	150,452.16
12. San Pedro	174,332.96
13. Ajo-Why	981,488.00
Total All Planning Areas:	**3,521,538.50**
Total County:	**5,880,851.00**

Source: Pima County Infrastructure Study, 2013

Avra Valley Planning Area (1)

The Avra Valley planning area encompasses 316,548 acres northwest of the Tucson metropolitan area and west of Interstate 10 including a portion of the Town of Marana. The northwestern boundary of the planning area is the Pinal/Pima County line until it reaches Interstate 10 in the area of the Rillito community (approximately 1 ½ miles northwest of Avra Valley Road and Interstate 10) where the eastern boundary drops south from Interstate10 roughly bisecting Saguaro National Park (west) until it meets the southern boundary of the planning area. The southern boundary of the planning area begins at the junction of Planning Areas 1, 2, and 3 at roughly the southern end of Saguaro National Park (west), moving southwesterly until approximately the intersection of Sandario Road and two miles south of Mile Wide Road where the boundary then extends westward along the border of the Ironwood Forest National Monument and the Tohono O'odham Nation. The western boundary of the planning area is the periphery of the Tohono O'odham Nation (the east boundaries of T11S, R5E and T12S, R5E near the western edge of the Ironwood Forest National Monument). The planning area includes a portion of Saguaro National Park (west), a small portion of Tucson Mountain Park, the Ironwood Forest National Monument, and a portion of the Town of Marana (the portion on the west side of Interstate 10).

By jurisdiction, 52.6% (164,294 acres) of this planning area is the Ironwood Forest National Monument, 34.1% (106,566 acres) is unincorporated Pima County, 7.6% (23,852 acres) is the Town of Marana, 5.1% (15,920 acres) is Saguaro National Park (west), .17% (521 acres) is Tucson Mountain Park, and .09% (274 acres) is the Tohono O'odham Nation.

Privately-owned lands (101,581 acres) constitute 32.1% of the planning area. The Bureau of Land Management controls 36.3% (115,004 acres) of the planning area, the Arizona State Land Department controls 24.9% (78,840 acres), the Saguaro National Park (west) controls 4.7% (15,015 acres) and the remainder is owned by the Tohono O'odham Nation (.95%/2,998 acres), the Bureau of Reclamation (.78%/2,466 acres), Parks and Recreation (.19%/592 acres), and there is a "GIS mapping alignment shift" of 53 acres.

Tucson Mountains Planning Area (2)

The Tucson Mountains planning area encompasses approximately 50,615 acres in the central region of eastern Pima County. The western boundary of the planning area runs south from Interstate 10, roughly bisecting the Saguaro National Park (west) and abuts the eastern boundary of Planning Area 1, the northeastern boundary is Interstate 10 from just south of Tangerine Road to just south of Starr Pass Boulevard and abuts Planning Areas 8, 9, and 11, and the southern boundary is south of Starr Pass Boulevard from Tucson Mountain Park to Interstate 10 and abuts the northern boundary of Planning Area 3. The eastern edge of Planning Area 2 lies within the City of Tucson and the western edge lies within Saguaro National Park (west) and Tucson Mountain Park. The unincorporated areas are mostly within the central portion of the planning area, while a large southeastern portion lies within the City of Tucson and a large northern portion lies within the Town of Marana.

By jurisdiction, 39.8% (20,141 acres) of the planning area is unincorporated Pima County, 21.2% (10,716 acres) is within the City of Tucson, 16.2% (8,217 acres) is within Saguaro National Park (west), 14.9% (7,565 acres) is within the Town of Marana, and 7.9% (3,977 acres) is within Tucson Mountain Park.

Privately-owned lands constitute 75.9% (38,420 acres) of the planning area. With 6,240 acres, the National Park Service controls 12.3% of the planning area, the Pima County Natural Resources, Parks and Recreation Department controls 8.4% of the planning area, with the remaining acreage composed of State Trust Lands (3.2%/1,608 acres), Game and Fish (.13%/66 acres) and Military Reserve (.08%/40 acres).

The Town of Marana meets the City of Tucson at approximately Sunset Road. South of Sweetwater Drive, the City of Tucson incorporated area expands west of Silverbell Road to Painted Hills Road. The City of Tucson abuts Tucson Mountain Park in the Starr Pass development area.

Southwest Planning Area (3)

The Southwest planning area consists of 70 square miles of land located within the 7X12 mile rectangular region generally bounded by Tucson Mountain Park to the north, Mission road to the east, The Tohono O'Odham Nation San Xavier District and Pascua Yaqui Tribe lands to the south, and Sandario Road to the west.

Land ownership of the area is widespread and diverse, including the federal government, the State of Arizona, Pima County, the Arizona Board of Regents, and Tribal Nations. Many of those owners are anticipated to release all or portions of their property to development.

Altar Valley Planning Area (4)

The Altar Valley planning area encompasses approximately 712,463 acres in the southwestern region of eastern Pima County. The boundaries of the planning area are on the north where the Tohono O'odham Nation meets the Ironwood Forest National Monument (the southern boundary of Planning Area 1), the eastern boundary roughly follows the Brawley Wash south from Tucson Mountain Park to Ajo Highway (Hwy 86) where the boundary moves eastward to the

Tohono O'odham Nation (San Xavier District) and follows the district's boundary south and east to the Sierrita Mountains to the Pima/Santa Cruz County border (abutting Planning Areas 3 and 5), the southern boundary is the Pima/Santa Cruz County boundary, and the western boundary is the Baboquivari Mountains and the east perimeter of the Tohono O'odham Nation.

Much of the planning area is unincorporated Pima County with the exceptions of the Buenos Aires National Wildlife Refuge, the Coronado National Forest, Baboquivari Peak Wilderness Area, and portions of the Tohono O'odham Nation.

By jurisdiction, 73.9% (485,377 acres) of this planning area is unincorporated Pima County, 15.5% (101,595 acres) is the Buenos Aires National Wildlife Refuge, 7.6% (49,935 acres) is the Tohono O'odham Nation, and the remainder is Coronado National Forest (2.2%/14,273 acres), the Baboquivari Peak Wilderness Area (.31%/2,052 acres), Coyote Mountain Wilderness Area (in the Baboquivari Mountains) and slivers of the Tohono O'odham Nation (San Xavier District) and Ironwood Forest National Monument.

Privately-owned lands (119,767 acres) constitute 16.8% of the planning area. With 353,802 acres, the Arizona State Land Department owns 49.7% of the planning area. The federal government owns 26.2% of the planning area with 15.6% (111,407 acres) controlled by the Buenos Aires National Wildlife Refuge, 6.0% (43,059 acres) by the Coronado National Forest, and 4.6% (32,787 acres) by the Bureau of Land Management. The remaining land area is owned by the Tohono O'odham Nation (including a sliver of the San Xavier District) (7%), Game and Fish (.2%), and negligible acreage is attributed to "other" and to a GIS alignment data shift.

Upper Santa Cruz Planning Area (5)

The Upper Santa Cruz planning area encompasses approximately 176,751 acres in the south-central region of eastern Pima County. The western boundary of the planning area is the Sierrita Mountains, the southern is the Pima-Santa Cruz county line, the eastern is generally the Santa Cruz River and the Santa Rita Experimental Range (and the western boundary of Planning Area 7), and the northern is the Tohono O'odham Nation – San Xavier District. The planning area is characterized by a history of copper mining that continues today, as well as cattle ranching, agriculture and urban development along Interstate Highway 19. I-19 is also a major highway providing connectivity to the US/Mexico border and connecting the State of Sonora, Mexico and the State of Arizona.

Privately-owned lands (108,826 acres) constitute 61.5% of the planning area. With 61,665 acres, the Arizona State Land Department controls 35% of the area within this planning area. Save an acre within the Tohono O'odham Nation - San Xavier District, the balance of this planning area (6,258 acres; 3.5%) is owned by the federal government, primarily the Bureau of Land Management and to a minor extent the U.S. Forest Service. By jurisdiction, 8.5% (14,957 acres) is within the Town of Sahuarita and 91.5% (161,794 acres) is within unincorporated Pima County.

Mountain View Planning Area (6)

The Mountain View planning area encompasses approximately 183,813 acres in the southeastern region of Pima County. The northern boundary of the planning area is Interstate 10, the eastern boundary is the Pima/Cochise County line, the southern boundary is the Pima/Santa Cruz County line, and the western boundary is the eastern boundary of Planning Area 7 which is very roughly Highway 83 for approximately six miles south from Interstate 10 to where the boundary veers southwest and bisects the Coronado National Forest.

By jurisdiction, 60.8% (111,757 acres) is Pima County, 21.3% (39,132 acres) is Coronado National Forest, 17.5% (32,066 acres) is Las Cienegas National Conservation Area, and 0.5% (858 acres) is Cienega Creek Natural Preserve. Privately-owned lands (26,737 acres) constitute 14.5% of the planning area. With 84,205 acres, the Arizona State Land Department owns 45.8%, the Bureau of Land Management owns 20.4% (37,540 acres), and the Coronado National Forest owns 14.5% (26,737 acres) of the planning area. A residual amount of 0.14% or 251 acres is deemed "GIS data alignment shift".

Southeast Planning Area (7)

The Southeast planning area encompasses approximately 221,882 acres in the south-central region of eastern Pima County. The western boundary is made up of a portion of Interstate 19, of the eastern boundary of the Tohono O'odham Nation (San Xavier District), of the western boundary of the Santa Rita Experimental Range and Wildlife Area and a portion of the eastern boundary of Planning Area 5 which bisects the Town of Sahuarita. The southern boundary of the planning area is the Santa Cruz/Pima County border. The southeastern boundary is the western boundary of Planning Area 6 which bisects the Coronado National Forest (Santa Rita Mountains) and roughly parallels a portion of Highway 83. The northern boundary is Interstate 10 which is also the southern boundary of Planning Area 8.

Including 121,164 acres, the Arizona State Land Department controls the majority (55%) of the area within this planning area. Privately-owned lands (70,344 acres) constitute 32% of the planning area. Save a few acres within the Tohono O'odham Nation (San Xavier District), the balance of this planning area (30,332 acres; 13.7%) is owned by the federal government, specifically the U.S. Forest Service and Bureau of Land Management.

By jurisdiction, 20% (43,304 acres) is within the City of Tucson, 2% (4,639 acres) is within the Town of Sahuarita, and 42% (93,214 acres) is within unincorporated Pima County. A negligible amount of this planning area (22 acres) is a small portion of the City of South Tucson (South Tucson).

Central Planning Area (8)

The Central planning area encompasses approximately 79,887 acres in the central region of eastern Pima County. The western and southern boundaries of the planning area are Interstate 10 (where the boundaries abut Planning Areas 2, 3, and 7), the northern boundary is the Rillito River and the northeastern boundary is the Pantano Wash (both north and northeastern boundaries abutting Planning Area 9), the eastern boundary is formed by the section line of the Wentworth Road alignment veering away from the Pantano Wash and then south to Interstate 10 (where the boundary abuts Planning Area 10). Most of the planning area lies within the City of Tucson. The unincorporated areas of the planning area are at the far northwest, a small area in the north, and several areas along the south boundary of Interstate 10.

By jurisdiction, 88% (70,158 acres) is within the City of Tucson, 11% (9,100 acres) is within unincorporated Pima County, .8% (615 acres) is within South Tucson, and a scant three acres is within Marana.

Privately-owned lands (56,214 acres) constitute 70% of the planning area. With 12,935 acres, the Arizona State Land Department controls 16% and with 10,737 acres, Davis-Monthan Air Force Base controls 13% of the planning area.

Catalina Foothills Planning Area (9)

The Catalina Foothills planning area encompasses approximately 200,398 acres in the Catalina/Rincon foothills region of eastern Pima County. The small western boundary of the planning area is Interstate 10 abutting the eastern boundary of Planning Area 2, the northwestern boundary abuts Planning Area 11 and is roughly from I-10 east along Orange Grove Road to Shannon Road then diagonally northeast to slightly north of Magee Road and La Canada Drive and east to the Coronado National Forest to the junction of Planning Areas 11 and 12 in the Catalina Mountains. The planning area's northeastern boundary follows along the Catalina Mountains ridgeline and is the southwestern boundary of Planning Area 12. The southeastern boundary bisects Saguaro National Park (east) diagonally from southwest to northeast from south of Irvington Road abutting Planning Area 10 and the southwestern boundary roughly follows the Rillito River until Craycroft Road where it veers southeast and meets up with the Pantano Wash south of Irvington Road, abutting the west boundary of Planning Area 10 and the northern boundary of Planning Area 8.

With the notable exception of the City of Tucson-incorporated area south of Tanque Verde Road and other minor exceptions, the area is predominantly unincorporated Pima County.

By jurisdiction, 48.6% (97,343 acres) of the planning area is Coronado National Forest, 30% (60,116 acres) is unincorporated Pima County, 13.3% (26,624 acres) is within Saguaro National Park (east), 7.7% (15,475 acres) is within the City of Tucson, .31% (627 acres) is within the Town of Oro Valley and .11% (213 acres) is within the Town of Marana.

Privately-owned lands constitute 39.1% (78,386 acres) of the planning area. With 97,133 acres, the Coronado National Forest controls 48.5% of the planning area, the Saguaro National Park (east) controls 12.4% (24,758 acres) of the planning area, with the remaining acreage composed of Bureau of Land Management property (.04%/78 acres) and State Trust Lands (.02%/44 acres). A small piece of the Town of Oro Valley meets unincorporated Pima County near Magee Road and Oracle Road and the City of Tucson incorporated area expands roughly south of Tanque Verde Road, west of Melpomene Way and south to the southwestern boundary of the planning area.

Rincon Valley Planning Area (10)

The Rincon Valley planning area encompasses 122,162 acres at the eastern boundary of Pima County, north of Interstate 10. The western boundary of the planning area (the eastern boundary of Planning Area 8) is roughly the Pantano Wash to the section line of the Wentworth Road alignment south to Interstate 10, the northern boundary (the southeastern boundary of Planning Area 9) starts south of the Irvington Road alignment and bisects the Rincon Mountains diagonally to the northeast, the southern boundary is Interstate 10, and the eastern boundary is the ridgeline of the Rincon Mountains (also a portion of the Planning Area 12 boundary) south to the border of Cochise County and Pima County. The planning area includes portions of Saguaro National Park (east), portions of the Rincon Mountains and foothills, the Cienega Creek Natural Preserve, the unincorporated community of Vail and Colossal Cave Mountain Park.

By jurisdiction, 54.6% (66,703 acres) of this planning area is unincorporated Pima County, 26.1% (31,916 acres) is within Saguaro National Park (east), 14.1% (17,204 acres) is within the Coronado National Forest, 2.7% (3,292 acres) is Cienega Creek Natural Preserve, 1.7% (2,131 acres) is Colossal Cave Mountain Park, .6% (757 acres) in within the City of Tucson and the remaining .13% (162 acres) is Bureau of Reclamation Mitigation Lands.

Privately-owned lands (45,416 acres) constitute 37.2% of the planning area. The Arizona State Land Department controls 25.8% (31,511 acres), the Saguaro National Park (east) controls 22.8% (27,873 acres), and the Coronado National Forest controls 14% (17,142 acres) of the planning area. The remaining acreage is owned by the Bureau of Land Management (.18%/215 acres) and .005% entails a "GIS mapping alignment shift" (6 acres).

Tortolita Planning Area (11)

The Tortolita planning area encompasses 150,451 acres in the northwestern region of eastern Pima County. The western boundary of the planning area is Interstate 10 (abutting Planning Areas 1 and 2), the northern boundary is the Pinal/Pima County line, the south/southeastern boundary is from I-10 roughly along Orange Grove Road to Shannon Road then diagonally northeast to slightly north of Magee Road and La Canada Drive and east to the Coronado National Forest to the junction of Planning Areas 9 and 12 in the Catalina Mountains. The southeastern boundary joins the northwestern boundary of Planning Area 9. The east boundary is within the Catalina Mountains abutting Planning Area 12. The planning area includes the Towns of Marana and Oro Valley, Catalina State Park, Coronado National Forest (Catalina Mountains), Tortolita Mountain Park and the remainder is unincorporated Pima County. The unincorporated portions of the planning area are between the Towns of Marana and Oro Valley, areas north and northeast of the Town of Oro Valley including the village of Catalina, and the western portion of the Coronado National Forest.

By jurisdiction, 25% (37,600 acres) of this planning area is unincorporated Pima County, 30% (44,934 acres) is within the Town of Marana, 14.4% (21,738 acres) is within the Town of Oro Valley, 24.8% (37,269 acres) is within the Coronado National Forest, 3.7% (5,495 acres) is Catalina State Park, and the remaining 2.3% (3,415 acres) is within Tortolita Mountain Park.

Privately-owned lands (69,290 acres) constitute 46% of the planning area. With 42,708 acres, the Coronado National Forest controls 28.4% and with 36,265 acres, the Arizona State Land Department controls 24% of the planning area. The remaining acreage is owned by the Bureau of Reclamation (886 acres), Bureau of Land Management (638 acres), Catalina State Park (19 acres), and Pima County Parks and Recreation (522 acres), and entails "GIS mapping alignment shift" (124 acres) accounting for a total of 2,189 acres or approximately 1.5% of the total area.

San Pedro Planning Area (12)

The San Pedro planning area encompasses approximately 174,332 acres in the northeastern region of Pima County. The northern boundary of the planning area is the Pima/Pinal County line, a small portion of the eastern boundary is the Pima/Graham County line with the majority of the boundary being the Pima/Cochise County line. The western/southwestern boundary is the ridgelines of the Coronado National Forest and the Saguaro National Park (east) abutting Planning Areas 10, 9, and 11.

By jurisdiction, 51.7% (90,180 acres) is unincorporated Pima County, 43.1% (75,070 acres) is the Coronado National Forest, 5.1% (8,867 acres) is the Saguaro National Park (east) and .12% (215 acres) is the Bingham-Cienega Natural Preserve.

Privately-owned lands (25,352 acres) constitute 14.5% of the planning area. With 73,124 acres, the Coronado National Forest controls 42%, with 66,899 acres, the Arizona State Land Department controls 38.4%, and with 8,819 acres, the Saguaro National Park (east) has 5.1% of the planning area.

Ajo-Why Planning Area (13)

The Ajo-Why planning area includes Ajo and Why. Ajo is located in the Sonoran Desert, tucked away in Western Pima County, about 120 miles southwest of Phoenix and 130 miles west of Tucson. Why (O'odham: Ban Hi:nk) is a small unincorporated rural community in Pima County, Arizona. It lies near the western border of the Tohono O'Odham Indian Reservation and due north of Organ Pipe Cactus National Monument in Southern Arizona. It is approximately thirty miles north of the Mexican border where Lukeville, Arizona, and Sonoita, Sonora, Mexico, border each other, and ten miles south of Ajo, Arizona. Why is located at the junction of state routes 85 & 86. The population in Why at the 2000 census was approximately 116.

Ajo is landlocked with the Tohono O'odham Nation to the east, Organ Pipe Cactus National Monument to the south, and the Cabeza Prieta National Wildlife Refuge and Goldwater Gunnery Range to the north

and west, and lands managed by the Bureau of Land Management (BLM) completely surround Ajo, restricting expansion and agricultural production.

Within Ajo, Pima County owns several plots north of the town, run by the Pima County Natural Resources Parks and Recreation (NRPR) department. The State of Arizona owns several scattered plots around the Town of Why. Privately owned lands make up the rest.

2.3 Rural, Suburban, and Urban Areas

In addition to planning area uniqueness, Pima County is characterized by three distinct development patterns, urban, suburban and rural. The vast majority of the county population lies in and around the City of Tucson, filling much of the eastern part of the county with urban development. Tucson is a major employment, commerce and academic center. Other jurisdictions in the County include Oro Valley, Marana, Sahuarita, South Tucson, and the unincorporated community of Green Valley. The rest of the county is sparsely populated and primarily rural in character. The largest towns are Sells, the capital of the Tohono O'odham Nation, and Ajo in the far western region of the county.

The American Planning Association (APA) defines rural, suburban and urban areas. Rural is defined as sparsely developed areas where the land is primarily used for farming, forestry, agriculture, resource extraction, very low-density residential uses, or open space uses. The term rural is used to identify those areas in the county with the lowest population density. Rural areas are typically characterized by larger residential lots. They also include areas where livestock and agriculture are existing and/or permitted uses. This development pattern is generally not served by water and sewer lines due to cost of extending infrastructure to such areas. Instead, development in rural areas is generally served by water wells and septic tanks.

Suburban areas includes the low- to medium-density development patterns which surround the downtown or other more intense urban areas. Suburban development is often residential in character with single-family detached residential uses as the primary use of land. Increasingly, the suburbs include employment and service centers as well as residential areas.

Urban areas are generally characterized of, or constituting a city. Urban development pattern is characterized by moderate and higher density residential development (i.e., three or more dwelling units per acre), commercial, industrial, institutional and government uses as well as the availability of public services required for that development, specifically central water and sewer, road network, public transit and other such services.

2.4 Planning Areas and Settlements

Table 2.4. shows all the incorporated jurisdictions and communities within each planning area.

TABLE 2.4.a: Major Communities by Planning Area

Planning Area	Communities	Incorporated, Unincorporated, Other
1. Avra Valley	Picture Rocks	Unincorporated
	Marana (town)	Incorporated
2. Tucson Mountains	Tucson Mountains	Unincorporated
3. Southwest	Tucson Estates	Unincorporated
	Ajo Way/Valencia Road corridors	Unincorporated
	Pascua Yaqui Tribe	Sovereign Nation
4. Altar Valley	Arivaca	Unincorporated
	Diamond Bell	Unincorporated
	Sasabe	Unincorporated
	Sierrita Mountain	Unincorporated
	Robles Junction/Three Points	Unincorporated
5. Upper Santa Cruz	Amado	Unincorporated
	Arivaca Junction	Unincorporated
	Continental	Unincorporated
	Elephant Head	Unincorporated
	Green Valley	Unincorporated
	Montana Vista	Unincorporated
	Sahuarita (town)	Incorporated
6. Mountain View	Mescal/J6	Unincorporated
7. Southeast	Corona de Tucson	Unincorporated
	I-10 Airport	Unincorporated
	Vail/Mountain View / New Tucson	Unincorporated
8. Central	Flowing Wells	Unincorporated
	Tucson (city)	Incorporated
	South Tucson (city)	Incorporated
9. Catalina Foothills	Catalina Foothills	Unincorporated
	Tanque Verde	Unincorporated
	Summerhaven	Unincorporated
10. Rincon Valley	Vail and West of Camino Loma Alta	Unincorporated
11. Tortolita	Catalina	Unincorporated
	Oro Valley (town)	Incorporated
	Casas Adobes	Unincorporated
	Marana (town)	Incorporated
12. San Pedro	Redington	Unincorporated
13. Ajo-Why	Ajo	Unincorporated
	Why	Unincorporated
	Lukeville	Unincorporated

2.5 Physical Constraints: Topography, Hydrology, Conservation Areas

Topography

According to Table 2.5.a, of the total 2,540,050 acres located within the unincorporated area of the County, approximately 68,524 acres, or 2.69 percent, include 15-25 percent slopes, and approximately 80,503 acres, or 3.16 percent, include 25 percent or greater slopes.

TABLE 2.5.a: Slopes 15-25 Percent and 25 percent and Greater by Planning Area

Planning Area	Total Acres	15-25 Percent Slopes	25 Percent and Greater Slopes
1. Avra Valley	316,549.11	3,137.74	4,157.94
2. Tucson Mountains	50,615.58	838.38	821.85
3. Southwest	150,723.67	510.56	421.49
4. Altar Valley	712,465.73	26,995.41	47,439.85
5. Upper Santa Cruz	176,765.50	6,301.19	5,898.07
6. Mountain View	183,813.05	15,162.53	7,944.90
7. Southeast	221,883.14	1,730.03	1,876.03
8. Central	79,887.01	2.75	0.00
9. Catalina Foothills	200,399.81	1,823.69	1,902.66
10. Rincon Valley	122,162.78	3,050.51	1,358.13
11. Tortolita	150,452.16	3,312.21	5,626.26
12. San Pedro	174,332.96	5,659.32	3,056.01
13. Ajo-Why	**Data not available**		
Total all Planning Areas:	**2,540,050.49**	**68,524.33**	**80,503.21**
Total County:	**5,880,851.00**	**84,309.46**	**102,261.71**

Source: Pima County Geographic Information Systems, 2013

Exhibits 2.5.a and 2.5.b, included at the end of this chapter, show topography.

Hydrology, Drainage and Washes

According to Table 2.5.b, of the total 2,540,050 acres located within the unincorporated area of the County, approximately 261,338.79 acres, or 10.28 percent are located within Pima County designated flood plains.

TABLE 2.5.b: Acreage within the 100 Year Floodplain by Planning Area

Planning Area	Total Acres	Pima County Designated Floodplain Acreage
1. Avra Valley	316,549.11	84,064.82
2. Tucson Mountains	50,615.58	4,665.11
3. Southwest	150,723.67	33,602.74
4. Altar Valley	712,465.73	33,454.06
5. Upper Santa Cruz	176,765.50	6,131.75
6. Mountain View	183,813.05	5,922.11
7. Southeast	221,883.14	42,173.83
8. Central	79,887.01	6,807.76
9. Catalina Foothills	200,399.81	8,331.37
10. Rincon Valley	122,162.78	4,479.58
11. Tortolita	150,452.16	28,497.54
12. San Pedro	174,332.96	3,208.11
13. Ajo-Why	**Data not available**	
Total all Planning Areas:	**2,540,050.49**	**261,338.79**
Total County:	**5,880,851.00**	**279,769.22**

Source: Pima County Geographic Information Systems, 2013

Exhibits 2.5.c and 2.5.d, included at the end of this chapter, show hydrology.

Conservation Areas

According to Table 2.5.c, of the total 2,540,050 acres located within the unincorporated area of the County, approximately 158,103 acres, or 6.22 percent, are located in Important Riparian Areas (IRA); approximately 783,320 acres, or 30.83 percent, are located in Biological Core Management Areas; approximately 515,350 acres, or 20.28 percent, are located Special Species Management Areas (SSMA); and approximately 260,175 acres, or 10.24 percent, are located in Designated Wildlife Corridors.

TABLE 2.5.c: Important Riparian Areas, Biological Core, Special Species Management Areas (SSMA) and Designated Wildlife Corridors per Planning Area

Planning Area	Important Riparian Areas (IRA)	Biological Core Management Areas	Special Species Management Areas (SSMA)	Designated Wildlife Corridors
1. Avra Valley	24,259.69	18,620.35	184,791.36	70,885.78
2. Tucson Mountains	4,975.57	1,719.55	14,800.01	9,236.15
3. Southwest	4,127.31	5,522.73	19,825.70	24,352.52
4. Altar Valley	53,741.18	253,650.27	213,001.23	233,151.26
5. Upper Santa Cruz	8,783.01	65,453.94	0.00	131,572.94
6. Mountain View	15,887.41	80,312.47	0.00	128,610.99
7. Southeast	9,868.27	107,362.27	0.00	102,089.19
8. Central	1,250.77	42.62	0.00	0.00
9. Catalina Foothills	8,864.19	51,370.42	16,973.60	21,112.90
10. Rincon Valley	6,926.64	73,013.54	14,724.62	44,432.97
11. Tortolita	10,796.39	23,509.58	42,320.36	62,915.19
12. San Pedro	8,622.70	102,742.26	8,913.34	131,714.12
13. Ajo-Why	**Data not available**			
Total All Planning Areas:	**158,103.13**	**783,319.99**	**515,350.23**	**260,175.18**
Total County:	**158,178.01**	**899,914.68**	**997,581.67**	**658,233.46**

Pima County Geographic Information Systems, 2013

Exhibits 2.5.e and 2.5.f, included at the end of this chapter, show Important Riparian Areas, Biological Core, Special Species Management Areas (SSMA) and Designated Wildlife Corridors.

Critical Riparian Habitats

The majority of the priority vulnerable species in Pima County are associated with aquatic and riparian-based ecosystems. This list of species also points out the importance of other landscape features that are also threatened in Pima County. Grasslands, desert scrub, caves, adits and talus slopes serve as unique habitat niches that support vulnerable species.

Protecting indigenous species requires more than conserving the habitat of individual species. Maintaining the full spectrum of native biodiversity requires the inclusion of vegetation communities when assembling a viable reserve system. Attention must also be paid to larger ecological processes. Many areas vital to the survival of vulnerable species may be outside of, or corridors between, existing parks or natural preserves.

Identification of Vulnerable Species

Under the direction of the Science Technical Advisory Team, a list of the most vulnerable plant and wildlife species was developed. This began with an initial list of over one hundred species recognized as imperiled, species extirpated from Pima County, and additional species in decline or in jeopardy. This review resulted in a short list of 55 species that were identified as priority vulnerable species, warranting further analysis, consideration, and conservation.

Priority Habitats and Corridors

Priority habitats and corridors are depicted on Exhibits 2.5.e and 2.5.f, which is included at the end of this chapter. The Sonoran Conservation Plan identifies priority habitats and corridors within Pima County. These include:

- Altar Valley
- Baboquivari Mountains
- Cienega Creek
- Eastern Tucson Riparian Complex
- Organ Pipe/Goldwater Complex
- Sabino Canyon
- San Pedro River
- Santa Rita Mountains
- Silverbell Mountains
- Tortolita Mountains
- Tucson Mountains

TABLE 2.5.d: Physical Constraints per Planning Area

Planning Area	Total Acres within County Designated Floodplains	Total Acres with 15 to 25 Percent Slopes	Total Acres with 25 Percent or Greater Slopes	Important Riparian Areas (IRA)	Biological Core Management Areas	Special Species Management Areas (SSMA)	Designated Wildlife Corridors
1. Avra Valley	84,064.82	3,137.74	4,157.94	24,259.69	18,620.35	184,791.36	70,885.78
2. Tucson Mountains	4,665.11	838.38	821.85	4,975.57	1,719.55	14,800.01	9,236.15
3. Southwest	33,602.74	510.56	421.49	4,127.31	5,522.73	19,825.70	24,352.52
4. Altar Valley	33,454.06	26,995.41	47,439.85	53,741.18	253,650.27	213,001.23	233,151.26
5. Upper Santa Cruz	6,131.75	6,301.19	5,898.07	8,783.01	65,453.94	0.00	131,572.94
6. Mountain View	5,922.11	15,162.53	7,944.90	15,887.41	80,312.47	0.00	128,610.99
7. Southeast	42,173.83	1,730.03	1,876.03	9,868.27	107,362.27	0.00	102,089.19
8. Central	6,807.76	2.75	0.00	1,250.77	42.62	0.00	0.00
9. Catalina Foothills	8,331.37	1,823.69	1,902.66	8,864.19	51,370.42	16,973.60	21,112.90
10. Rincon Valley	4,479.58	3,050.51	1,358.13	6,926.64	73,013.54	14,724.62	44,432.97
11. Tortolita	28,497.54	3,312.21	5,626.26	10,796.39	23,509.58	42,320.36	62,915.19
12. San Pedro	3,208.11	5,659.32	3,056.01	8,622.70	102,742.26	8,913.34	131,714.12
13. Ajo-Why	**Data not available**						
Total All Planning Areas:	**261,338.79**	**68,524.33**	**80,503.21**	**158,103.13**	**783,319.99**	**515,350.23**	**260,175.18**
Total County:	**279,769.22**	**84,309.46**	**102,261.71**	**158,178.01**	**899,914.68**	**997,581.67**	**658,233.46**

Pima County Geographic Information Systems, 2013

According to Table 2.5.d, of the total 2,540,050 acres located within the unincorporated area of the County, approximately 68,524 acres, or 2.69 percent, include 15-25 percent slopes; approximately 80,503 acres, or 3.16 percent, include 25 percent or greater slopes; approximately 261,338.79 acres, or 10.28 percent are located within Pima County designated flood plains; approximately 158,103 acres, or 6.22 percent, are located in Important Riparian Areas (IRA); approximately 783,320 acres, or 30.83 percent, are located in Biological Core Management Areas; approximately 515,350 acres, or 20.28 percent, are located Special Species Management Areas (SSMA); and approximately 260,175 acres, or 10.24 percent, are located in Designated Wildlife Corridors.

Demographics

2.6 Existing and Projected Population

Population Growth

Throughout the decade of the 1990's Pima County's population grew by 40 percent, which is much faster than Arizona as a whole at 13 percent. The unincorporated county also experienced rapid population growth with a 28 percent increase over the 10 year time horizon. The decade of the 2000's saw a slowdown of this robust population growth for these three areas. However, the rate of growth for the unincorporated county in the 2000's outpaced Pima County as a whole (Figure 1).

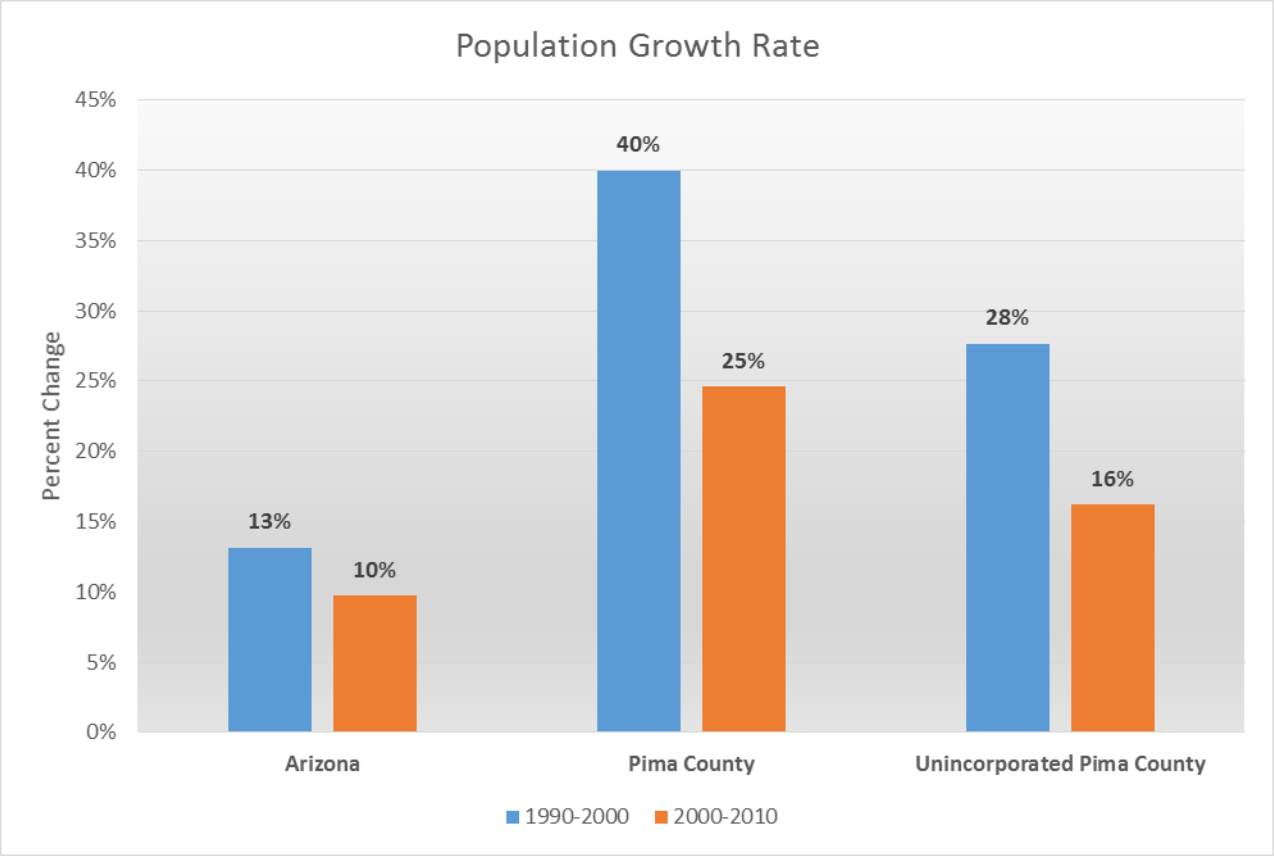
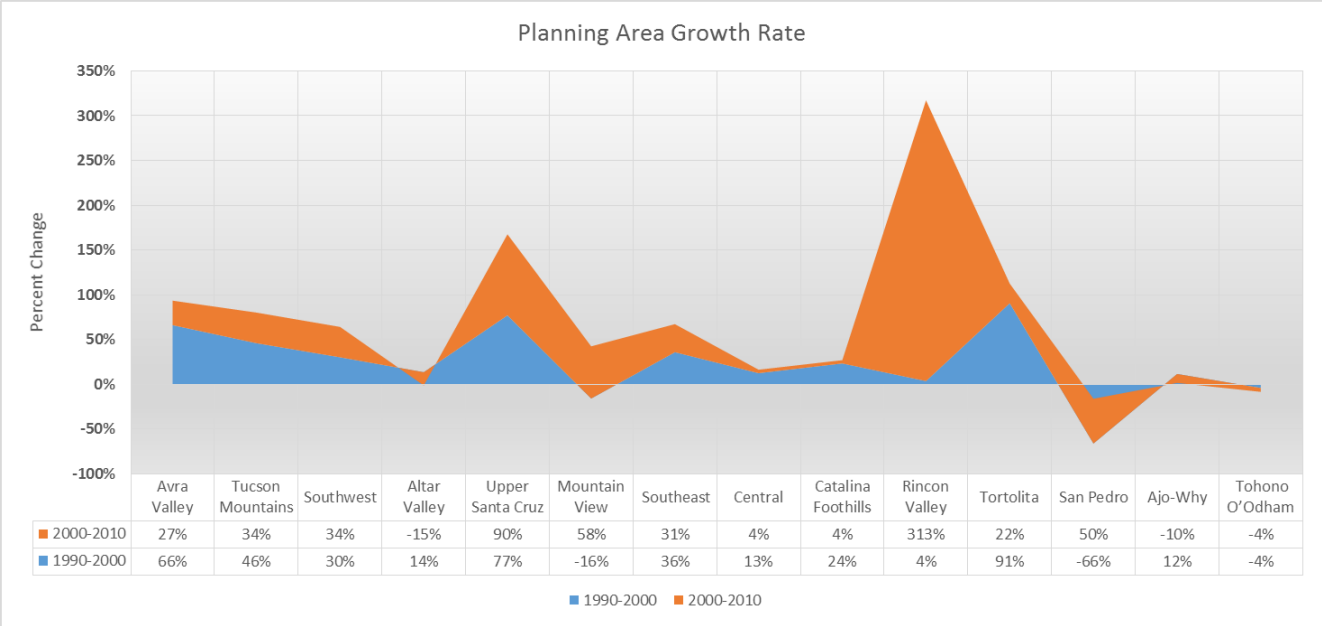


Figure 1 – Arizona, Pima County and Unincorporated County Population Growth, 1990-2000 and 2000-2010

When considering the 14 defined "planning" areas (of which planning area 14 corresponding to the Tohono O'odham Nation is defined only for statistical purposes since Pima County has no jurisdiction over a sovereign nation) in Pima County (*Figure 2*), all of them grew in the 2000's with the exception of Altar Valley, Ajo-Why and the Tohono O'Odham, which lost population. The planning areas that grew the fastest are the Upper Santa Cruz and Rincon Valley at 90 percent and 313 percent respectively.



	Avra Valley	Tucson Mountains	Southwest	Altar Valley	Upper Santa Cruz	Mountain View	Southeast	Central	Catalina Foothills	Rincon Valley	Tortolita	San Pedro	Ajo-Why	Tohono O'Odham
2000-2010	27%	34%	34%	-15%	90%	58%	31%	4%	4%	313%	22%	50%	-10%	-4%
1990-2000	66%	46%	30%	14%	77%	-16%	36%	13%	24%	4%	91%	-66%	12%	-4%

Figure 2 – Pima County Planning Areas Population Growth, 1990-2000 and 2000-2010

Of the four incorporated cities within Pima County, Sahuarita received the largest gains in population growing from 3,242 people in the year 2000 to 25,259 by 2010, for a 679 percent population growth. Marana's population growth spurt cooled down in the decade of the 2000's and grew at 158 percent, significantly slower than 520 percent experienced from 1990-2000. Tucson and South Tucson are growing at a much slower pace than all other areas.

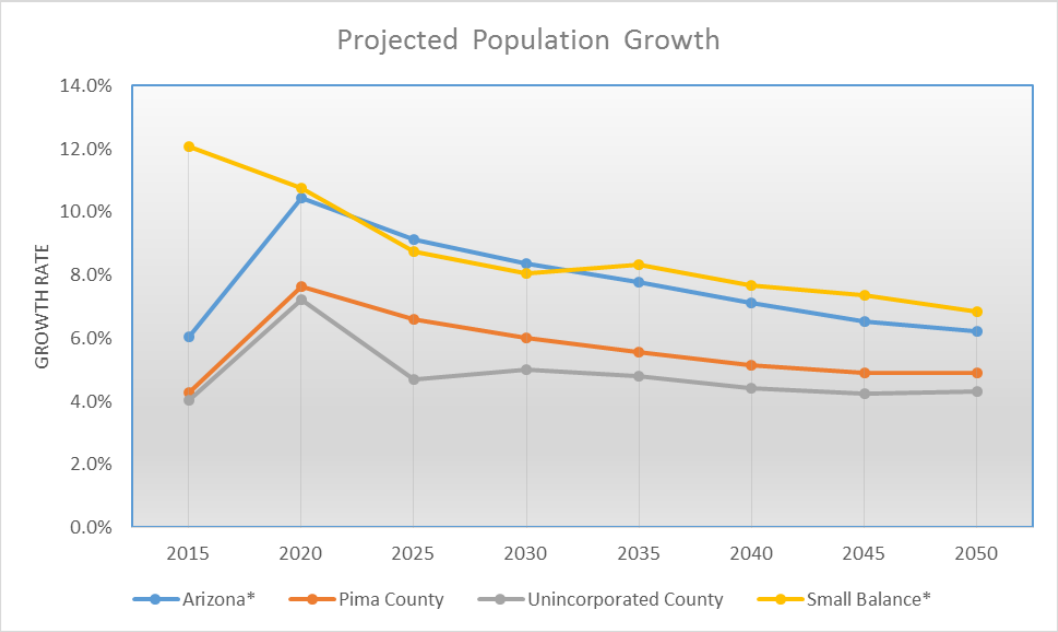


Figure 3.a – Arizona. Pima County, Unincorporated County and Small Balance Population Growth, 1990-2000 and 2000-2010

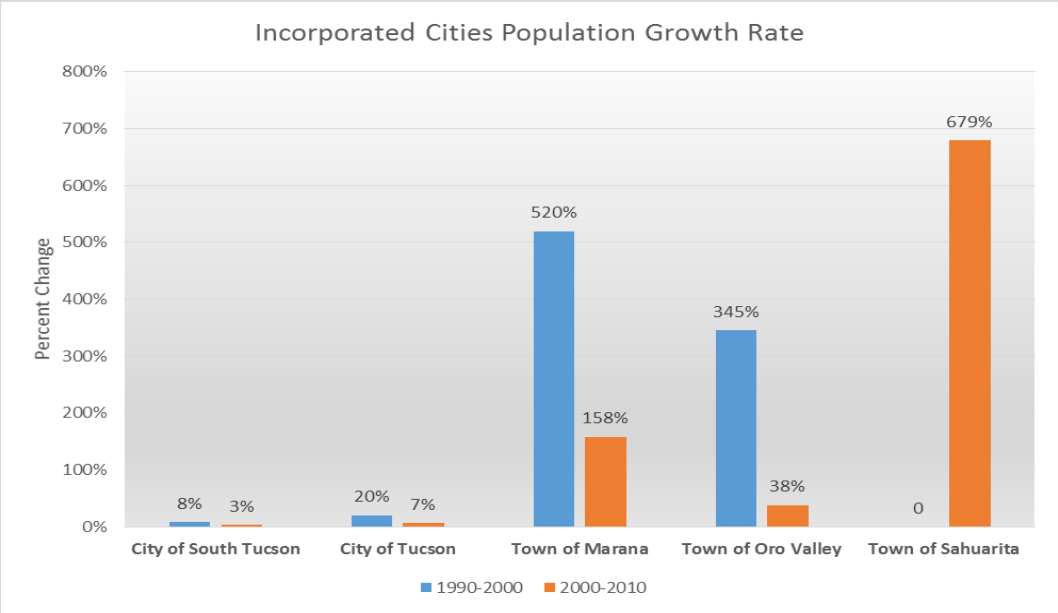


Figure 4.b – Incorporated Cities Population Growth, 1990-2000 and 2000-2010

The incorporated cities have a similar pattern, with the exception of Sahuarita, whose growth slows down more rapidly from 2025-2030.

The following Table 2.6.a contains the 1990, 2000 and 2010 population counts by place and planning area.

TABLE 2.6.a: 1990, 2000 and 2010 Population Counts

Place	1990	2000	2010
United States	248,709,873	281,421,906	308,745,538
Arizona	3,665,228	5,130,632	6,392,017
Pima County	666,880	843,731	980,263
Unincorporated Pima County	247,540	305,059	353,264
Planning Areas			
1. Avra Valley	9,890	16,922	22,853
2. Tucson Mountains	30,724	46,211	63,422
3. Southwest	51,324	69,186	89,341
4. Altar Valley	3,759	6,923	7,062
5. Upper Santa Cruz	17,547	24,586	49,822
6. Mountain View	678	1,152	1,334
7. Southeast	72,361	92,940	116,512
8. Central	279,082	309,344	321,216
9. Catalina Foothills	140,837	171,595	176,907
10. Rincon Valley	1,549	3,808	12,861
11. Tortolita	47,906	89,597	108,154
12. San Pedro	54	126	103
13. Ajo-Why	3,401	3,903	3,524
14. Tohono O'Odham	7,768	7,453	7,152
Incorporated Areas			
City of South Tucson	5,093	5,490	5,652
City of Tucson	405,390	486,699	520,116
Town of Marana	2,187	13,556	34,961
Town of Oro Valley	6,670	29,700	41,011
Town of Sahuarita	n/a	3,242	25,259

Source: US Bureau of the Census 1990, 2000 and 2010 counts.

Population Projections

Population projections from the U.S. Census Bureau were used to calculate the rate of change every five years from 2015 to 2050. Growth continues on an upward trajectory through 2020 and has a sharp decline between the years 2020 to 2025. After 2025 the rate of growth continues to gradually slow for all areas.

TABLE 2.6.b: Population Projections

Place								
YEAR	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Arizona	6,777,534	7,485,163	8,168,354	8,852,645	9,540,513	10,218,407	10,885,932	11,562,584
Pima County	1,022,079	1,100,021	1,172,515	1,243,099	1,312,101	1,379,622	1,447,403	1,518,154
Unincorporated County	367,519	394,085	412587	433,256	454,061	474,185	494,309	515,620
Small Balance	193,386	62,738	68,689	73,118	80,818	85,808	91,302	101,171
Planning Areas								
1. Avra Valley	9,890	16,922	22,853	24,667	27,422	29,663	31,997	34,096
2. Tucson Mountains	30,724	46,211	63,422	68,463	75,954	82,851	89,653	97,393
3. Southwest	51,324	69,186	89,341	92,806	100,256	106,306	112,755	119,216
4. Altar Valley	3,759	6,923	7,062	7,564	8,519	9,191	9,947	10,736
5. Upper Santa Cruz	17,547	24,586	49,822	53,705	60,995	68,556	73,667	77,918
6. Mountain View	678	1,152	1,334	1,432	1,603	1,714	1,839	2,026
7. Southeast	72,361	92,940	116,512	121,365	130,879	139,360	147,941	157,791
8. Central	279,082	309,344	321,216	331,628	353,171	375,607	397,595	418,707
9. Catalina Foothills	140,837	171,595	176,907	180,673	188,226	195,479	202,751	209,988
10. Rincon Valley	1,549	3,808	12,861	15,178	19,616	22,793	26,355	27,379
11. Tortolita	47,906	89,597	108,154	112,700	120,135	126,544	132,900	140,096
12. San Pedro	54	126	103	110	122	130	139	155
13. Ajo-Why	3,401	3,903	3,524	3,777	4,261	4,607	4,995	5,183
14. Tohono O'Odham	7,768	7,453	7,152	8,011	8,862	9,714	10,565	11,417
Incorporated Areas								
City of Tucson	537,129	572,636	610,374	647,118	683,038	718,187	753,472	790,303
City of South Tucson	5,670	5,637	5,585	5,550	5,544	5,601	5,727	5,904
Town of Marana	41,019	48,324	55,287	61,988	68,859	75,741	82,714	89,947
Town of Oro Valley	42,259	44,811	47,405	49,784	52,072	54,271	56,453	58,724
Town of Sahuarita	28,483	34,529	41,276	45,403	48,527	51,637	54,729	57,657

Source: US Bureau of the Census 1990, 2000 and 2010 Population Counts

Population Counts 1990, 2000 and 2010 by Age and Gender by Planning Area

For all of the planning areas, the overall average ratio of males to females is 49.1 percent to 50.9 percent. However, when you examine each of the planning areas separately (Figure 5), the Upper Santa Cruz has 6 percent more females than males with a ratio of 53.1 percent to 46.9 percent. This area embodies the retirement communities of Green Valley and also contains the oldest population. The planning area that has 3.3 percent more males than females is the Southeast, which also boasts one of the youngest populations.

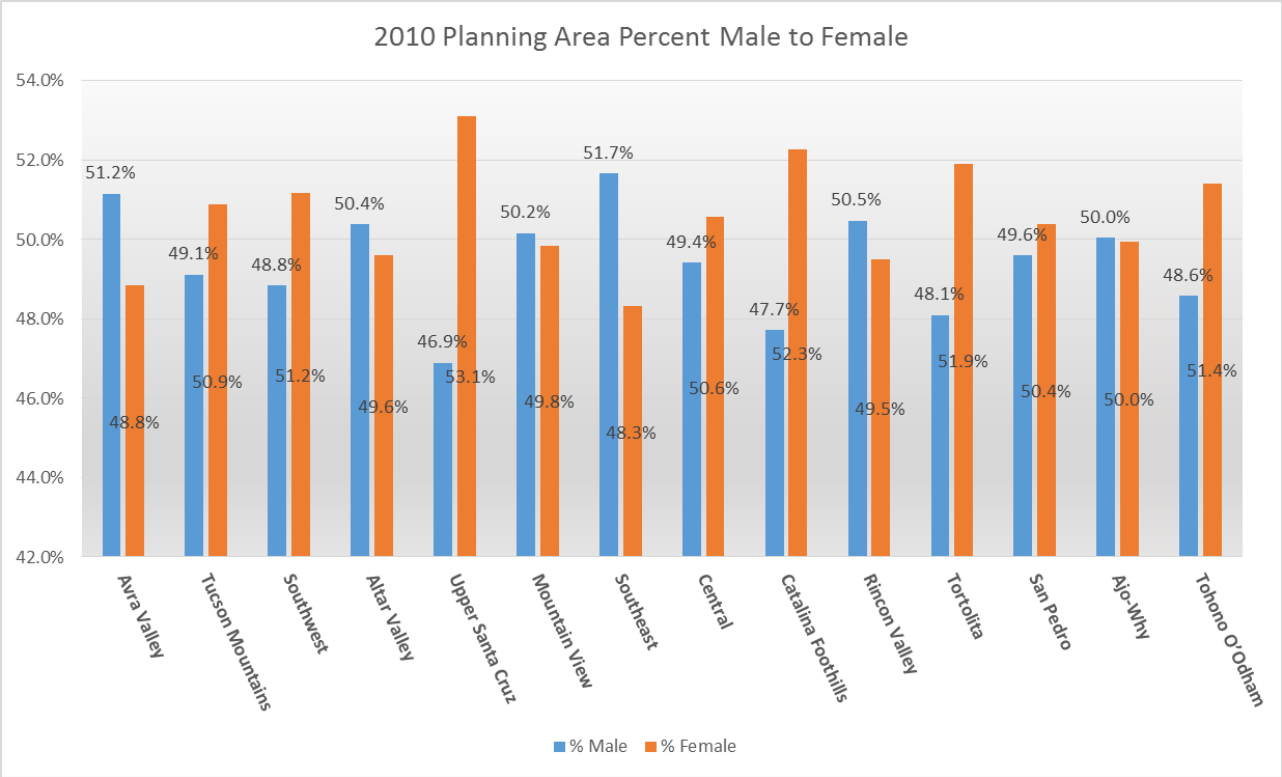


Figure 5 – 2010 Planning Area Ratio of Male to Female

When examining the age of the population within the planning areas for the year 2010, the Southeast and Tohono O'Odham have the youngest population with a little over one-third being 19 years of age and younger. The planning areas with the largest percent of people over the age of 50 include Santa Cruz and San Pedro.

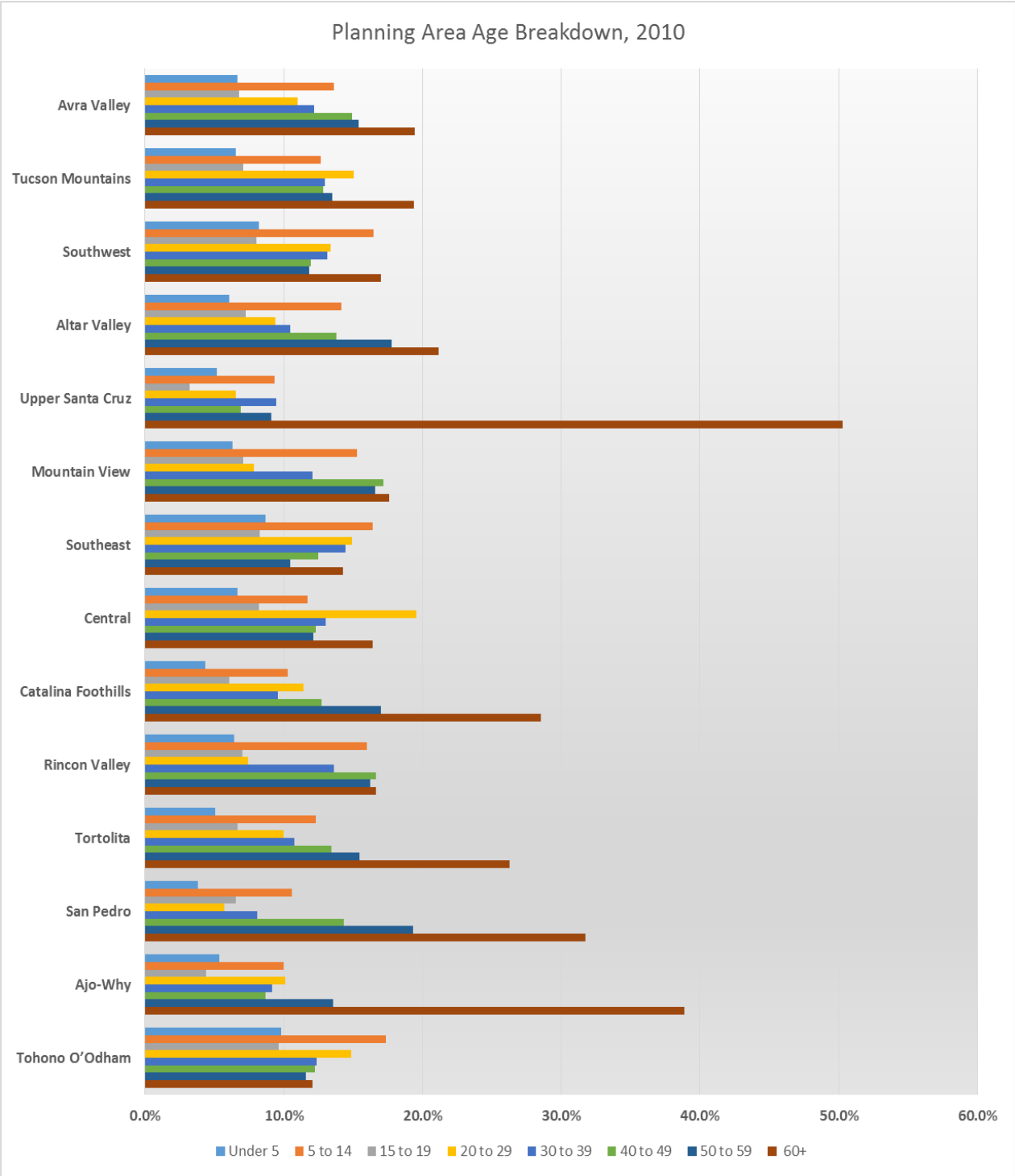


Figure 6 – Planning Area Age Breakdown, 2010

TABLE 2.6.c: 1990 Population Counts (Male Age Breakdown) by Planning Area

Planning Area	Total Population	Total Male	Male 0 to 5	Male 6 to 11	Male 12-14	Male 15 to 19	Male 20 to 29	Male 30 to 39	Male 40 to 49	Male 50 to 59	Male 60+
1. Avra Valley	9,890	5,058	418	481	463	376	570	857	693	533	667
2. Tucson Mountains	30,724	15,532	1,228	1,150	1,008	1,179	2,626	2,853	2,192	1,269	2,027
3. Southwest	51,324	25,067	2,557	2,352	2,111	1,864	3,573	4,169	2,891	1,879	3,671
4. Altar Valley	3,759	1,927	148	155	190	105	173	312	261	240	343
5. Upper Santa Cruz	17,547	7,968	176	223	259	229	373	429	471	588	5,220
6. Mountain View	678	330	24	14	18	22	37	47	53	45	70
7. Southeast	72,361	36,868	3,642	3,474	3,326	3,151	6,508	6,232	3,947	2,728	3,860
8. Central	279,082	135,885	10,864	9,226	7,728	10,487	31,267	24,369	13,686	8,914	19,344
9. Catalina Foothills	140,837	67,781	4,017	4,308	4,523	4,735	9,146	10,499	10,846	7,577	12,130
10. Rincon Valley	1,549	782	61	57	52	57	60	166	144	93	92
11. Tortolita	47,906	23,654	1,940	2,243	2,014	1,808	2,501	4,602	3,533	1,817	3,196
12. San Pedro	54	23	1	1	1	1	4	3	2	4	6
13. Ajo-Why	3,401	1,591	86	92	115	100	102	155	135	217	589
14. Tohono O'Odham	7,768	3,800	478	478	404	360	568	523	380	280	329

Source: US Bureau of the Census 1990 Population Counts

TABLE 2.6.d: 1990 Population Counts (Female Age Breakdown) by Planning Area

Planning Area	Total Population	Total Female	Female 0 to 5	Female 6 to 11	Female 12-14	Female 15 to 19	Female 20 to 29	Female 30 to 39	Female 40 to 49	Female 50 to 59	Female 60+
1. Avra Valley	9,890	4,832	388	408	374	353	647	839	702	490	631
2. Tucson Mountains	30,724	15,192	1,101	1,102	1,015	1,035	2,307	2,677	2,026	1,370	2,559
3. Southwest	51,324	26,257	2,379	2,298	1,989	1,802	3,997	4,468	2,873	1,995	4,456
4. Altar Valley	3,759	1,832	130	157	165	108	206	306	245	213	302
5. Upper Santa Cruz	17,547	9,579	213	239	234	246	340	478	542	833	6,454
6. Mountain View	678	348	27	24	12	10	43	57	58	48	69
7. Southeast	72,361	35,493	3,467	3,294	3,157	3,074	5,784	5,522	3,777	2,863	4,555
8. Central	279,082	143,197	10,337	8,938	7,386	10,595	28,715	23,121	14,051	10,620	29,434
9. Catalina Foothills	140,837	73,056	3,874	4,302	4,464	4,526	9,146	11,836	11,630	8,155	15,123
10. Rincon Valley	1,549	767	53	59	68	46	71	170	127	81	92
11. Tortolita	47,906	24,252	1,770	1,996	1,918	1,542	2,909	5,120	3,417	1,861	3,719
12. San Pedro	54	31	5	4	1	3	7	4	2	3	2
13. Ajo-Why	3,401	1,810	81	101	122	95	113	191	178	245	684
14. Tohono O'Odham	7,768	3,968	445	456	397	377	631	554	391	329	388

Source: US Bureau of the Census 1990 Population Counts

TABLE 2.6.e: 2000 Population Counts (Male Age Breakdown) by Planning Area

Planning Area	Total Population	Total Male	Male Under 5	Male 5 to 14	Male 15 to 19	Male 20 to 29	Male 30 to 39	Male 40 to 49	Male 50 to 59	Male 60+
1. Avra Valley	16,922	8,685	607	726	814	693	927	1,374	1,448	974
2. Tucson Mountains	46,211	21,711	1,660	1,584	1,534	1,461	3,251	3,178	3,369	2,800
3. Southwest	69,186	33,662	2,961	3,204	3,155	2,654	4,433	4,526	4,479	3,275
4. Altar Valley	6,923	3,553	226	287	356	290	340	471	554	478
5. Upper Santa Cruz	24,586	11,244	277	309	343	324	487	567	694	1,020
6. Mountain View	1,152	579	22	43	50	33	30	69	107	106
7. Southeast	92,940	47,562	4,197	4,493	4,041	4,075	8,027	7,496	6,173	4,028
8. Central	309,344	152,008	11,125	10,549	9,728	12,120	30,629	24,321	20,951	13,443
9. Catalina Foothills	171,595	82,386	4,144	5,076	5,906	5,654	8,971	10,116	13,604	11,967
10. Rincon Valley	3,808	1,942	134	152	213	142	109	309	401	276
11. Tortolita	89,597	43,708	2,800	3,209	3,592	3,356	4,156	5,922	7,205	5,483
12. San Pedro	126	66	1	3	3	5	5	6	15	11
13. Ajo-Why	3,903	1,865	99	123	122	84	131	154	196	212
14. Tohono O'Odham	7,453	3,590	392	423	406	367	510	461	409	290

Source: US Bureau of the Census 2000 Population Counts

TABLE 2.6.f: 2000 Population Counts (Female Age Breakdown) by Planning Area

Planning Area	Total Population	Total Female	Female Under 5	Female 5 to 14	Female 15 to 19	Female 20 to 29	Female 30 to 39	Female 40 to 49	Female 50 to 59	Female 60+
1. Avra Valley	16,922	8,237	466	726	759	636	847	1,371	1,362	995
2. Tucson Mountains	46,211	24,500	1,592	1,585	1,448	1,475	3,743	4,111	3,925	3,100
3. Southwest	69,186	35,524	2,908	2,990	2,944	2,656	4,748	4,970	4,846	3,515
4. Altar Valley	6,923	3,370	217	270	314	256	356	487	553	451
5. Upper Santa Cruz	24,586	13,342	281	321	375	311	444	612	889	1,538
6. Mountain View	1,152	573	35	23	40	35	27	83	109	99
7. Southeast	92,940	45,378	4,131	4,214	3,911	3,768	6,999	6,474	5,793	4,143
8. Central	309,344	157,336	10,428	10,071	9,192	12,874	28,763	22,619	20,810	14,473
9. Catalina Foothills	171,595	89,209	3,925	4,810	5,607	5,414	8,825	10,742	15,329	12,929
10. Rincon Valley	3,808	1,866	119	156	180	124	128	360	375	238
11. Tortolita	89,597	45,889	2,629	3,063	3,374	2,883	4,317	6,690	7,982	5,794
12. San Pedro	126	60	1	2	1	5	5	6	14	12
13. Ajo-Why	3,903	2,038	96	115	120	113	128	165	220	280
14. Tohono O'Odham	7,453	3,863	356	392	405	391	546	530	466	354

Source: US Bureau of the Census 2000 Population Counts

TABLE 2.6.g: 2010 Population Counts (Male Age Breakdown) by Planning Area

Planning Area	Total Population	Total Male	Male Under 5	Male 5 to 14	Male 15 to 19	Male 20 to 29	Male 30 to 39	Male 40 to 49	Male 50 to 59	Male 60+
1. Avra Valley	22,853	11,737	798	818	858	821	1,380	1,450	1,785	1,792
2. Tucson Mountains	63,422	31,333	1,938	1,939	1,936	2,230	5,091	4,191	4,071	4,151
3. Southwest	89,341	43,484	3,829	3,788	3,831	3,663	5,641	5,574	5,159	4,971
4. Altar Valley	7,062	3,608	198	225	241	240	342	336	462	667
5. Upper Santa Cruz	49,822	23,441	1,402	1,292	1,149	808	1,577	2,377	1,791	1,909
6. Mountain View	1,334	639	28	36	35	37	34	38	104	123
7. Southeast	116,512	60,093	5,262	5,042	4,827	5,207	9,124	8,931	8,047	6,418
8. Central	321,216	158,910	10,989	9,841	9,383	13,070	32,333	21,208	20,078	19,360
9. Catalina Foothills	176,907	84,408	3,963	4,359	4,936	5,449	10,073	8,241	10,569	13,866
10. Rincon Valley	12,861	6,444	461	506	571	516	464	884	1,050	956
11. Tortolita	108,154	52,050	2,745	3,125	3,701	3,708	5,329	5,578	6,761	7,766
12. San Pedro	103	53	1	4	3	4	3	5	6	7
13. Ajo-Why	3,524	1,763	93	91	95	85	174	176	161	223
14. Tohono O'Odham	7,152	3,473	352	325	334	361	526	445	407	362

Source: US Bureau of the Census 2010 Population Counts

TABLE 2.6.h: 2010 Population Counts (Female Age Breakdown) by Planning Area

Planning Area	Total Population	Total Female	Female Under 5	Female 5 to 14	Female 15 to 19	Female 20 to 29	Female 30 to 39	Female 40 to 49	Female 50 to 59	Female 60+
1. Avra Valley	22,853	11,116	781	719	764	741	1,193	1,412	1,677	1,661
2. Tucson Mountains	63,422	32,089	1,989	1,908	1,909	2,175	4,676	4,164	4,108	4,498
3. Southwest	89,341	45,857	3,630	3,638	3,683	3,521	6,046	6,088	5,551	5,634
4. Altar Valley	7,062	3,454	182	219	234	218	287	351	485	662
5. Upper Santa Cruz	49,822	26,381	1,278	1,300	1,120	865	1,793	2,478	1,789	2,771
6. Mountain View	1,334	695	23	40	52	36	38	49	132	128
7. Southeast	116,512	56,419	4,897	4,962	4,726	4,686	8,158	7,784	6,939	6,216
8. Central	321,216	162,306	10,390	9,523	8,726	13,280	30,453	20,528	19,361	19,743
9. Catalina Foothills	176,907	92,499	3,737	4,148	4,655	5,240	10,269	8,591	11,869	16,182
10. Rincon Valley	12,861	6,417	426	525	523	472	481	964	1,074	995
11. Tortolita	108,154	56,104	2,682	3,021	3,458	3,510	5,308	6,041	7,768	9,143
12. San Pedro	103	50	1	2	1	4	5	4	7	9
13. Ajo-Why	3,524	1,761	95	85	80	69	181	148	145	253
14. Tohono O'Odham	7,152	3,679	351	292	298	329	542	441	468	465

Source: US Bureau of the Census 2010 Population Counts

To further emphasize the shift in aging in our community, the University of Arizona produced a household growth chart that demonstrates the 65 year old plus age group will capture the most growth in households in the next thirty years. The study done by Dr. Arthur C. Nelson states that fastest growing segment will be seniors reflecting the aging baby boom generation. Less households will form for the 35 to 65 year old age group.

TABLE 2.6.h: Net Change in Households by Age, 2010-2040

Metric	United States	Arizona	Tucson	Phoenix
Change in Household Growth by Age, 1990-2010				
Household Change	24,951	1,017	127	696
Change in Households <35	(1,285)	111	7	94
Change in Households 35-64	20,457	650	82	456
Change in Households 65+	5,779	256	38	147
Households<35 Share of Growth	0%	11%	6%	13%
Households 35-64 Share of Growth	78%	64%	65%	65%
Households 65+ Share of Growth	22%	25%	30%	21%
Change in Household Growth by Age, 2010-2040				
Household Change	35,226	1,401	209	991
Change in Households <35	5,885	280	33	219
Change in Households 35-64	10,041	557	73	425
Change in Households 65+	19,300	564	103	347
Households<35 Share of Growth	17%	20%	16%	22%
Households 35-64 Share of Growth	29%	40%	35%	43%
Households 65+ Share of Growth	55%	40%	49%	35%

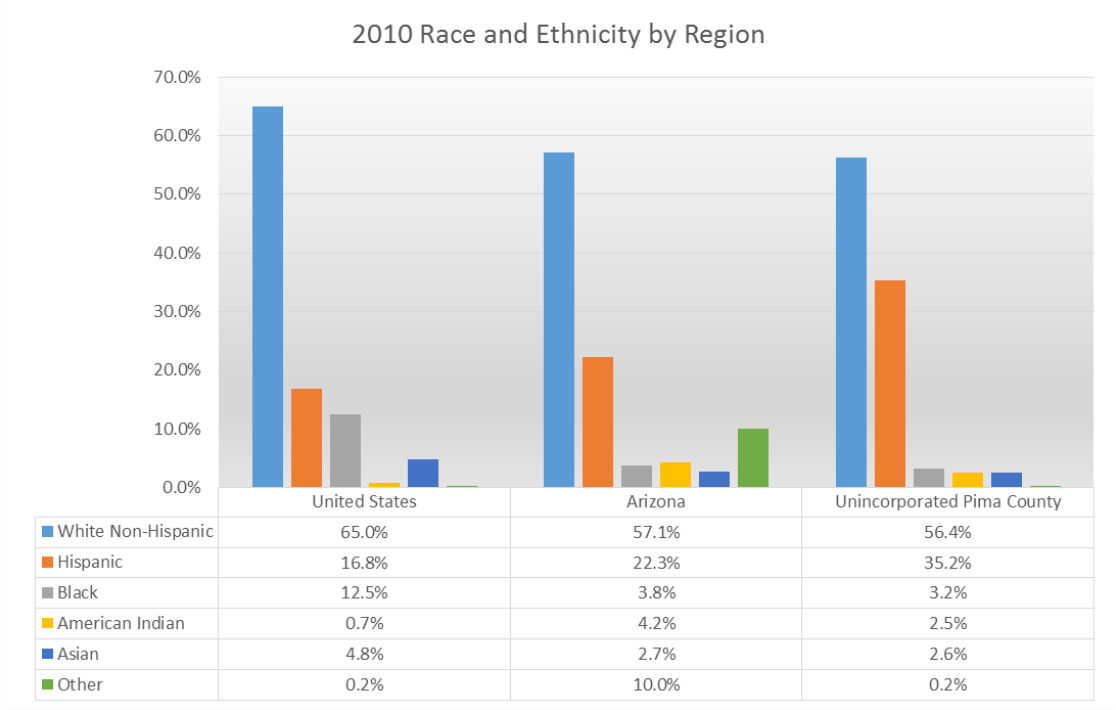
Source: Arthur Nelson. PhD, Net Change in Households by Age, University of Arizona

2.7 Socioeconomic Conditions Assessment

The socioeconomic conditions in Pima County were assessed as part of the Pima Prospers Comprehensive Plan initiative to determine planning area trends and needs. Unless specified otherwise, most of the information in this section is based on block level US Bureau of Census decennial census for 1990, 2000 and 2010 by place and the planning area.

Race and Ethnicity 1990, 2000 and 2010

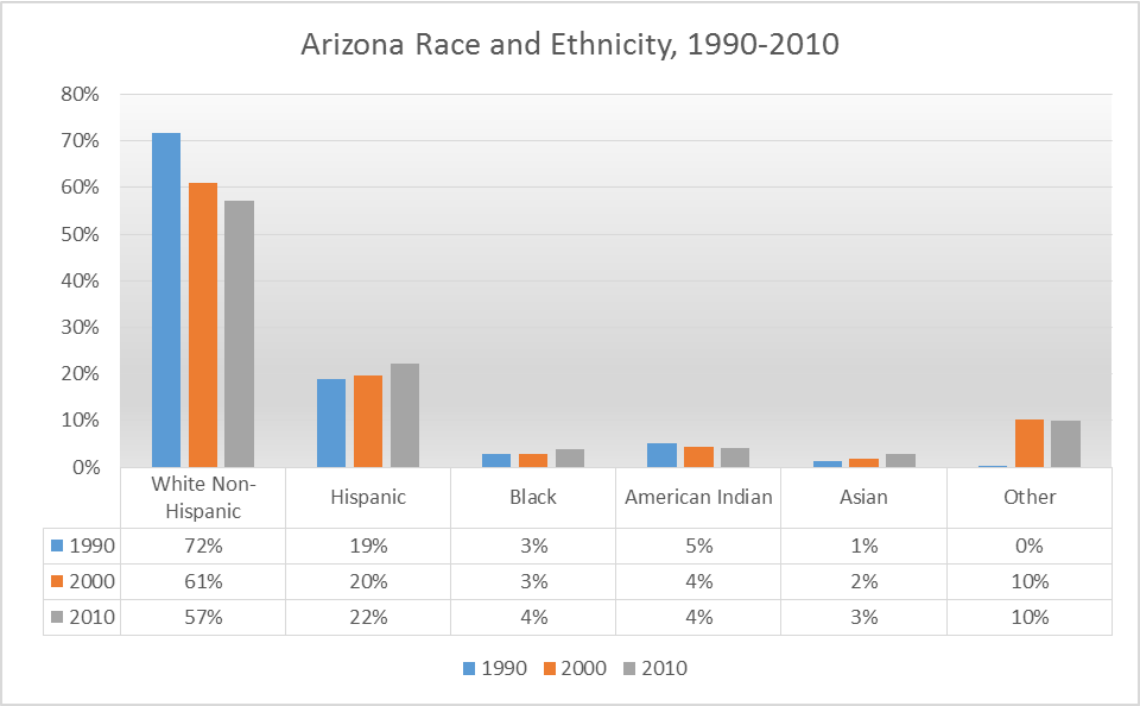
When comparing the race and ethnic mix of the population between the U.S., Arizona and unincorporated Pima County, there are some key distinctions. The U.S. has a larger percentage of a White Non-Hispanic and Black population than Arizona or the unincorporated county (Figure 7). Arizona and the unincorporated county have a larger representation of Hispanic and American Indian than the U.S. as a whole.



	United States	Arizona	Unincorporated Pima County
White Non-Hispanic	65.0%	57.1%	56.4%
Hispanic	16.8%	22.3%	35.2%
Black	12.5%	3.8%	3.2%
American Indian	0.7%	4.2%	2.5%
Asian	4.8%	2.7%	2.6%
Other	0.2%	10.0%	0.2%

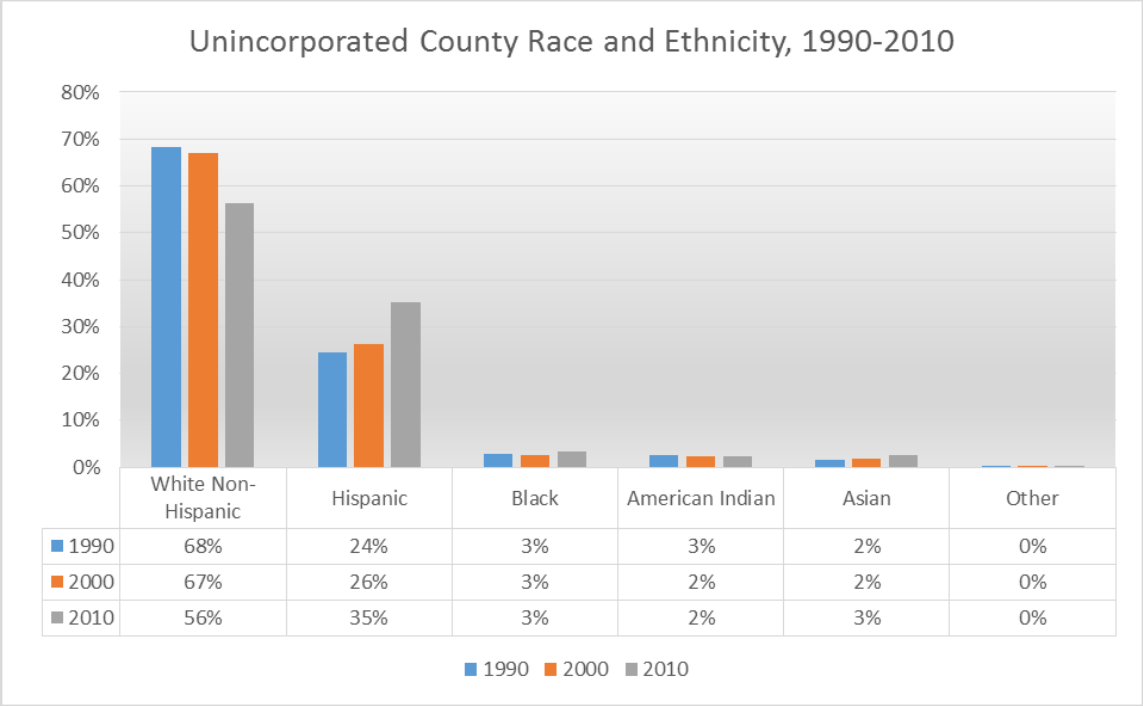
Figure 7 – 2010 Race and Ethnicity U.S., Arizona and the Unincorporated Pima County

Over time, Arizona and the unincorporated areas within Pima County have become more diverse. The White population in 2010 represents 57 percent of the total population in the state, down from 72 percent 20 years earlier. The representation of the Hispanic population increased to 22 percent while the Black and Asian population increased by 1 percent each (Figure 8). The unincorporated Pima County also grew more diverse, but with a larger increase in the Hispanic population going from 24 percent to 36 percent over 20 years. Table 2.5.1 shows 1990, 2000 and 2010 race and ethnicity by place and planning area.



	White Non-Hispanic	Hispanic	Black	American Indian	Asian	Other
1990	72%	19%	3%	5%	1%	0%
2000	61%	20%	3%	4%	2%	10%
2010	57%	22%	4%	4%	3%	10%

Figure 8 – Arizona Race and Ethnicity, 1990-2010



	White Non-Hispanic	Hispanic	Black	American Indian	Asian	Other
1990	68%	24%	3%	3%	2%	0%
2000	67%	26%	3%	2%	2%	0%
2010	56%	35%	3%	2%	3%	0%

Figure 9 – Unincorporated County Race and Ethnicity, 1990-2010

TABLE 2.7.a: Race and Ethnicity 1990, 2000 and 2010

Place	White Non-Hispanic			Hispanic			Black			American Indian			Asian			Other		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	188128296	194552774	196929412	22354059	33081736	50740089	29216293	33947837	37897524	1793773	2068883	2074523	6968359	10123169	14566264	249093	467770	558211
Arizona	2626185	3274258	4667121	688338	1225463	1,895,149	104809	149941	259008	190091	233370	296529	51530	89315	176695	4275	6120	761716
Unincorporated Pima County	454919	633,387	541700	163262	247,578	338802	19455	24047	31075	17005	21821	23558	11228	16595	24592	1011	1012	1461
Planning Area																		
(1) Avra Valley	79.0%	86.0%	86.7%	16.6%	19.6%	22.2%	1.9%	1%	1.7%	1.9%	2%	2.3%	0.6%	0.43%	0.8%	8.7%	9%	8.4%
(2) Tucson Mountains	47.8%	73%	75.0%	45.9%	40.6%	41.3%	3.4%	4%	3.9%	1.7%	3%	2.7%	1.1%	2.06%	3.6%	25.7%	19%	14.7%
(3) Southwest	46.0%	60%	60.3%	43.4%	52.8%	62.7%	3.0%	3%	2.7%	6.7%	9%	9.4%	0.8%	0.70%	1.0%	26.7%	27%	26.4%
(4) Altar Valley	77.0%	76%	78.6%	20.2%	36.2%	34.4%	0.7%	1%	0.9%	1.7%	3%	3.7%	0.4%	0.34%	0.5%	5.4%	19%	15.9%
(5) Upper Santa Cruz	92.2%	96%	90.0%	6.0%	10.6%	20.8%	0.7%	0.29%	1.7%	0.3%	1%	0.9%	0.7%	0.41%	1.4%	1.6%	3%	5.9%
(6) Mountain View	63.6%	95%	94.0%	30.1%	10.0%	11.0%	3.7%	0.40%	0.1%	2.1%	1%	2.2%	0.4%	0.28%	0.5%	13.2%	3%	3.5%
(7) Southeast	30.4%	56%	63.0%	64.1%	71.1%	70.2%	2.8%	3%	3.6%	1.8%	4%	3.7%	0.6%	0.58%	1.1%	43.4%	37%	28.5%
(8) Central	70.9%	77%	75.5%	21.0%	27.5%	33.3%	4.3%	5%	5.6%	1.3%	2%	2.6%	2.4%	3.03%	3.5%	10.7%	13%	12.5%
(9) Catalina Foothills	87.9%	91%	88.4%	8.2%	10.7%	15.1%	1.7%	2%	2.9%	0.3%	1%	0.9%	1.9%	2.69%	3.9%	2.6%	3%	3.8%
(10) Rincon Valley	81.6%	93%	89.5%	13.8%	13.6%	17.2%	2.8%	0.2%	3.0%	0.0%	1%	0.6%	1.8%	0.42%	2.5%	5.2%	5%	4.3%
(11) Tortolita	86.5%	92%	89.5%	10.6%	13.5%	17.6%	1.1%	1%	1.9%	0.3%	1%	0.8%	1.5%	1.77%	2.7%	4.2%	4%	5.0%
(12) San Pedro	88.5%	90%	90.4%	9.5%	15.7%	22.3%	0.8%	0%	0.0%	0.1%	7%	2.0%	0.9%	0.00%	0.0%	3.3%	3%	7.5%
(13) Ajo-Why	1404	2015	1723	1256	1285	1266	4	5	16	238	216	217	17	10	31	0	0	1
(14) Tohono O'Odham	264	873	10,201	521	761	971	12	11	28	9,553	9,718	9,139	7	17	23	66	168	419
Incorporated Areas																		
City of South Tucson	359	496	578	4244	4316	4435	114	112	127	329	356	420	14	17	35	33	5	13
City of Tucson	256844	263748	245323	118595	164074	216308	16273	19795	23362	4613	7732	8776	8311	11537	14211	754	734	792
Town of Marana	1362	9718	24050	649	2473	7730	32	381	806	112	227	282	29	318	1280	3	5	76
Town of Oro Valley	6110	26182	33605	431	2058	4731	36	303	559	20	89	125	65	552	1263	8	20	51
Town of Sahuarita	N/A	2357	15249	N/A	741	8077	N/A	13	661	N/A	32	188	N/A	31	463	N/A	0	43
Other Native Nations/Tribes																		
Pascua Yaqui Tribe	18	36	106	467	756	818	9	8	7	2,284	3,002	3,154	1	1	8	100	268	139

Source: US Bureau of the Census 1990. 2000 and 2010

Median Household Income 1990, 2000 and 2010

According to the US Bureau of the Census, median household income is the amount which divides the income distribution into two equal groups, with half having income above that amount, and half having income below that amount. Household income is often the combination of two income earners pooling the resources and should therefore not be confused with an individual's earnings. The median household income in Pima County lags both the U.S. and the state in 2010 as noted in Figure 10.

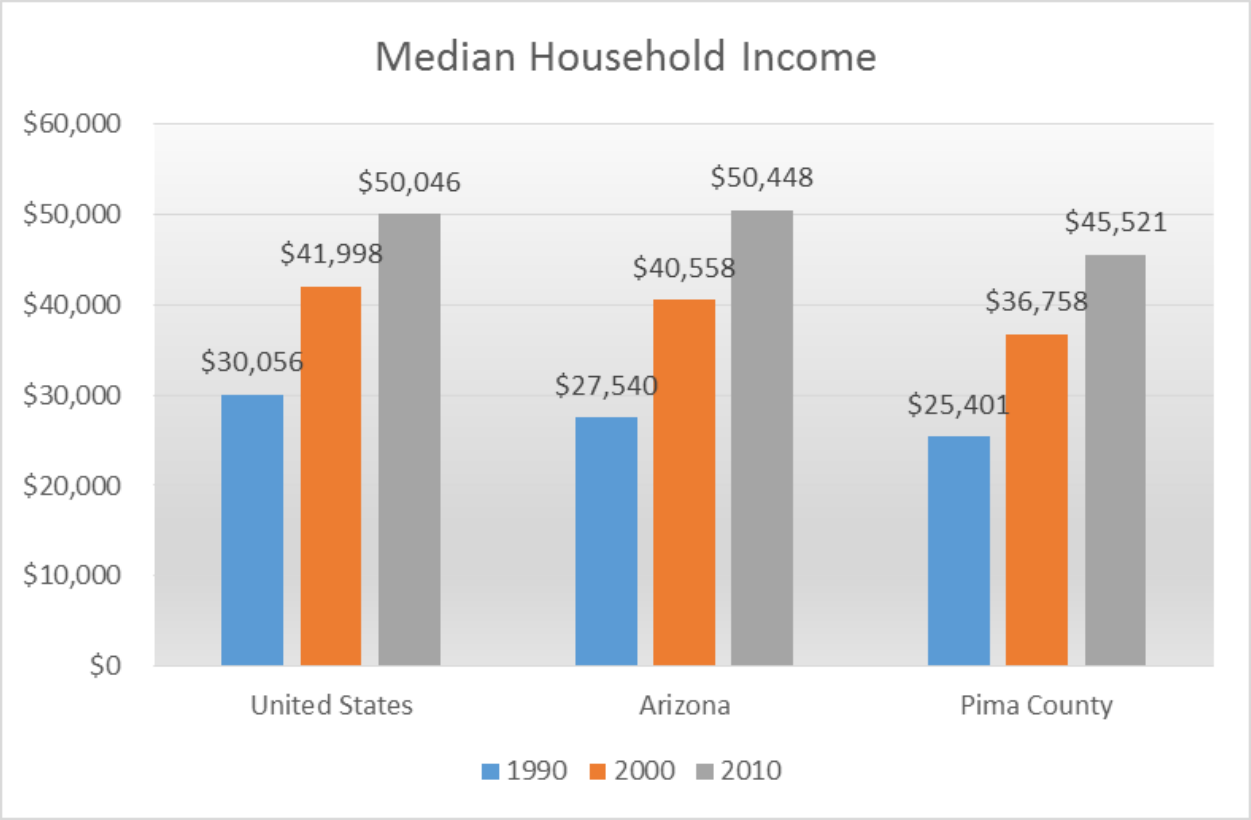


Figure 10 – U.S., Arizona, and Pima County Median Household Income

Table 2.7.b shows 1990, 2000 and 2010 median household income by planning area and incorporated community. As can be seen, nine planning areas surpass the State in median household income, as does Marana, Oro Valley and Sahuarita. The Rincon planning area has the highest median household income at $99,897followed by San Pedro at $94,050.

TABLE 2.7.b: 1990, 2000 and 2010 Median Household Income

Place	1990	2000	2010
United States	$30,056	$41,998	$50,046
Arizona	$27,822	$40,558	$50,448
Pima County	$24,975	$36,758	$45,521
Planning Areas			
14. Avra Valley	$28,146	$47,096	$60,485
15. Tucson Mountains	$34,876	$53,885	$68,841
16. Southwest	$28,839	$41,567	$52,253
17. Altar Valley	$28,302	$40,164	$51,834
18. Upper Santa Cruz	$37,351	$52,387	$63,665
19. Mountain View	$32,458	$53,704	$55,236
20. Southeast	$22,856	$35,028	$49,550
21. Central	$25,655	$36,800	$46,100
22. Catalina Foothills	$46,955	$66,306	$78,669
23. Rincon Valley	$41,715	$62,482	$99,897
24. Tortolita	$41,285	$63,409	$78,035
25. San Pedro	$46,010	$79,594	$94,050
26. Ajo-Why	$18,531	$32,459	$38,608
27. Tohono O'odham	$12,614	$24,050	$31,382
Incorporated Areas			
City of South Tucson	$9,869	$14,587	$18,830
City of Tucson	$21,748	$30,981	$37,448
Town of Marana	$22,245	$52,870	$70,705
Town of Oro Valley	$40,539	$61,037	$71,561
Town of Sahuarita	n/a	$53,194	$72,781
Other Native Nations/Tribes			
Pascua Yaqui Tribe	$11,149	$22,235	$31,875

Source: US Bureau of the Census, 1990, 2000 and 2010

2.8 Educational Attainment

When it comes to an educated workforce, the Town of Oro Valley has the highest percentage of those with a Bachelor's degree or higher at 44 percent. The Town of Marana has 29 percent followed by Sahuarita at 28 percent. This compares to the state of Arizona and the nation, both of which are at 24 percent.

Table 2.8.a shows 1990, 2000 and 2010 education level by place.

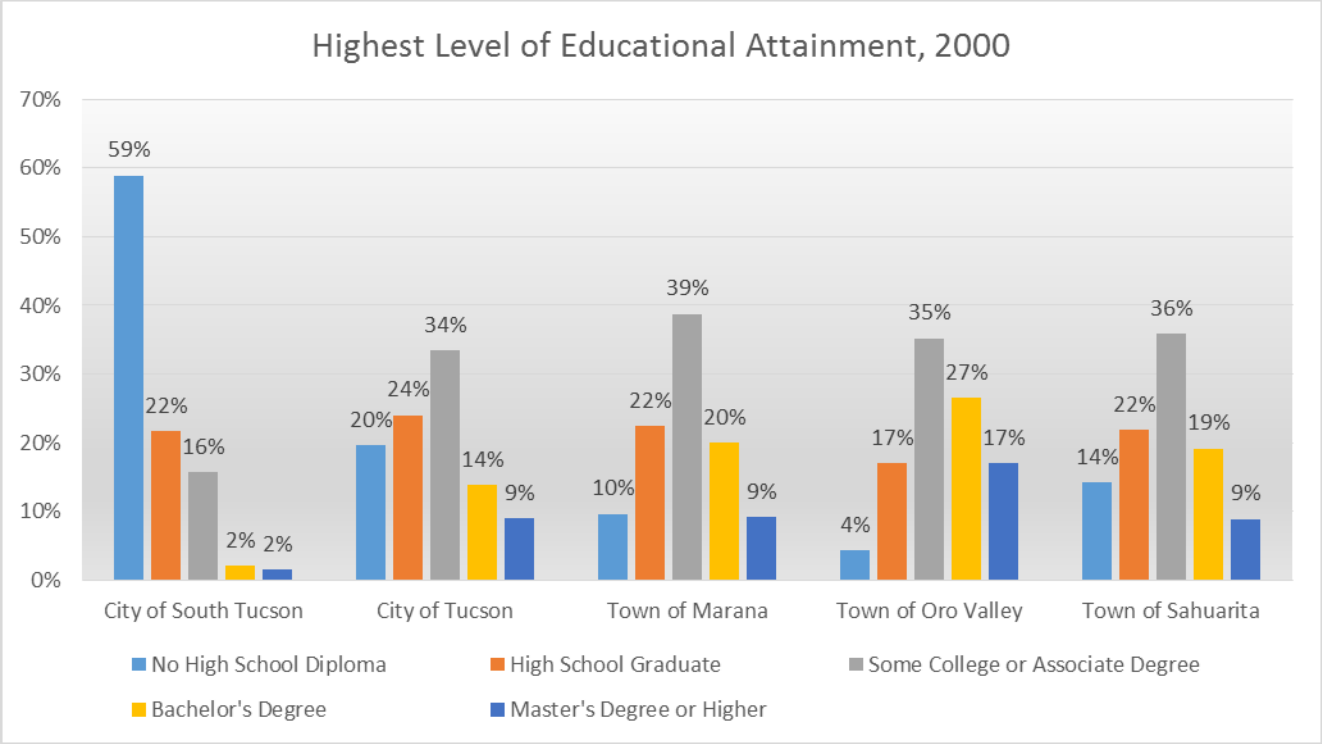


Figure 11 – Highest Level of Educational Attainment 2000

TABLE 2.8.a: 1990, 2000 and 2010 Education Level by Place

Place	High School Graduates			Some College or Associate Degree			Bachelor's Degree			Master's Degree or Higher			Population 25 Years and Over		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	47,642,763	52,168,981	58,444,819	39,571,702	49,864,428	61,158,328	20,832,567	28,317,792	37,989,132	11,477,686	16,144,813	22,751,733	158,868,436	182,211,639	208,731,498
Arizona	601,440	791,904	1,040,152	741,784	1,078,520	1,459,638	306,554	493,419	736,240	160,319	272,793	436,607	2,301,177	3,256,184	4,280,464
Unincorporated Pima County	105,908	127,343	145,218	136,764	182,266	235,400	60,746	86,752	118,694	37,957	59,356	81,561	424,032	546,200	663,098
Incorporated Areas															
City of South Tucson	445	710	1016	347	512	763	26	70	129	0	52	31	2,857	3,270	3,457
City of Tucson	62,085	72,295	80,667	81,840	100,855	109,072	31,639	41,719	49,322	19,817	27,144	32,093	248,500	301,036	323,802
Town of Marana	n/a	2,037	4,538	n/a	3,516	7,728	n/a	1,816	5,123	n/a	829	2,808	n/a	9,075	21,693
Town of Oro Valley	1,054	3,767	4,859	1,756	7,816	9,630	1,155	5,884	8,339	689	3,775	5,934	4,928	22,189	29,724
Town of Sahuarita	n/a	475	3,171	n/a	778	5,643	n/a	416	3,477	n/a	193	1,786	n/a	2,170	14,608
Other Native Nations/Tribes															
Pascua Yaqui Tribe	167	379	171	57	184	129	5	19	47	15	8	56	857	1,427	1,810

Source: US Bureau of the Census 1990, 2000 and 2010

2.9 Housing

Housing Costs, Unemployment and Poverty Level

The average housing price in 2010 for Arizona and the unincorporated county is lower than the nation, which demonstrates the impact that the great recession has had on the housing market in Arizona. The rate of housing increase between 2000 and 2010 for Arizona is lower than the nation and just slightly higher for the unincorporated county (Figure 12). The average housing prices for Marana, Oro Valley and Sahuarita are all well above the state and unincorporated averages. In 2010 the average housing price for Oro Valley was $326,100, which is 54 percent greater than the unincorporated county.

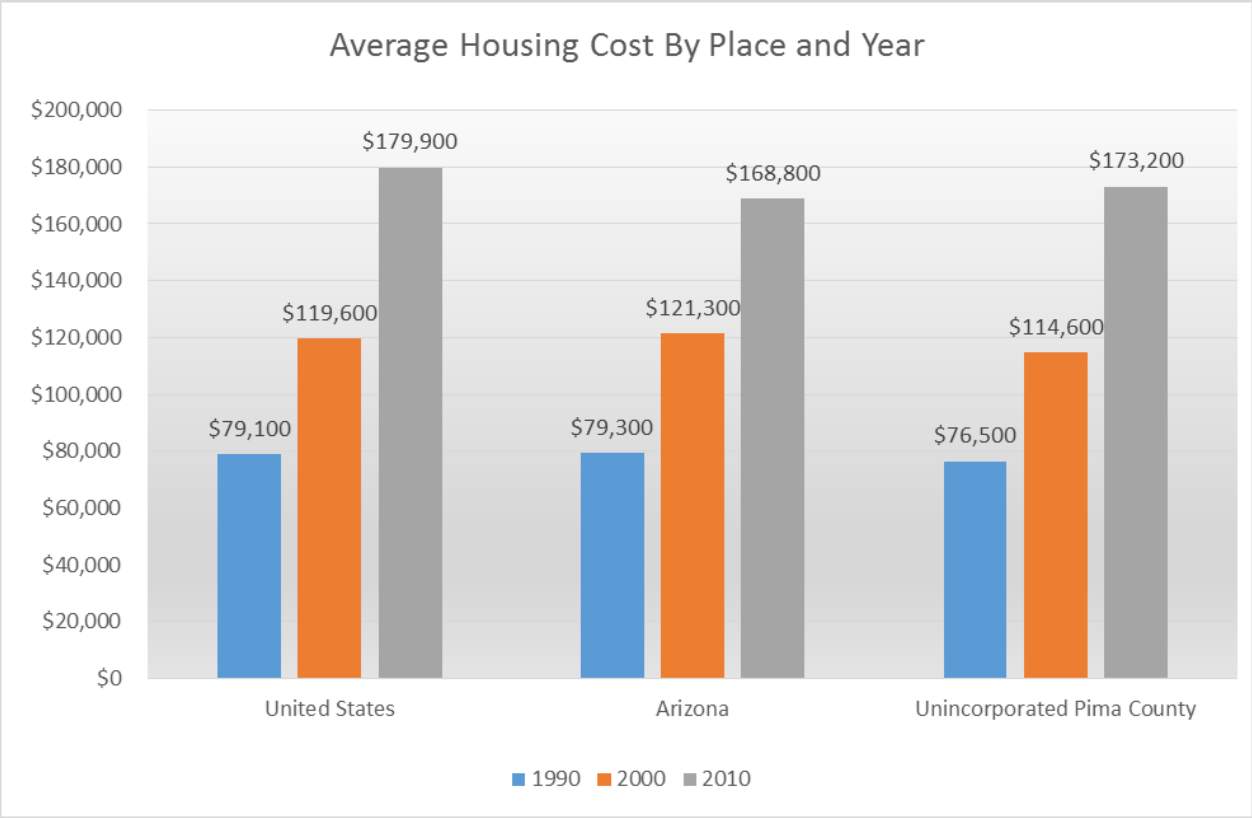


Figure 12 – Average Housing Cost by Region and Year

Poverty levels declined for the nation and Arizona between 2000 and 2010, however during the same timeframe the unincorporated county's poverty rate increased from 14.7 to 20.0 percent. Only three planning areas experienced a decrease in the percent of people below the poverty level, including Mountain View, Southeast and Rincon (Figure 13).

Unemployment rates have increased substantially since 1990 when Arizona had a 5.1% unemployment rate and the unincorporated county had 4.9%. By 2010 the unemployment rate had increased to 9.0% for the state and 10.1% for the unincorporated county.

Table 2.9.a shows1990, 2000 and 2010 housing costs, unemployment rate and percent of people below the poverty level for place and planning area.

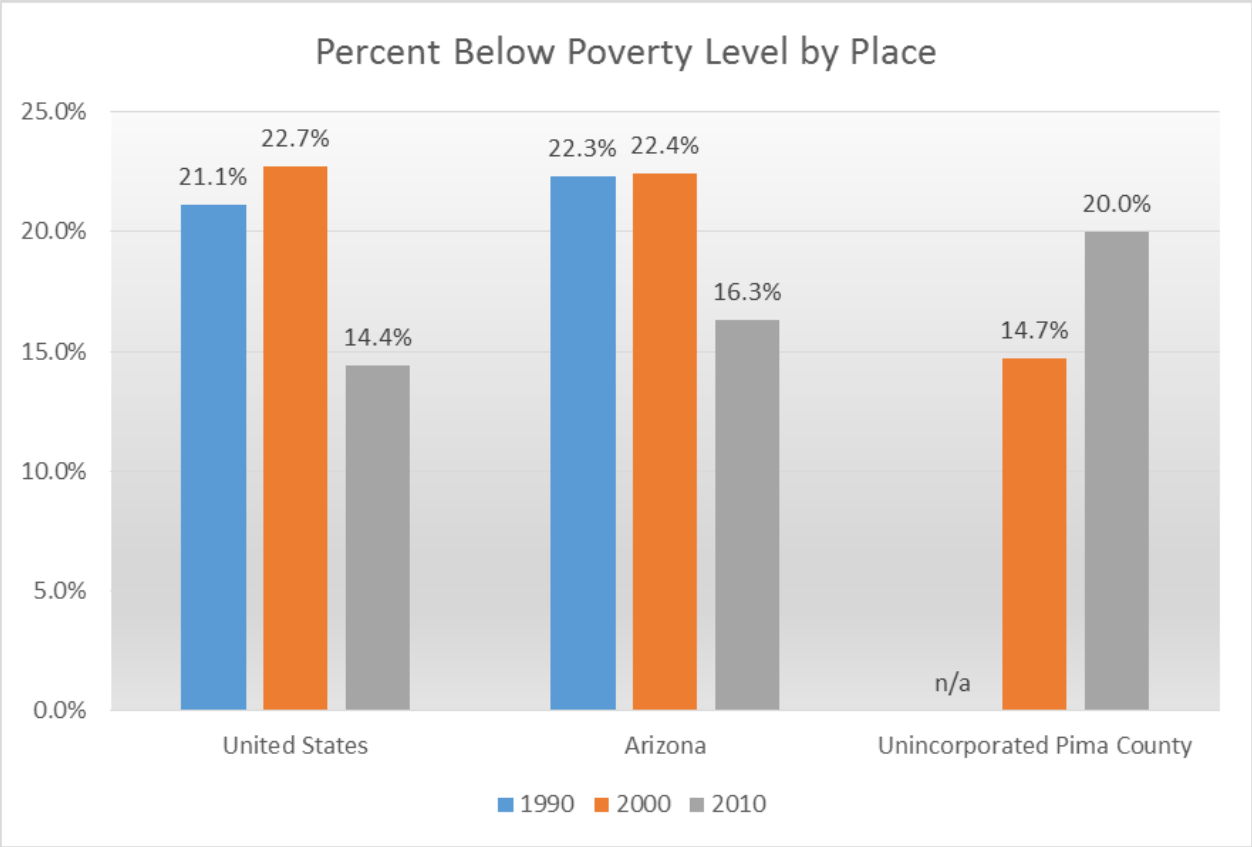


Figure 13 –Percent below the Poverty by Place

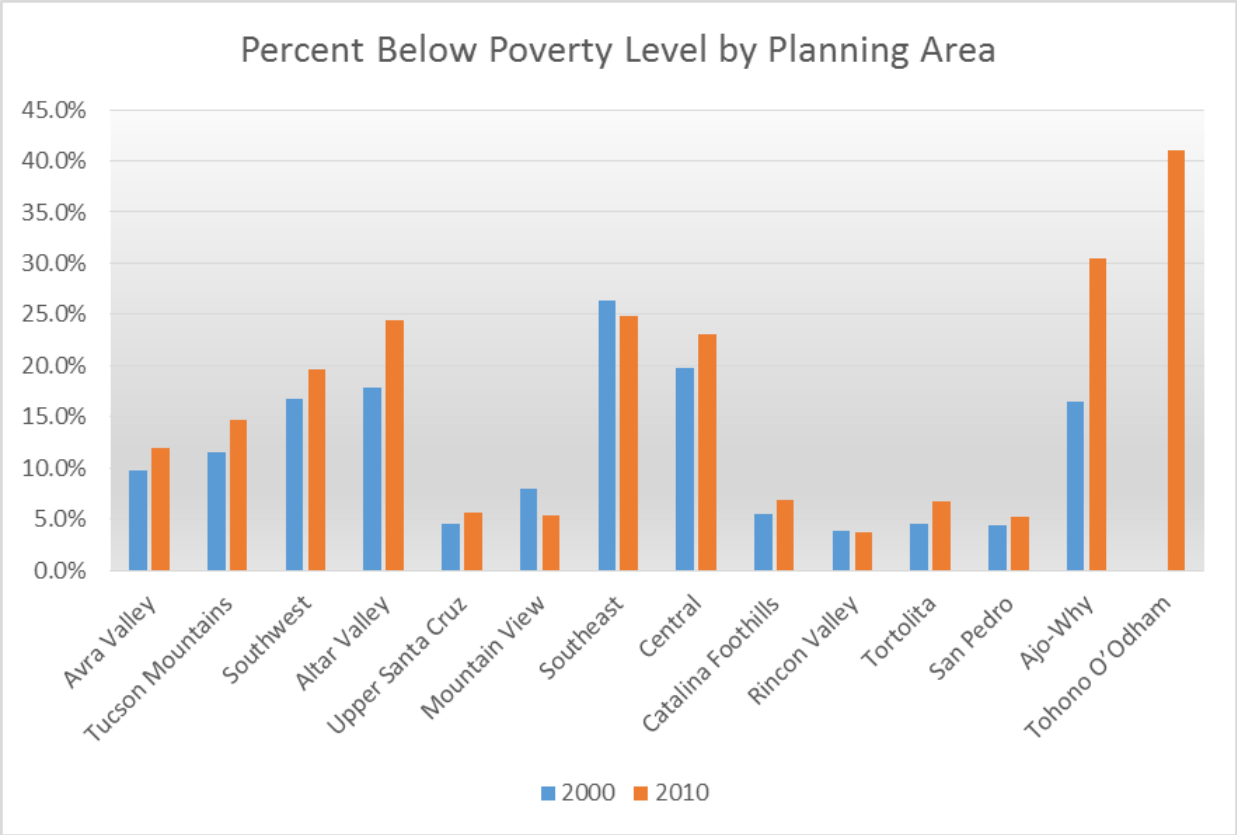


Figure 14 – Percent below the Poverty by Planning Area, 2000 and 2010

TABLE 2.9.a: 1990, 2000 and 2010 Housing Costs, Unemployment Rate and Below the Poverty Level

Place	Average (Mean) Housing Value			Unemployment Rates			Under the Poverty Level		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	$79,100	$119,600	$179,900	5.4%	4.0%	9.0%	21.1%	22.7%	14.4%
Arizona	$79,300	$121,300	$168,800	5.1%	4.1%	9.1%	22.3%	22.4%	16.3%
Unincorporated Pima County	$76,500	$114,600	$173,200	4.9%	4.2%	10.1%		14.7	20%
1. Avra Valley	$83,847	$102,925	$171,724	8.0%	3.7%	10.8%	16.7%	9.7%	14.6%
2. Tucson Mountains	$91,570	$138,977	$258,915	7.9%	4.7%	8.2%	17.1%	11.6%	15.2%
3. Southwest	$69,525	$83,272	$132,321	9.7%	6.0%	12.5%	18.6%	16.8%	21.3%
4. Altar Valley	$74,839	$83,689	$146,386	5.9%	6.1%	10.1%	21.2%	17.9%	22.4%
5. Upper Santa Cruz	$96,282	$133,122	$212,844	5.7%	3.9%	6.0%	5.1%	4.6%	6.1%
6. Mountain View	$84,910	$144,096	$264,637	6.7%	3.3%	3.7%	5.8%	8.0%	5.7%
7. Southeast	$52,151	$69,279	$143,899	12.6%	7.6%	12.4%	28.0%	26.3%	25.0%
8. Central	$71,239	$96,970	$164,634	8.0%	6.3%	9.4%	21.7%	19.7%	24.5%
9. Catalina Foothills	$135,203	$204,109	$354,600	4.8%	3.6%	6.7%	5.8%	5.5%	7.7%
10. Rincon Valley	$99,402	$164,930	$375,157	5.4%	2.4%	5.8%	5.7%	3.9%	3.8%
11. Tortolita	$106,680	$158,230	$289,494	4.8%	3.3%	7.8%	6.0%	4.5%	7.3%
12. San Pedro	$117,360	$229,696	$402,750	4.9%	4.8%	7.2%	4.7%	4.4%	6.0%
13. Ajo-Why	$39,469	$71,081	$116,542	9.6%	9.4%	22.8%	27.4%	21.6%	29.3%
14. Tohono O'odham	$23,747	$44,557	$84,379	22.7%	25.9%	22.5%	65.4%	50.6%	45.5%
Incorporated Areas									
City of South Tucson	$35,300	$48,700	$90,000	20.4%	17.7%	18.5%	35.6%	43.4%	53.9%
City of Tucson	$66,600	$96,300	$171,200	12.3%	5.9%	10.1%	18.3%	16.7%	23.2%
Town of Marana	N/A	$134,500	$259,600	9.7%	4.6%	7.3%	26.8%	5.5%	4.0%
Town of Oro Valley	$128,100	$177,400	$326,100	14.6%	3.5%	7.6%	17.8%	2.4%	5.6%
Town of Sahuarita	N/A	$148,900	$249,700	N/A	4.6%	5.8%	N/A	4.0%	4.6%
Other Native Nations/Tribes									
Pascua Yaqui Tribe	$55,500	$58,200	$86,000	34.4%	18.2%	23.3%	62.9%	43.8%	39%

Source: US Bureau of the Census 1990, 2000 and 2010.

Household Characteristics 1990, 2000 and 2010 by Planning Area

The number of households between the years 2000 and 2010 increased 15.1 percent in the unincorporated county. The average household size has been trending upward since 2000 from 2.47 to 2.49 persons per household in 2010.

When looking at the change in the number of households for the planning areas from 1990 to 2010, San Pedro is the only area that lost nearly 39 percent of their households. The two planning areas that experienced the greatest increase in the number of households was Rincon with a 318 percent increase and Upper Santa Cruz with 198 percent gain. The overall average rate of increase for all planning areas was 81.6 percent. The household size for all of the planning areas has also increased, with an overall average of 2.49 in 1990 growing to 2.63 persons per household in 2010.

Table 2.9.b shows 1990, 2000 and 2010 household characteristics by place and planning area.

Housing Units Tenure and Substandard Characteristics

When examining the change in total housing units in the unincorporated county there was a gain of 21.2 percent between 2000 and 2010, which compares to the state at 31.2 percent. The overall average gain among the planning areas over the same timeframe was 42.3 percent, with the largest gain seen by Rincon Valley at nearly 321 percent. Altar Valley lost 14.5 percent housing units, which may be attributed to the removal of the housing stock.

The 2010 housing occupancy in the unincorporated county closely compares to the nation with 97.5 percent occupancy and 11.8 percent vacancy. The split between owner versus renter is 56 percent to 31.4 percent. Arizona has the highest vacancy at 16.1 percent (Figure 15). Within the planning areas the Tohono O'Odham and Ajo-Why have the lowest occupancy and highest vacancy. Catalina Foothills has the highest occupied units at 89.4 percent and Mountain View posted the lowest vacancy at 3 percent.

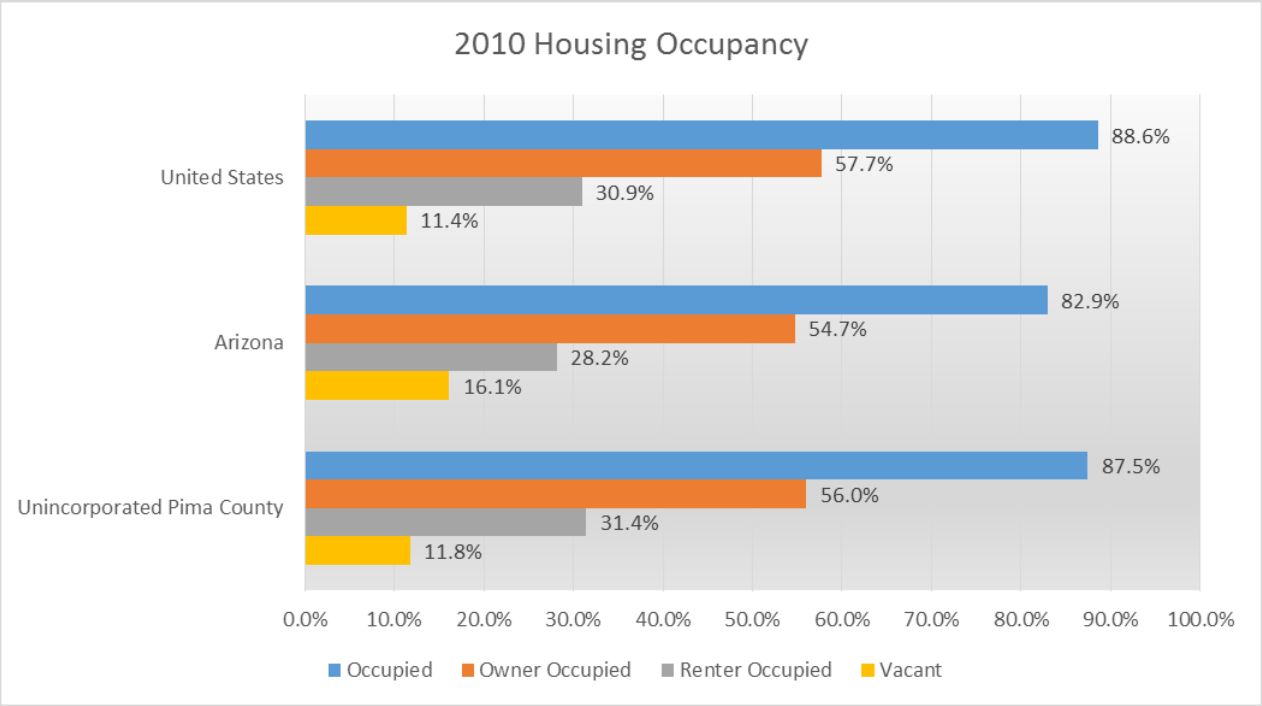


Figure 15 – 2010 Housing Occupancy by Place

Within the planning areas the Tohono O'Odham and Ajo-Why have the lowest occupancy and highest vacancy. Catalina Foothills has the highest occupied units at 89.4 percent, Mountain View posted the lowest vacancy at 3 percent, and Central has a nearly even split between owner versus renter occupied units (Figure 16).

The housing vacancy rate for the unincorporated county increased from 9.4 percent in 2000 to 11.8 percent in 2010. As shown in the following Figure 16, the planning areas with the greatest vacancy rate in the housing stock include Tohono O'Odham (34.5%), Ajo-Why (28.8%) and the Upper Santa Cruz (25.6%). The planning areas with the smallest vacancy rate include San Pedro (2.5%). And Mountain View (3.0%). The overall average vacancy rate among all of the planning areas is 14.2 percent.

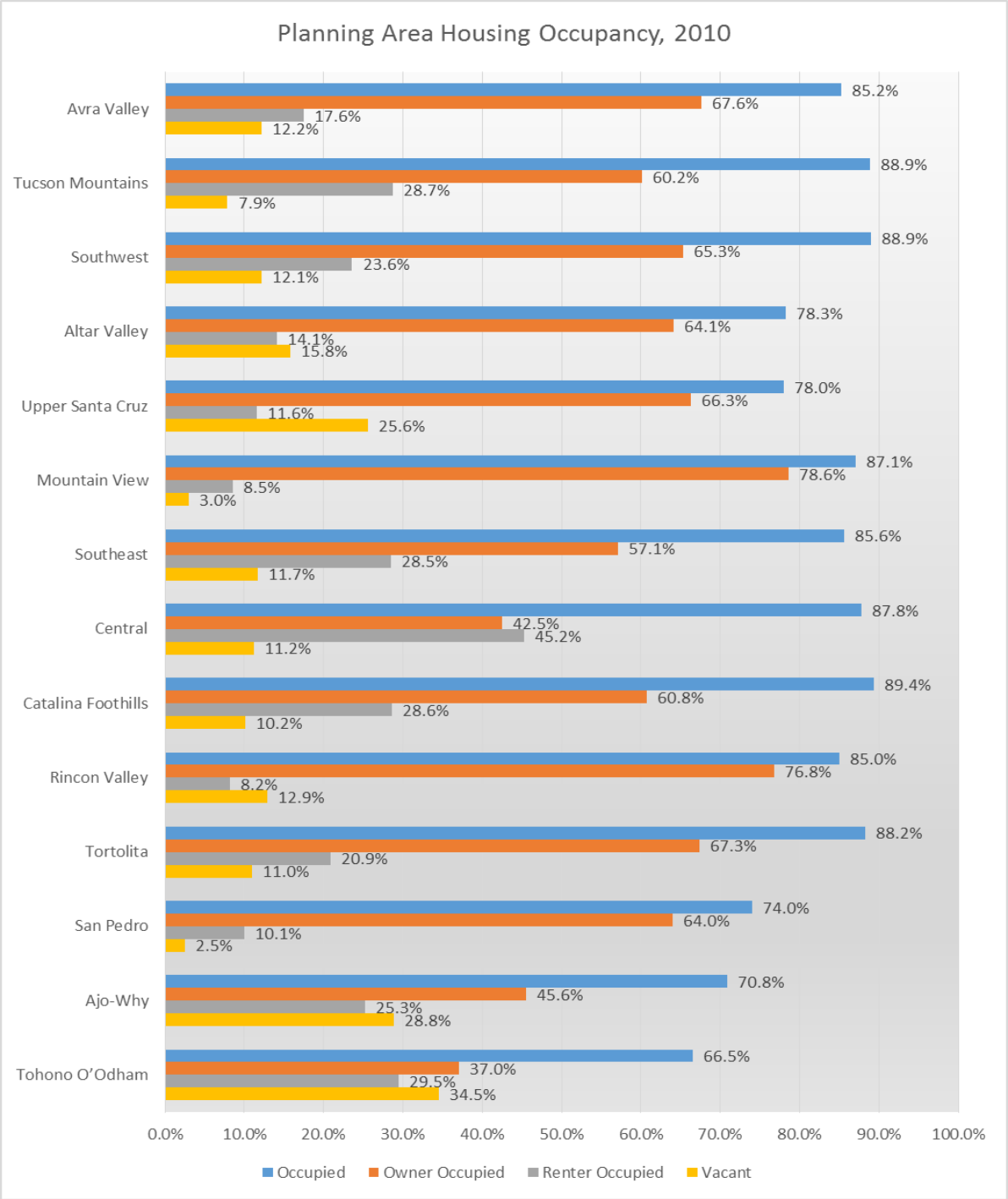


Figure 16 – Planning Area Housing Occupancy, 2010

Substandard housing within the planning areas is primarily concentrated in Tohono O'Odham. The percentage of units lacking complete plumbing fixtures rose from 28.2 percent in 1990 to 36.2 percent in 2010. Altar Valley also saw an increase in units lacking complete plumbing going from 1.2 percent to 9.7 percent. Similarly to plumbing, the planning areas that have incomplete kitchen facilities are Tohono O'Odham and Altar Valley.

Tables 2.9.c.a and 2.9.d shows 1990, 2000 and 2010 total housing units and substandard by place and planning area.

TABLE 2.9.b: Household Characteristics 1990, 2000 and 2010 by Planning Area

Place	Total Number of Households			Total Population in Households			Average Household Size			Population Living in Group Quarters		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	91,947,410	105,480,101	115,969,540	242,012,129	273,643,273	305,885,362	2.63	2.59	2.64	6,697,744	7,778,633	8,028,678
Arizona	1,388,843	1,901,327	2,380,990	3,584,545	5,020,782	6,403,988	2.62	2.64	2.68	80,683	109,850	149,267
Unincorporated Pima County	261,792	332,350	388,660	651,280	821,712	956,124	2.49	2.47	2.46	15,600	22,034	24,139
1. Avra Valley	3,458	5,783	8,193	9,890	16,500	22,348	2.86	2.85	2.73	0	422	505
2. Tucson Mountains	10,879	16,955	24,164	29,146	44,317	61,118	2.68	2.61	2.53	1,578	1,894	2,304
3. Southwest	17,990	23,451	29,813	51,277	68,951	89,177	2.85	2.94	2.99	47	235	164
4. Altar Valley	1,418	2,495	2,714	3,756	6,909	7,048	2.65	2.77	2.60	3	14	14
5. Upper Santa Cruz	8,858	12,544	22,918	17,402	24,343	49,636	1.96	1.94	2.17	145	243	186
6. Mountain View	260	456	547	663	1,139	1,324	2.55	2.50	2.42	15	13	10
7. Southeast	21,967	27,293	34,847	69,347	87,697	110,539	3.16	3.21	3.17	3,014	5,243	5,973
8. Central	117,639	130,150	133,717	269,256	297,920	308,562	2.29	2.29	2.31	9,826	11,424	12,654
9. Catalina Foothills	58,021	73,555	79,360	140,029	169,550	175,158	2.41	2.31	2.21	808	2,045	1,749
10. Rincon Valley	560	1,334	4,521	1,538	3,808	12,861	2.75	2.85	2.84	11	0	0
11. Tortolita	17,327	34,539	44,272	47,759	89,152	107,831	2.76	2.58	2.44	147	445	323
12. San Pedro	18	55	43	54	126	103	3.00	2.29	2.40	0	0	0
13. Ajo-Why	1,445	1,754	1,630	3,401	3,893	3,511	2.35	2.22	2.15	0	10	13
14. Tohono O'Odham	1,952	1,986	1,921	7,762	7,407	6,908	3.98	3.73	3.60	6	46	244

Source: US Bureau of the Census 1990, 2000 and 2010

Housing Units and Housing Tenure 1990, 2000 and 2010

TABLE 2.9.c Housing Units and Housing Tenure 1990, 2000 and 2010

Place	Total Housing Units			Total Occupied Housing Units			Housing Units Owner Occupied			Housing Units Renter Occupied			Housing Units Vacant		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	102,263,678	115,904,641	131,704,730	91,947,410	105,480,101	116,716,292	59,024,811	69,815,753	75,986,074	32,922,599	35,664,348	40,730,218	10,316,268	10,424,540	14,988,438
Arizona	1,659,430	2,189,189	2,871,486	1,368,843	1,901,327	2,380,990	879,000	1,293,556	1,571,687	489,843	607,771	809,303	290,587	287,862	463,536
Unincorporated Pima County	298,207	366,737	440,909	261,792	332,350	388,660	159467	213,603	248,970	102325	118,747	139,690	36,415	34,387	52,249
Planning Areas															
1. Avra Valley	3,913	6,318	9,327	3,458	5,784	8,194	2,883	4,895	6,712	575	889	1,482	455	534	1,133
2. Tucson Mountains	11,960	18,466	26,283	10,879	16,955	24,164	7,381	12,506	16,867	3,498	4,449	7,297	1,081	1,511	2,119
3. Southwest	20,967	26,238	34,021	17,990	23,451	29,813	13,842	18,094	22,230	4,148	5,357	7,583	2,977	2,787	4,208
4. Altar Valley	1,743	2,924	3,446	1,418	2,495	2,714	1,199	2,101	2,253	219	394	461	325	429	732
5. Upper Santa Cruz	11,654	16,031	29,279	8,858	12,544	22,919	7,656	10,947	19,406	1,202	1,597	3,513	2,796	3,487	6,360
6. Mountain View	320	523	630	260	455	547	214	407	456	46	48	91	60	68	83
7. Southeast	25,458	30,187	39,246	21,966	27,293	34,846	14,123	17,887	22,969	7,843	9,406	11,877	3,492	2,894	4,400
8. Central	132,053	141,506	150,614	117,639	130,150	133,717	56,325	64,062	63,633	61,314	66,088	70,084	14,414	11,356	16,897
9. Catalina Foothills	65,685	80,147	88,481	58,021	73,554	79,360	39,377	50,792	54,078	18,644	22,762	25,282	7,664	6,593	9,121
10. Rincon Valley	640	1,431	4,970	560	1,333	4,521	463	1,221	3,969	97	112	552	80	98	449
11. Tortolita	19,439	37,794	49,560	17,328	34,539	44,271	13,545	27,956	33,776	3,783	6,583	10,495	2,111	3,255	5,289
12. San Pedro	65	106	85	18	56	43	2	40	30	16	16	13	47	50	42
13. Ajo-Why	2,056	2,621	2,389	1,445	1,754	1,630	1,064	1,359	1,135	381	395	495	611	867	759
14. Tohono O'Odham	2,254	2,445	2,578	1,952	1,987	1,921	1,393	1,336	1,456	559	651	465	302	458	657
Incorporated Areas															
City of South Tucson	1861	2,059	2,191	1637	1810	1827	650	732	565	987	1078	1,310	224	249	316
City of Tucson	183338	209609	229762	162685	192891	205390	83687	103056	106651	78998	89835	98739	20653	16718	24372
Town of Marana	850	5702	14726	728	4944	13073	534	4090	10566	194	854	2507	122	758	1653
Town of Oro Valley	3576	13946	20340	2846	12249	17804	2049	10319	13786	797	1930	4018	730	1697	2536
Town of Sahuarita	n/a	1247	10615	n/a	1155	9020	n/a	929	7615	n/a	226	1405	n/a	92	1595
Other Nations/Tribes															
Pascua Yaqui Tribe	525	785	833	525	745	804	269	395	400	256	350	404	0	40	43

Source: US Bureau of the Census 1990, 2000 and 2010

Substandard Housing Units 1990, 2000 and 2010

TABLE 2.9.d: 1990, 2000 and 2010 Substandard Housing by Planning Area

Planning Area	Total Housing Units			Complete Plumbing Facilities			Lacking Complete Plumbing Facilities			Complete Kitchen Facilities			Incomplete Kitchen Facilities		
YEAR	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
United States	102,263,678	115,904,641	132,452,249	101,161,982	114,569,474	131,799,802	1,101,696	1,335,167	652,447	101,154,052	114,388,787	131,350,283	1,109,626	1,515,854	1,101,966
Arizona	1,659,430	2,189,189	2,871,486	1,627,959	2,149,557	2,852,704	31,471	39,632	18,782	1,628,691	2,148,538	2,847,859	30,739	40,651	23,627
Unincorporated Pima County	298,207	366,737	444,349	296,319	364,050	443,092	6,875	2,687	1,257	296,003	294,727	441,401	2,204	3,480	2,948
Planning Areas															
1. Avra Valley	4,576	7,307	9,297	4,519	7,253	8,896	58	53	401	4,543	7,232	9,017	34	74	279
2. Tucson Mountains	13,090	18,995	26,917	13,035	18,915	26,806	56	80	110	13,035	18,905	26,739	55	90	177
3. Southwest	20,978	25,719	34,645	20,852	25,573	34,404	126	146	241	20,851	25,544	34,233	127	175	412
4. Altar Valley	5,668	5,330	4,555	5,601	5,196	4,112	68	134	443	5,603	5,217	4,205	66	113	350
5. Upper Santa Cruz	8,817	15,151	24,862	8,800	15,101	24,573	17	50	289	8,792	15,099	24,479	25	52	383
6. Mountain View	1,879	1,959	2,515	1,852	1,948	2,396	27	11	119	1,868	1,950	2,441	12	10	74
7. Southeast	22,216	27,231	37,543	22,065	26,958	36,827	151	273	716	22,077	26,913	36,834	139	318	709
8. Central	129,738	141,233	150,989	129,158	140,374	149,200	580	860	1,790	128,920	140,117	148,419	818	1,117	2,571
9. Catalina Foothills	64,706	79,741	89,602	64,585	79,549	89,269	121	192	332	64,464	79,166	88,408	242	575	1,194
10. Rincon Valley	955	828	3,484	952	823	3,465	3	5	19	952	826	3,427	3	2	57
11. Tortolita	18,766	37,127	48,005	18,754	37,061	47,678	12	67	327	18,746	36,980	47,609	20	147	396
12. San Pedro	2,472	1,097	1,569	2,442	1,004	1,496	29	93	73	2,440	979	1,512	31	118	56
13. Ajo-Why	2,081	2,623	2,300	2,067	2,551	2,176	14	72	124	1,953	2,528	2,098	128	95	202
14. Tohono O'Odham	2,216	2,390	2,599	1,590	1,739	1,658	626	651	941	1,712	1,795	1,739	505	595	861

Source: US Bureau of the Census 1990, 2000 and 2010

2.10 Employment

Employment by Industry Sector 2005-2010

Over the five years from 2005 to 2010, the industry sectors that experienced the greatest job losses were Construction (42%), Information (40.3%) and Manufacturing (15.2%). The sector that generated the most employment over the 5-year timeframe was Natural Resources and Mining, growing from 1,400 to 1,800 jobs. Educational and Health Services has steadily created jobs every year and overall increased by 15.6 percent.

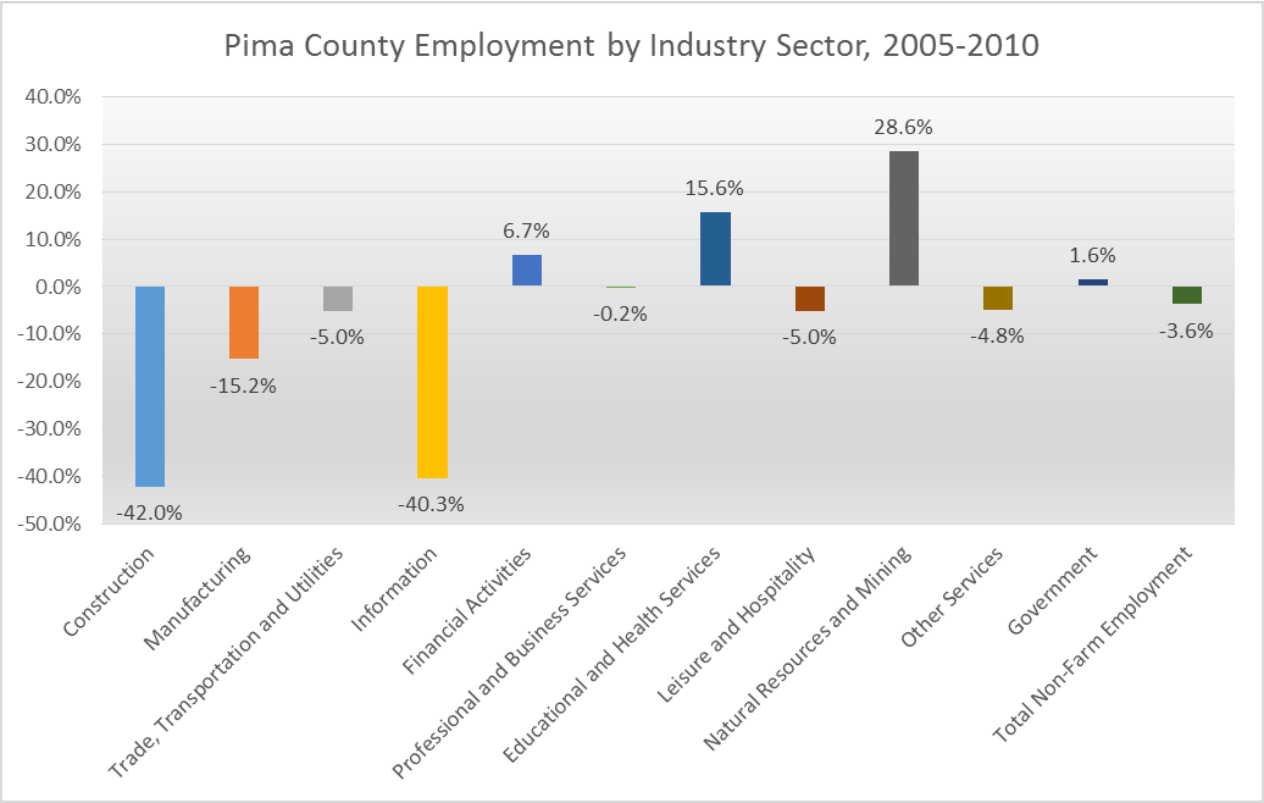


Figure 17 – Pima County Employment Trend by Sector, 2005-2010

When looking at the percent of employment for each industry sector in 2010, Government employs 22 percent followed by Education and Health Services at 17 percent and Trade, Transportation and Utilities at 16 percent

Table 2.10.a shows 2005-2010 employment by industry sector for Pima County

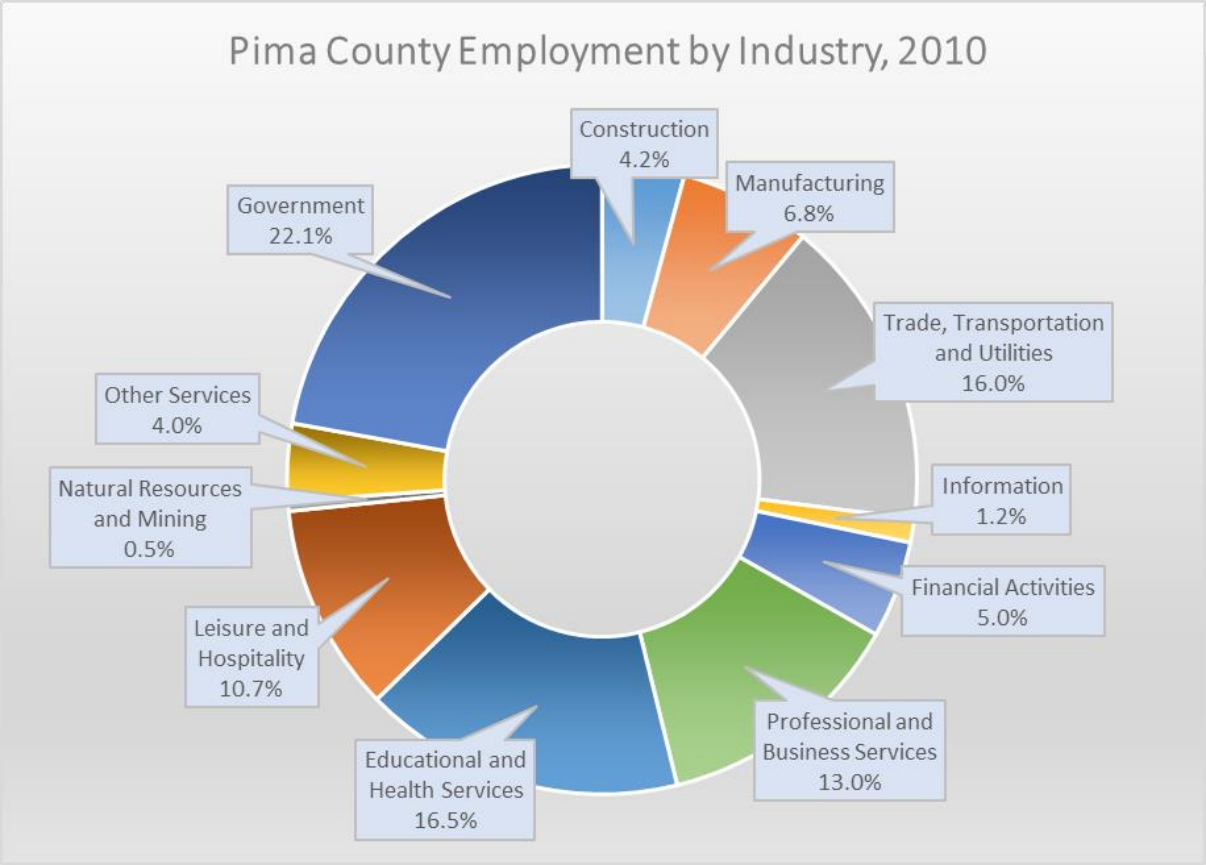


Figure 18 – Pima County Employment by Industry, 2010

TABLE 2.10.a: Employment by Industry Sector 2005-2010

Industry Sector	Number of Employees					
YEAR	2005	2006	2007	2008	2009	2010
Construction	25,700	27,900	26,500	22,800	16,600	14,900
Manufacturing	28,300	28,100	27,500	27,200	25,100	24,000
Trade, Transportation and Utilities	59,600	62,700	64,300	62,700	58,200	56,600
Information	7,200	6,800	5,900	5,300	4,700	4,300
Financial Activities	16,500	17,600	18,200	17,200	17,500	17,600
Professional and Business Services	45,900	49,700	52,600	51,400	47,100	45,800
Educational and Health Services	50,500	52,600	54,700	57,100	58,500	58,400
Leisure and Hospitality	39,800	40,600	40,200	40,400	38,700	37,800
Natural Resources and Mining	1,400	1,600	1,800	1,900	1,700	1,800
Other Services	14,700	15,800	15,800	15,700	14,700	14,000
Government	77,100	76,300	77,900	79,800	79,100	78,300
Total Non-Farm Employment	366,700	379,600	385,300	381,500	361,800	353,400

Source: US Department of Labor, Bureau of Labor Statistics, State of Arizona Economic Security Research Administration, North American Industrial Classification System (NAICS)

Employment by Occupation 1990, 2000 and 2010

The mix of 2010 occupations in Pima County is reflective of the industry sectors. There is a high concentration of Office and Administrative Support, Healthcare and Education positions (Figure 19). From 2000 to 2010, nine of the occupations experienced a decrease ranging from 0.2 percent to 3.7 percent. The occupation that expanded the most was Healthcare Practitioners at 2.7 percent and the occupation that shed the most jobs was Production at 3.7 percent.

Table 2.10.b shows 1990, 2000 and 2010 employment and occupation for Pima County.

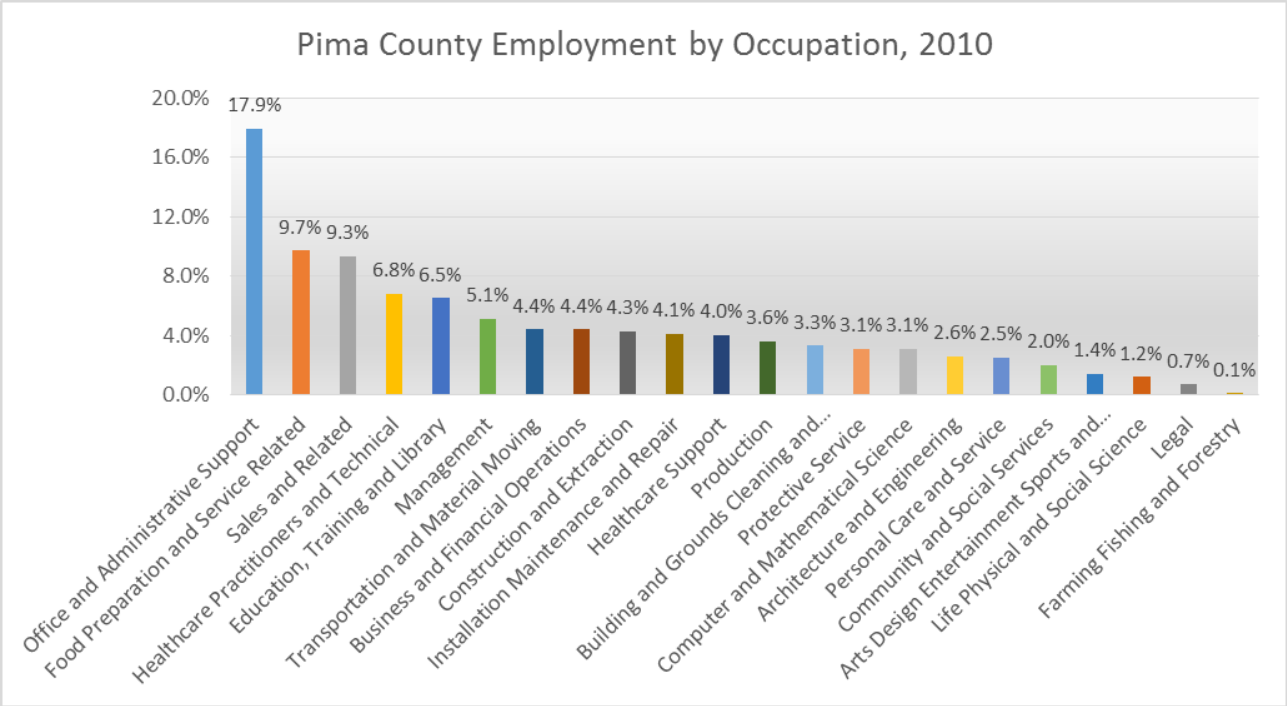


Figure 19 – Pima County Employment by Occupation, 2010

TABLE 2.10.b: 1990, 2000 and 2010 Employment by Occupation for Pima County

Occupation	Number of Employees	
YEAR	2000	2010
Office and Administrative Support	18.6%	17.9%
Food Preparation and Service Related	9.02%	9.7%
Sales and Related	9.07%	9.3%
Healthcare Practitioners and Technical	4.73%	6.8%
Education, Training and Library	6.68%	6.5%
Management	5.68%	5.1%
Transportation and Material Moving	5.1%	4.4%
Business and Financial Operations	2.86%	4.4%
Construction and Extraction	6.57%	4.3%
Installation Maintenance and Repair	4.35%	4.1%
Healthcare Support	3.17%	4.0%
Production	7.27%	3.6%
Building and Grounds Cleaning and Maintenance	3.63%	3.3%
Protective Service	2.48%	3.1%
Computer and Mathematical Science	1.92%	3.1%
Architecture and Engineering	2.22%	2.6%
Personal Care and Service	2.69%	2.5%
Community and Social Services	1.43%	2.0%
Arts Design Entertainment Sports and Media	1.64%	1.4%
Life Physical and Social Science	0.63%	1.2%
Legal	0.55%	0.7%
Farming Fishing and Forestry	0.13%	0.1%

Source: Arizona Department of Economic Security, 2013.

Major Employers in Pima County and Southern Arizona

The top 25 private sector employers in Pima County include a mix of aerospace, healthcare, mining, and retail trade and collectively employ 65,366 workers. Based on the total number of jobs, retail trade employs 27.4 percent, followed by healthcare at 22.7 percent and aerospace at 15.8 percent.

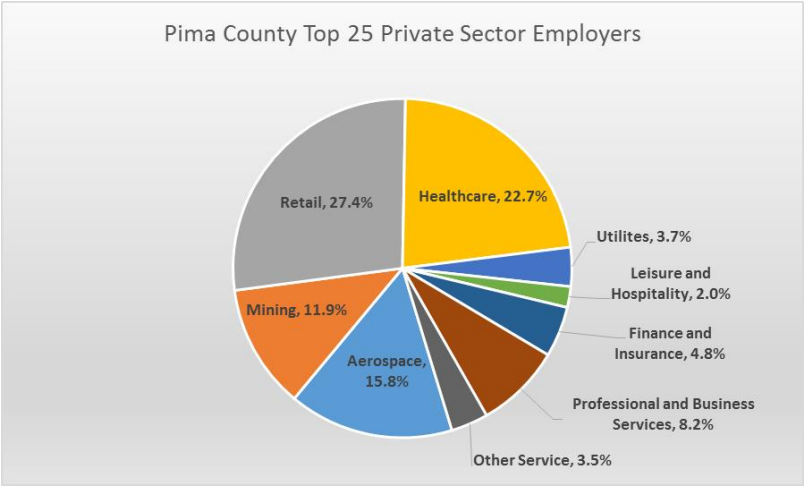


Figure 20 – Pima County Top 25 Private Sector Employers by Sector

The top 10 public sector employers include state and local government, military and homeland security, education and tribal government. All combined, the public sector employs 64,534 workers with a near even split between education (31.0%), military and homeland security (31.4%), and state and local government (30.8%).

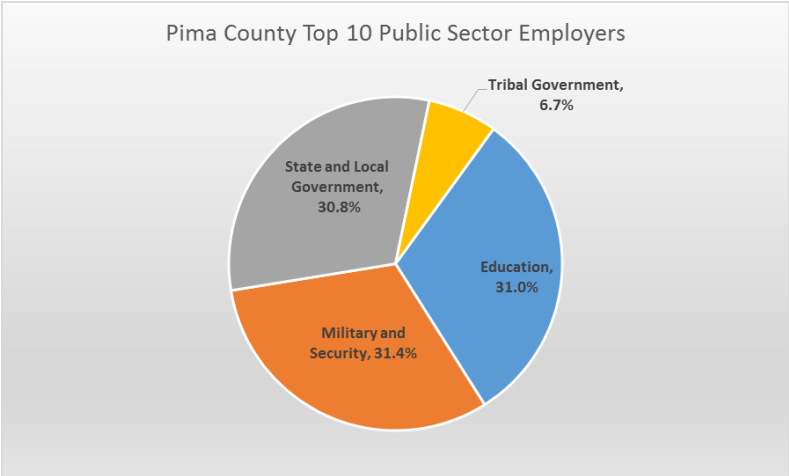


Figure 21 – Pima County Top 10 Public Sector Employers by Sector

TABLE 2.10.c: Top 25 Private Employers in Pima County and Southern Arizona 2013

Major Employer	Employment Type
Raytheon Missile Systems	10,300
Wal-Mart Stores Incorporated	7,450
UA Healthcare	6,099
Freeport-McMoRan Copper & Gold	5,463
Carondelet Health Network	3,668
TMC Health Care	2.977
Fry's Food Stores	2,700
Corrections Corp. of America	2,314
Asarco LLC	2,297
Afni Inc	2,199
Southern Arizona VA Health Center	2,182
Citi	2,000
Bashas' Inc	1,800
APAC Customer Service	1,777
Safeway Inc	1,685
Target Stores Inc	1,640
Northwest Medical Center	1,757
Walgreens	1,420
IBM	1,375
TEP/UniSource Energy	1,232
Sol Casinos	1,300
Union Pacific Railroad	1,200
Circle K Stores	1,200
GEICO	1,155
Ventana Medical Systems, Inc	1,150

Source: Top 25 Largest Private Employers in Southern Arizona, TREO, 2013

TABLE 2.10.d: Top 10 Public Employers in Pima County and Southern Arizona 2013

Major Employer	Employment Type
University of Arizona	10,846
Davis-Monthan Air Force Base	9,100
State of Arizona	8,807
Tucson Unified School District	6,790
Pima County	6,500
U.S. Customs & Border Patrol	6,076
City of Tucson	4,585
U.S. Army Intelligence Center and Fort Huachuca	5,096
Tohono O'odham Nation	4,350
Pima Community College	2,384

Source: Top 10 Public Employers in Southern Arizona, TREO, 2013

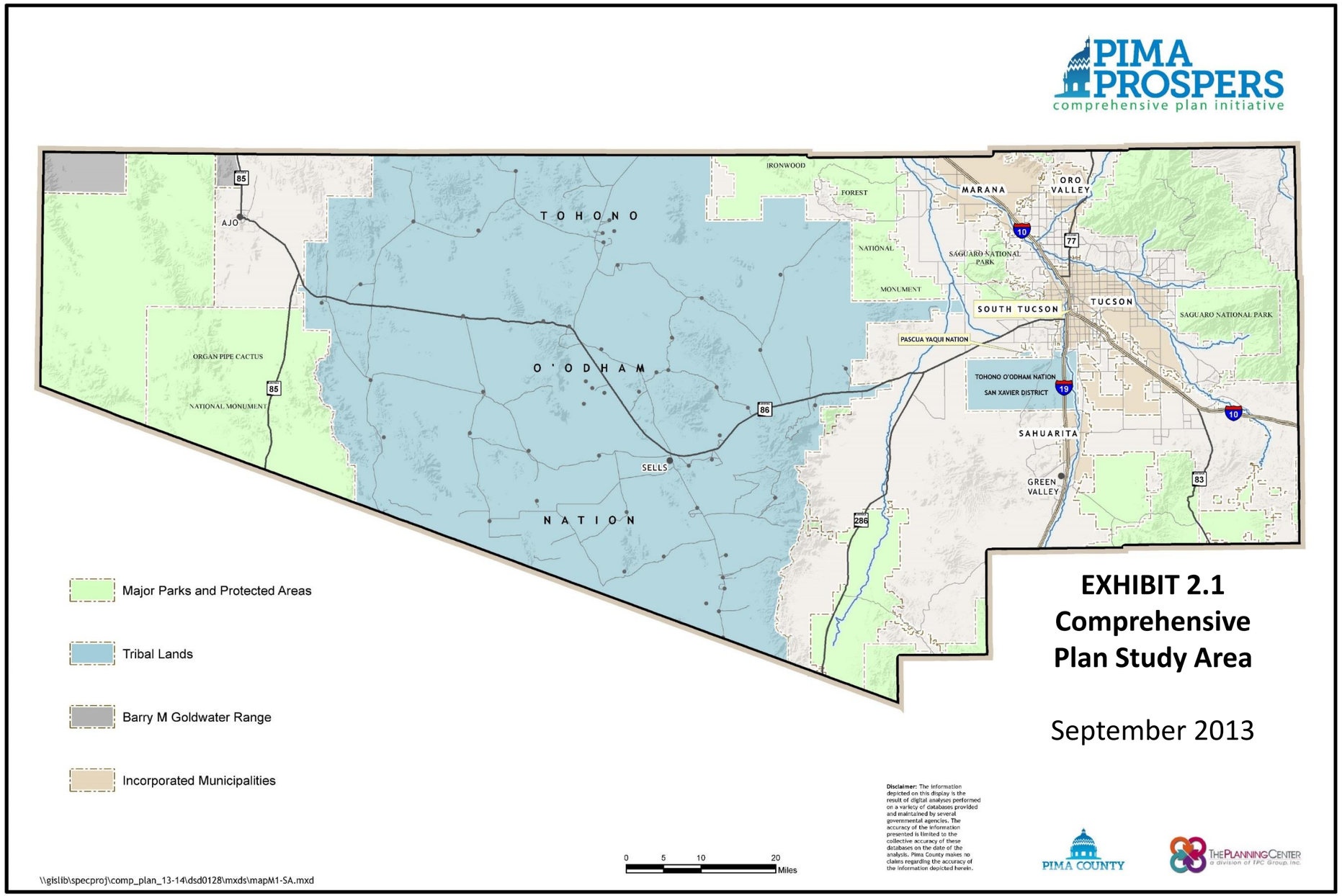
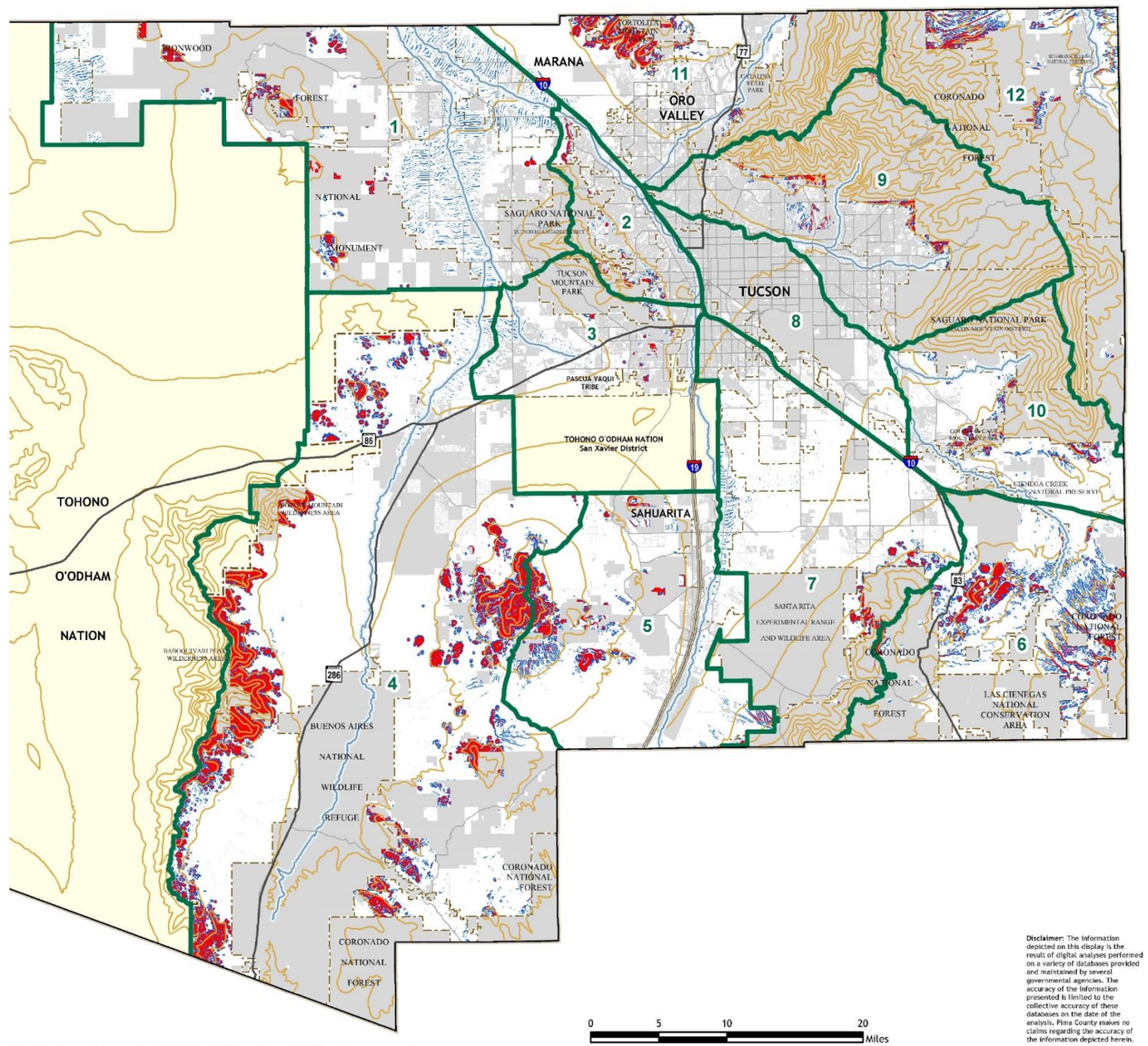


EXHIBIT 2.1
Comprehensive Plan Study Area

September 2013



Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.

EXHIBIT 2.5.a
Physical Constraints: Topography

September 2013

Planning Area Boundary

500 Foot Elevation Contours

Tribal Lands

Built Environment and Unbuildable Land

Land with Steep Slopes

15% - 25%

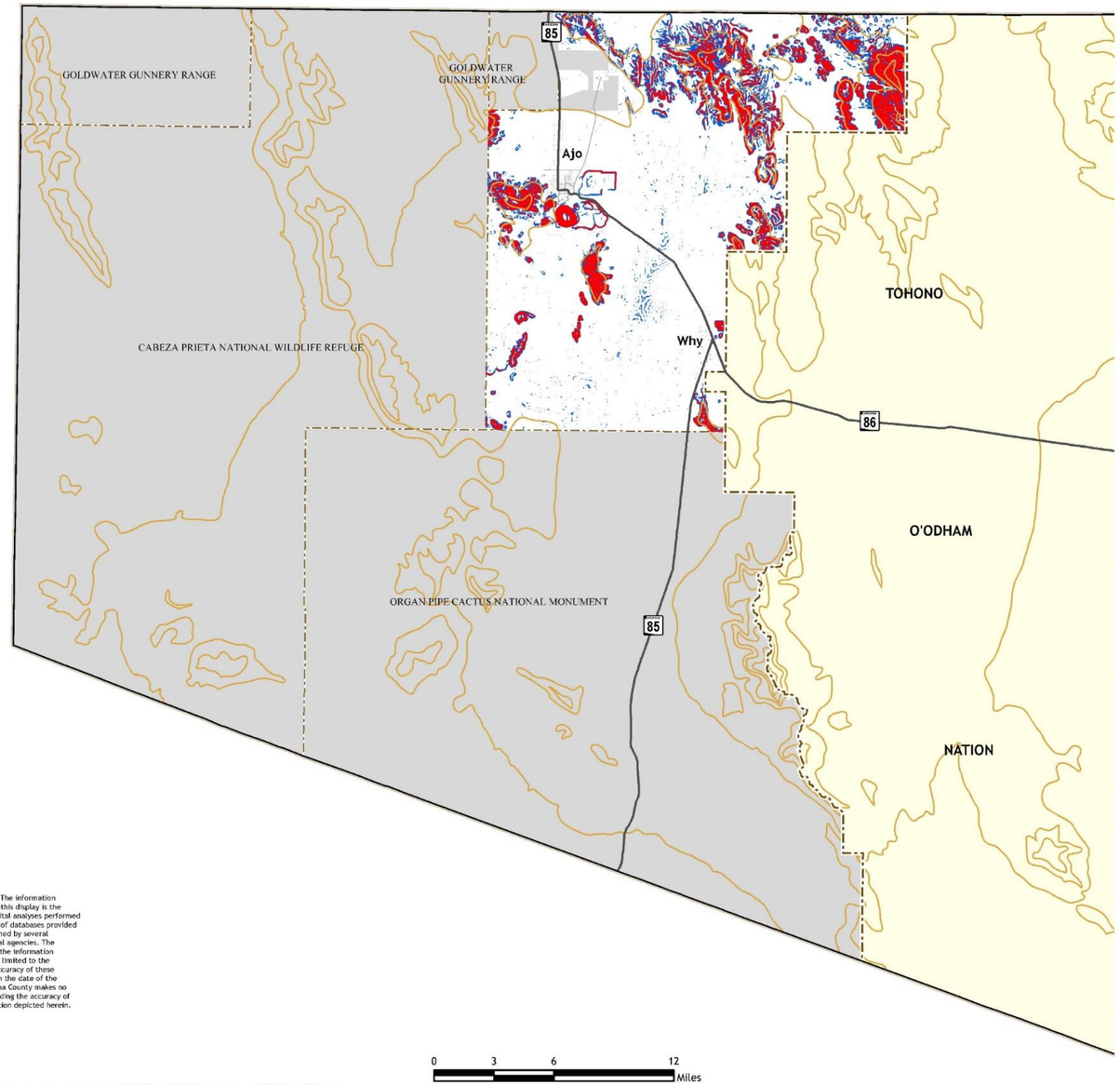
> 25%

PIMA COUNTY

THE PLANNING CENTER
a division of TPC Group, Inc.

EXHIBIT 2.5.b
Physical Constraints: Topography

September 2013



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500 Foot Elevation Contours

Tribal Lands

Built Environment and Unbuildable Land

Land with Steep Slopes

15% - 25%

> 25%

PIMA COUNTY

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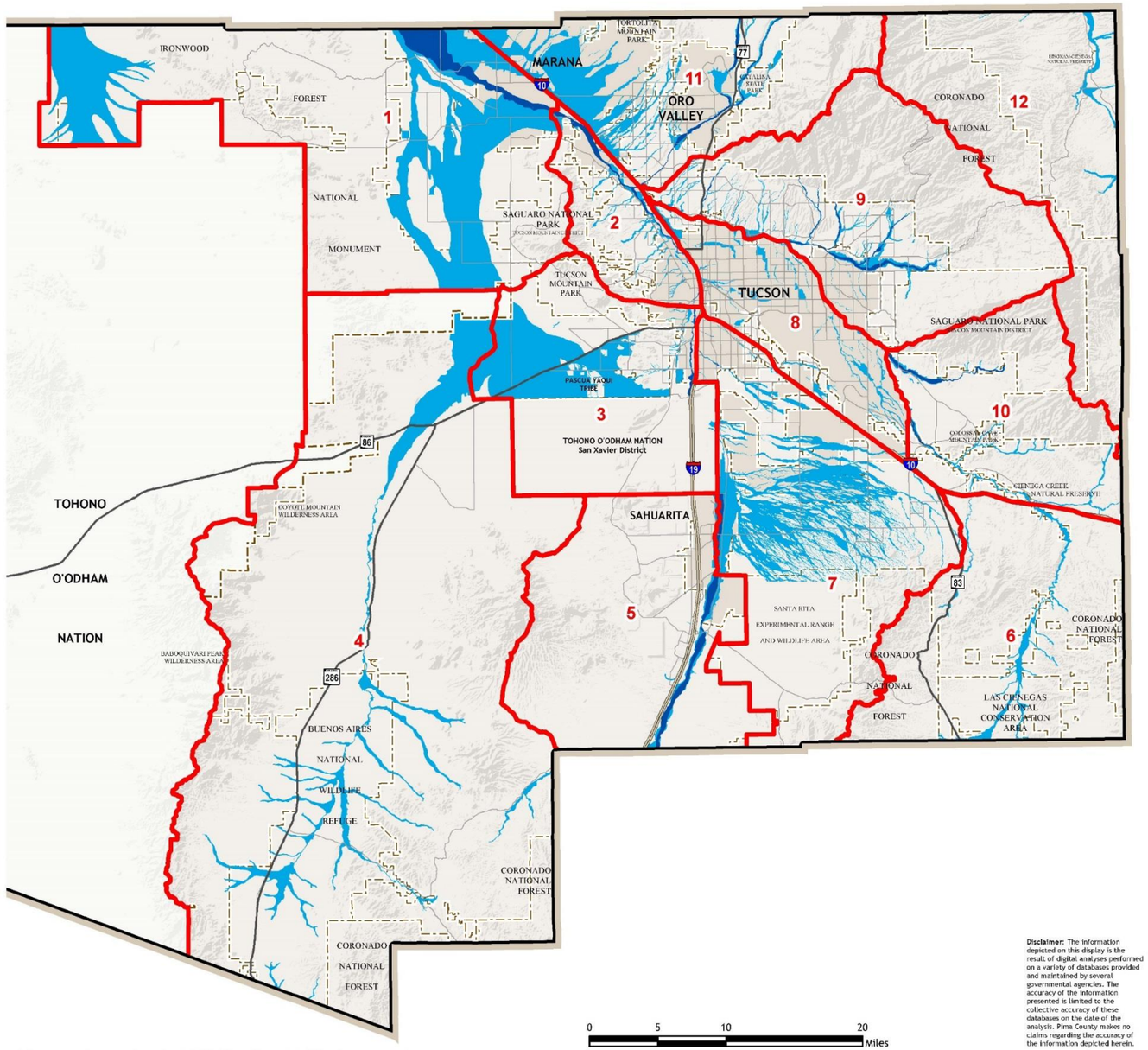

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EXHIBIT 2.32.a
Physical Constraints: Hydrology

September 2013

Planning Area Boundary

Floodways

Designated Floodplains

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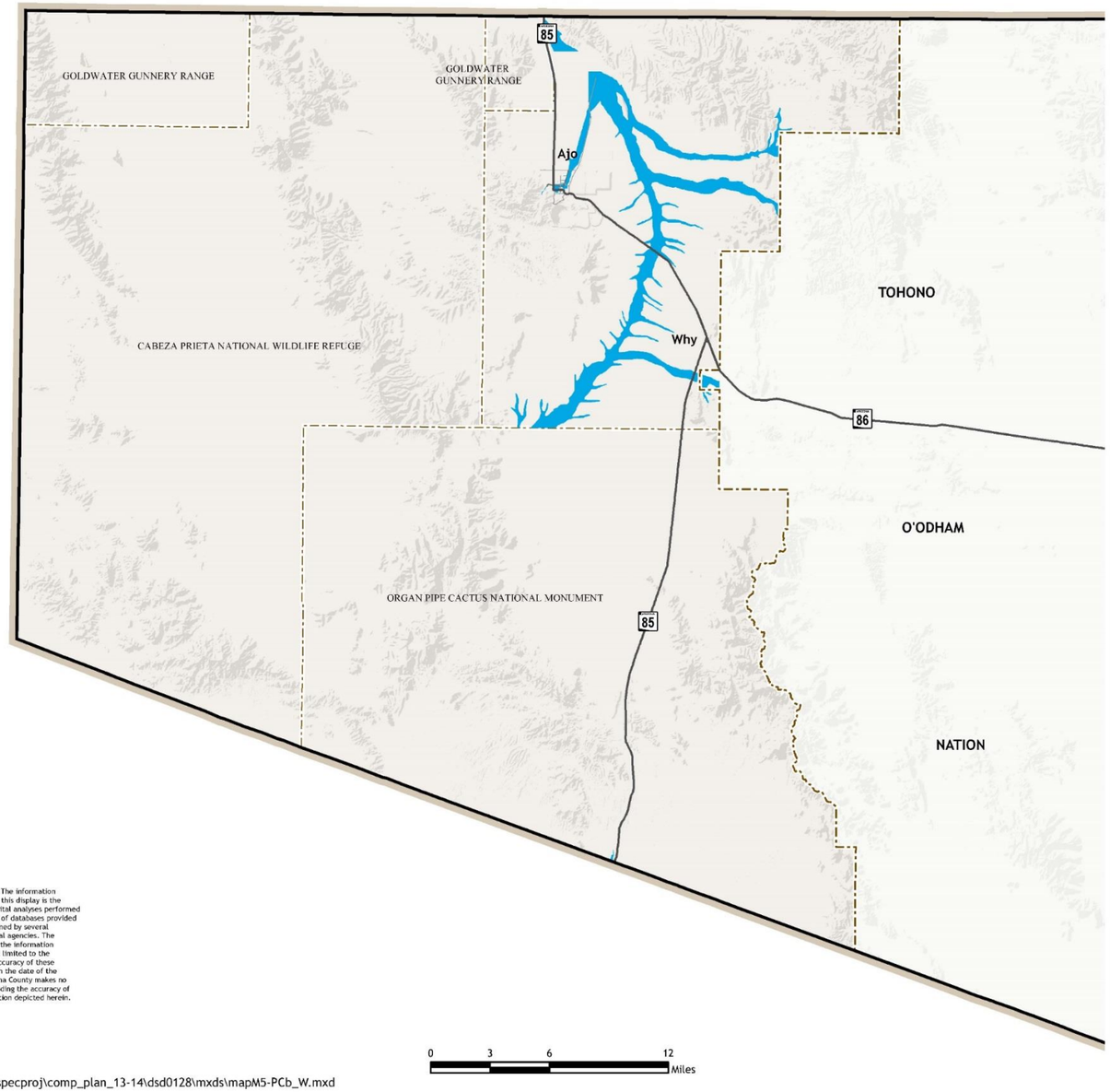
EXHIBIT 2.5.c
Physical Constraints: Hydrology

September 2013



Designated Floodplains

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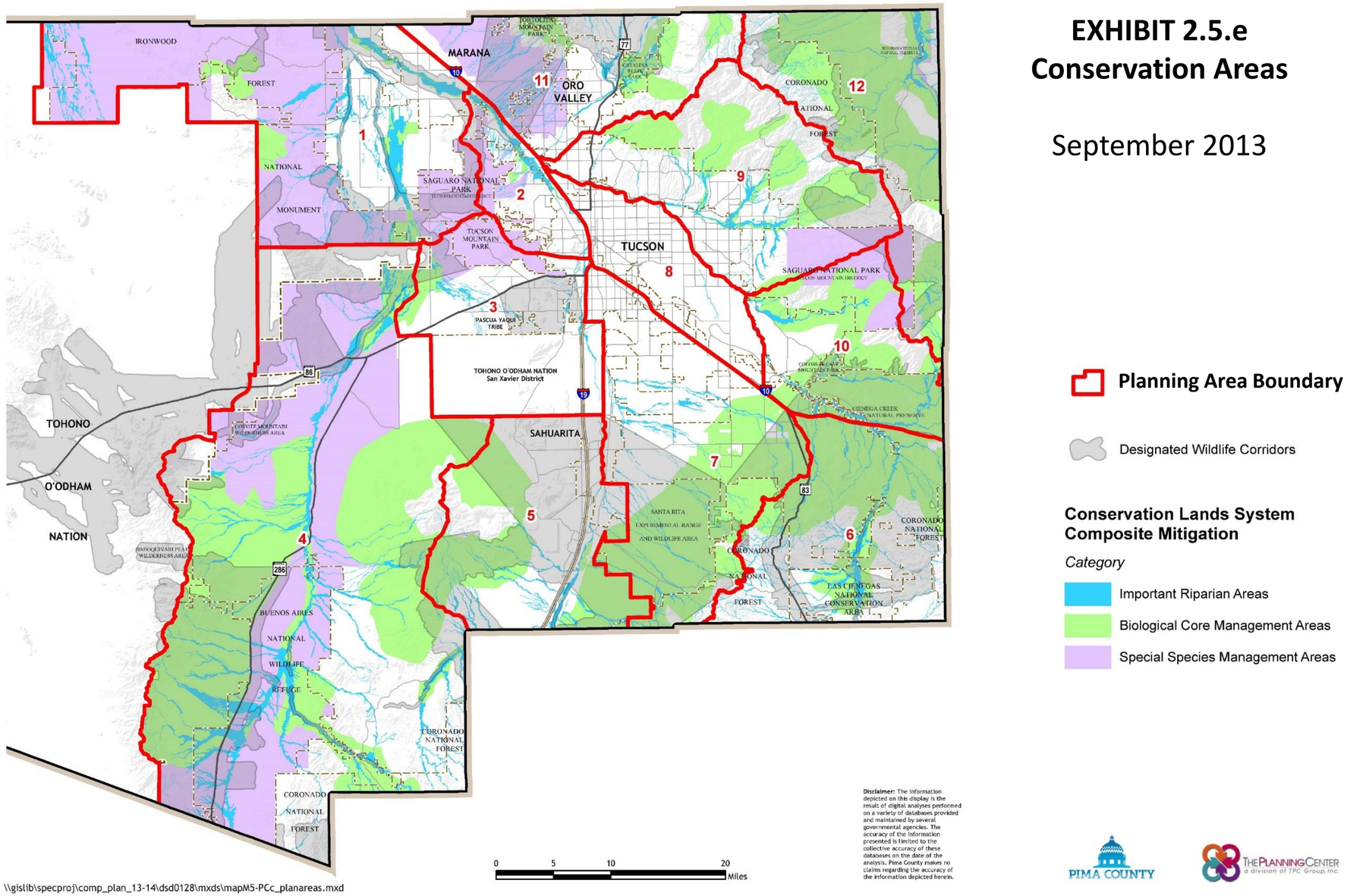
EXHIBIT 2.5.e
Conservation Areas
September 2013
Planning Area Boundary
Designated Wildlife Corridors
Conservation Lands System
Composite Mitigation
Category
Important Riparian Areas
Biological Core Management Areas
Special Species Management Areas
IRONWOOD
FOREST
MARANA
ORO
VALLEY
CORONADO
NATIONAL
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON
MOUNTAIN
PARK
TUCSON
SAGUARO NATIONAL PARK
PASCUA YAQUI
TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
SAHUARITA
SANTA RITA
EXPERIMENTAL RANGE
AND WILDLIFE AREA
CORONADO
NATIONAL
FOREST
CORONADO
NATIONAL
FOREST
LAS CIENEGAS
NATIONAL
CONSERVATION
AREA
BUENOS AIRES
NATIONAL
WILDLIFE
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Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.
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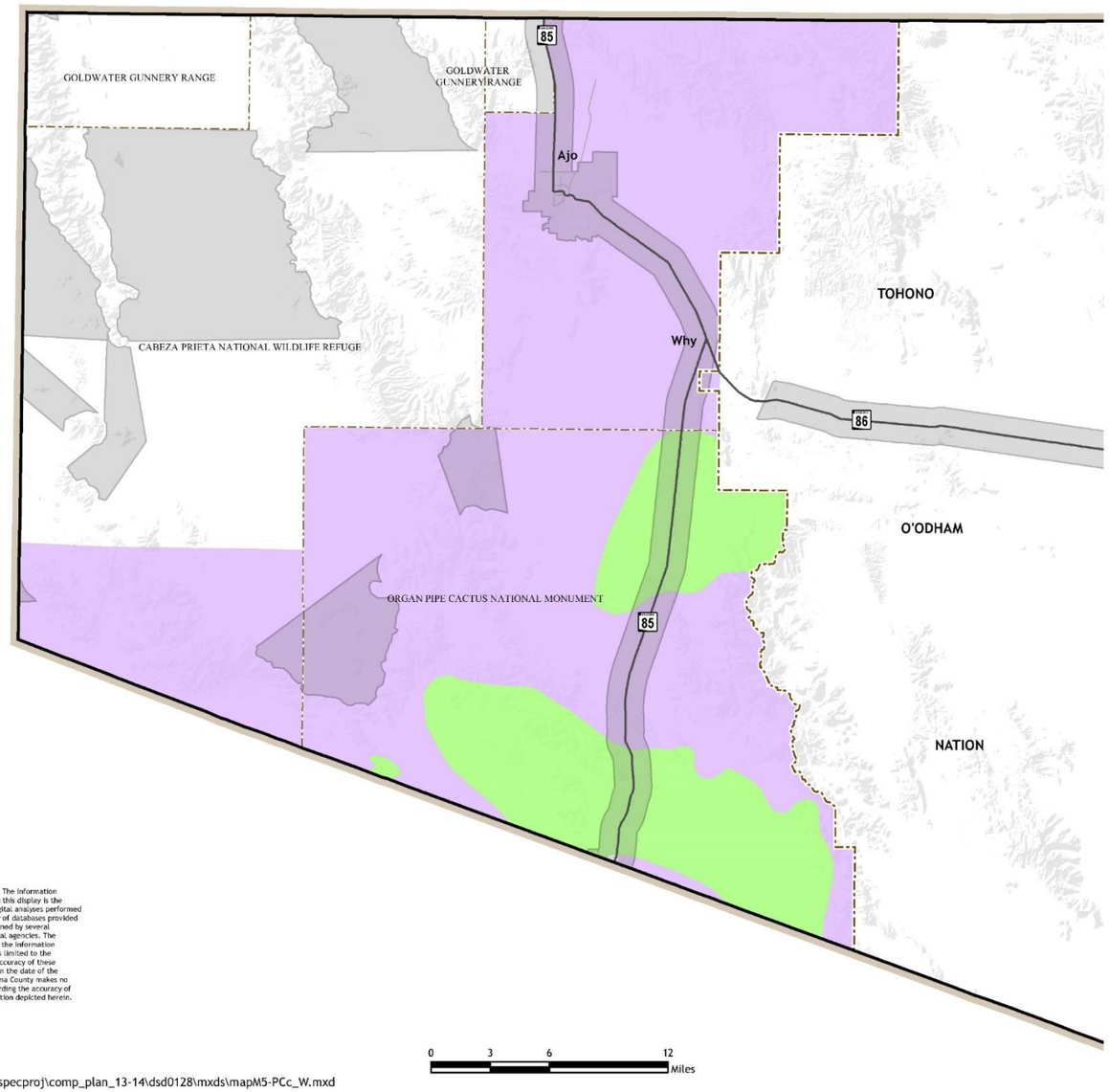

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EXHIBIT 2.5.f
Conservation Areas

September 2013

Designated Wildlife Corridors

Conservation Lands System Composite Mitigation

Category

Biological Core Management Areas

Special Species Management Areas

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Use of Land

Chapter 3: Use of Land Distribution, Analysis, and Current Conditions

Key Subjects:

- ✓ Land use distribution
- ✓ Community development and neighborhood capacity
- ✓ Open space
- ✓ Environmental
- ✓ Housing and community design
- ✓ Cultural resources

Important Notes:

1. At the time of the preparation of the infrastructure study that served as the core of this background document, the Tohono O'odham Nation was treated as a planning area for statistical purposes only. The Tohono O'Odham Nation is a sovereign nation. However, though the County recognizes the importance of the Nation to the region, the County has no jurisdiction over the Nation.

2. With the exception of Exhibits 3.1.a and 3.1.b depicting planning areas, all other Exhibits referenced in this chapter are included at the end of this chapter.

3.1 Land Use Distribution

Based on 2012 data, this section summarizes existing land use distribution by planning area. The County's 13 planning areas are very diverse. For example, land use in the Avra Valley planning area is dominated by agricultural land, while the Catalina Foothills planning area is made up primarily of single-family homes.

Exhibits 3.1.a and 3.1.b, included in the following pages, show the County planning areas.

Exhibits 3.1c and 3.1.d, included at the end of this chapter, show existing land uses.

Exhibit 3.1.a: Pima County Planning Areas (East)

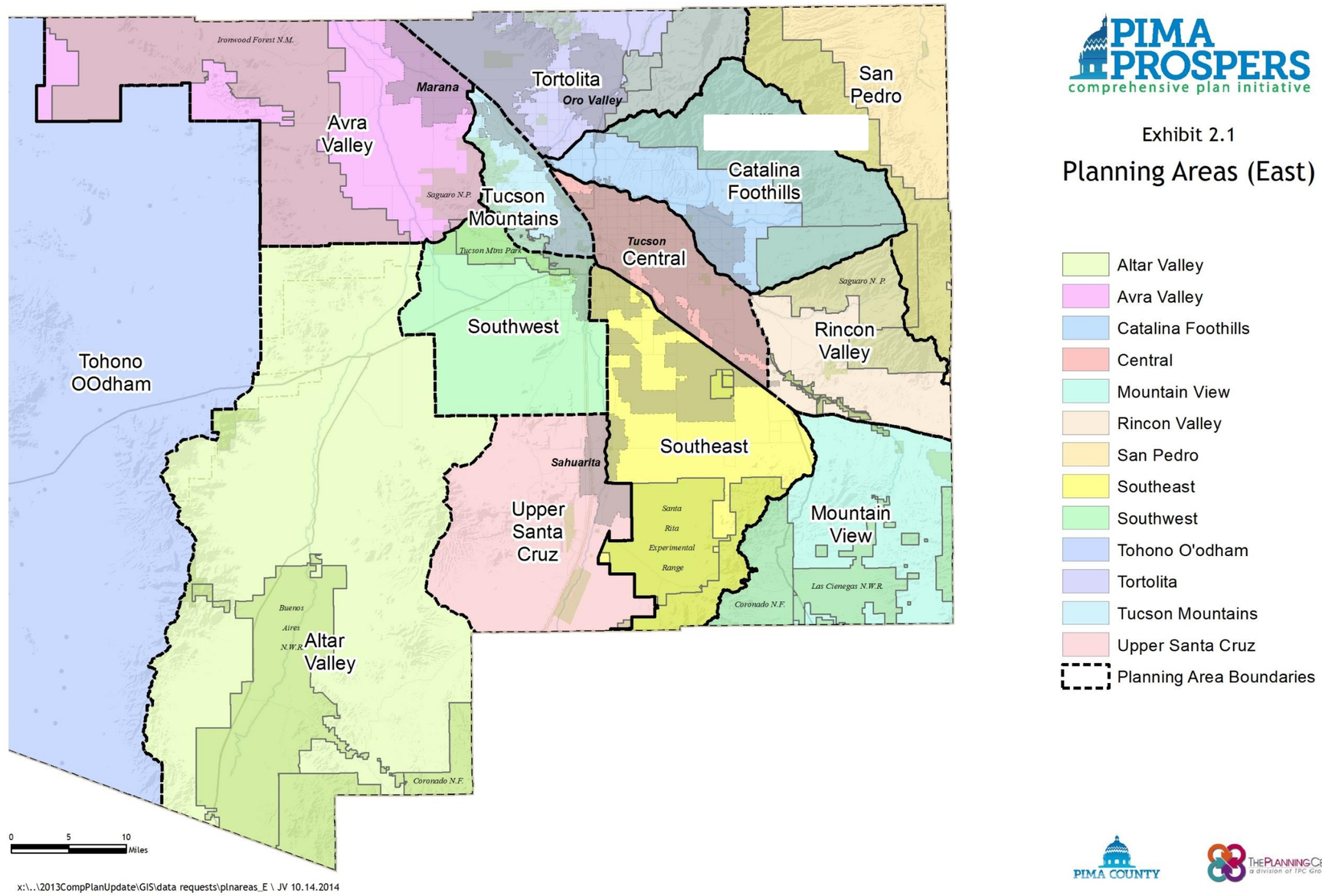

Exhibit 3.1.b: Pima County Planning Areas (West)

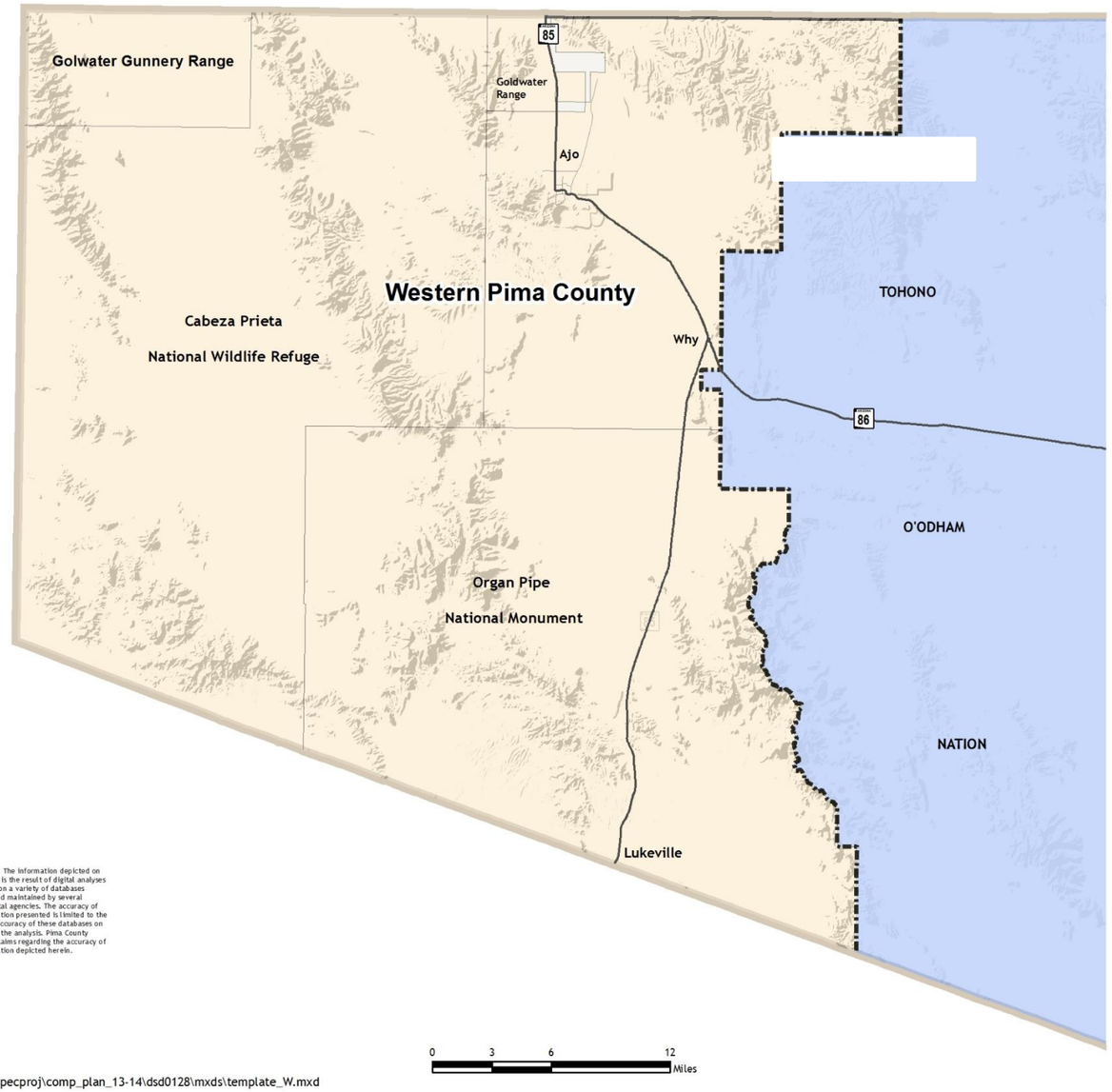

Exhibit 2.2

Planning Areas (West)

Tohono O'odham Nation

Western Pima County

Existing Land Uses by Planning Area

For the purposes of existing land use distribution and analysis, this chapter focuses on the County's 13 planning areas. Planning Area 14 is under the sovereign jurisdiction of the Tohono O'odham Nation. Therefore, Planning Are 14 is not included in the land use analysis.

TABLE 3.1.a: Existing Land Use Acreage by Planning Area

Planning Area	Agricultural	Single-Family Residential	Multi-Family Residential	Manufactured Homes	Commercial and Office	Industrial	Parks	All Other Land Uses
1. Avra Valley	40,911.20	7,002.07	394.19	9,006.04	2,729.09	490.38	4,379.88	6,980.02
2. Tucson Mountains	1,163.78	14,185.37	1,335.96	279.12	1,744.18	812.92	543.28	2,554.25
3. Southwest	1,640.84	8,763.67	591.68	6,755.75	1,776.01	197.96	135.62	3,085.46
4. Altar Valley	67,451.46	9,429.32	5.57	4,263.39	564.36	0.00	11.18	4,592.67
5. Upper Santa Cruz	38,507.89	9,640.61	2,287.82	2,334.99	3,927.63	235.40	21.96	24,810.73
6. Mountain View	7,767.15	3,742.84	2.00	484.71	643.10	0.00	496.68	12,440.04
7. Southeast	17,735.17	8,173.24	2,705.66	6,245.24	4,840.53	1,888.36	96.65	3,477.93
8. Central	162.45	13,510.17	4,174.71	1,754.95	8,365.79	3,219.68	2,143.94	6,789.06
9. Catalina Foothills	781.17	41,284.92	5,201.63	323.45	5,135.25	102.53	428.43	3,034.03
10. Rincon Valley	11,767.89	7,496.90	628.35	1,597.98	983.99	359.43	1,212.12	1,385.25
11. Tortolita	9,206.56	18,868.15	4,557.06	2,324.58	5,472.12	188.78	85.02	2,762.71
12. San Pedro	11,406.96	704.10	0.00	24.80	264.02	0.00	0.00	0.00
13. Ajo-Why	Data not available							
Total All Planning Areas:	**208,502.52**	**142,801.37**	**21,884.61**	**35,394.99**	**36,446.07**	**7,495.45**	**9,554.76**	**71,912.15**
Total County:	**209,728.46**	**144,199.14**	**21,903.23**	**35,741.58**	**36,616.68**	**7,496.63**	**10,192.71**	**85,863.91**

Source: Pima County Geographic Information Systems, 2012

Avra Valley Planning Area (1)

Within the Avra Valley planning area, 24.3% (77,028 acres) is developed (i.e. non-vacant which includes agricultural and ranching lands). Of the 239,520 acres of vacant land in the planning area, 57.6% is federally owned, 31.2% is state owned, 6.6% is privately owned, 3.3% is municipally owned, 1.2% is county owned and .12% is owned by the Tohono O'odham Nation.

The major undeveloped areas are: 1) federal lands (Ironwood Forest National Monument and Saguaro National Park); 2) large areas of state-owned lands from N. Trico Road and W. Marana Road southeast along N. Silverbell Road, near Avra Valley Road and Sandario Road, two large parcels along N. Anway Road north and south of W. Avra Valley Road, within the Ironwood Forest National Monument and along the Central Arizona Project (CAP); and 3) large parcels owned by the City of Tucson primarily for well fields and other privately owned parcels scattered between the state land parcels.

The unincorporated areas of more intense, existing residential development are surrounding the Picture Rocks Road area, Anway Road and W. El Tiro Road south to W. Avra Valley Road is low-density residential. The area near N. Anway Road and Manville Road is slightly more dense. The planning area also includes the Central Arizona Project (CAP) and the Marana Regional Airport. There are also higher intensity areas within the Town of Marana west of Interstate 10. Large agricultural areas exist north towards the Pima/Pinal county line.

Tucson Mountains Planning Area (2)

Within the Tucson Mountains planning area, 26,183 acres (51.7%) are developed/non-vacant (includes agricultural and ranching lands). Of the vacant land (24,432 acres or 48.2% of the total area) 13.6% is County-owned, 11.8% is federally owned, 4.4% is municipally owned, 16.5% is privately owned, and 2% is state owned. The major undeveloped areas are the Santa Cruz River floodplain, Saguaro National Park, Tucson Mountain Park, Sweetwater Preserve, Greasewood Park, surrounding Pima College west, and Sentinel Peak/Tumamoc Hill. The areas of more intense residential development are the Continental Ranch development within the Town of Marana, the Rancho del Cerro and Agua Dulce Subdivisions within unincorporated Pima County, and higher-density development within the City of Tucson, particularly east of Greasewood Road and south of Goret Road, along Silverbell Road, in the Menlo Park area, and at the major intersections of Silverbell Road at St. Marys Road, Speedway Boulevard, and Grant Road.

Southwest Planning Area (3)

The eastern portion of this planning area has been largely developed (typically accounting for 8% of County permits) yet still has measurable infill potential. The northwestern portions are more prone to flooding issues and difficult to serve with wastewater facilities. Areas along the Ajo Road and Valencia Road Corridors can sustain higher densities (flood control and drainage concerns permitting). Land ownership is widespread and diverse, including federal government, the State of Arizona, Pima County, the Arizona Board of Regents, and Tribal Nations. Private land ownership is not significant in terms of large, undeveloped parcels. Many of the owners are anticipated to release all or portions of their property to development. A total of 17,260 existing dwelling units were identified in this planning area.

The planning area includes or abuts several large, national and regional parks such as Saguaro National Park West, Tucson Mountain Park, Saginaw Hill Regional Park and Robles Pass Trails Park. There are also seven neighborhood, districts and community parks within the Pima County park system.

Altar Valley Planning Area (4)

Within the Altar Valley planning area, 84,200 acres (11.8%) are developed/non-vacant (includes agricultural and ranching lands). Most of the planning area is undeveloped including ranching/agricultural uses or natural open space.

Of the vacant land (628,263 acres) 56.1% is state-owned, 29.8% is federally owned, 8.6% is owned by the Tohono O'odham Nation, 1.8% is county owned, and 0.5% is municipally owned. Most of the planning area is undeveloped with the following exceptions, which are areas of more intense, primarily residential development:

- Diamond Bell Ranch subdivisions
- Unplatted GR-1 zoned residential areas
- Three Points
- Arivaca

Commercial development is limited to Three Points and Arivaca.

Upper Santa Cruz Planning Area (5)

Within the Upper Santa Cruz planning area,_89,676 acres (51%) are developed/non-vacant (includes agriculture and mining lands). Most of the built areas (12% of the total area) occur along Interstate 19 (I-19) within the Canoa Land Grant boundary from the Town of Sahuarita extending south and including Green Valley with additional development further east of I-19 in Quail Creek and Continental and at the southern tip of I-19 within the planning area in Amado (a.k.a. Arivaca Junction). Outside of this I-19 corridor, is predominantly low-intensity rural land use, mining, and agriculture. Agriculture and mining combined equal approximately 75% of the developed/non-vacant land and 38% of all land within the planning area. The southern half of the Canoa Ranch land Grant on the east side of I-19 is primarily open space.

The areas of more intense residential uses mixed with limited commercial and office uses are: (1) Green Valley on the west side of I-19 within the Canoa Land Grant boundary north of the Escondido Wash, (2) Green Valley and Continental on the east side of I-19 within the Canoa Land Grant boundary beginning at the southern end of the Torres Blancas Golf Course extending north to the Town of Sahuarita, (3) the Town of Sahuarita including the master planned communities of Rancho Sahuarita and Quail Creek, and to a lesser degree, (4) Amado, Montana Vista, and Elephant Head.

Mountain View Planning Area (6)

Within the Mountain View planning area, 16.3% (29,884 acres) is developed/non-vacant (includes agricultural and ranching lands). Of the vacant land (153,928 acres) 53.1% is state owned, 36.9% is federally owned, 6.1% is County-owned, and 3.8% is privately owned.

This planning area is very sparsely developed and where developed is by large lot, single-family residential. The areas of such development are along Old Sonoita Highway near E. Mesquite Mesa Trail and near Hilltop Ranch Road. There is an area of SH zoning near I-10 and the Pima/Cochise County line and an area zoned GR-1 near the I-10 and Sonoita Highway intersection. Otherwise the planning area is zoned IR (Institution Reserve) for government owned parcels and RH (Rural Homestead) with a

minimum lot size of 4.1 acres. The planning area includes the Las Cienegas National Conservation Area which includes the Empire Ranch and the Coronado National Forest.

Southeast Planning Area (7)

Within the Southeast planning area, 52,940 acres (24%) are developed/non-vacant. Most of those developed/non-vacant lands occur north of an east-west boundary established by the Old Vail Connection alignment. North of this alignment, are industrial and urban intensity residential uses. South of the alignment, rural, low intensity residential use is the predominant use. Within this rural area, however, there are significant pockets where more intense residential uses, both built and planned, occur.

Privately-owned lands (70,344 acres) constitute 32% of the planning area. Save a few acres within the Tohono O'odham Nation (San Xavier District), the balance of this planning area (30,332 acres; 13.7%) is owned by the federal government, specifically the U.S. Forest Service and Bureau of Land Management. By jurisdiction, 20% (43,304 acres) is within the City of Tucson, 2% (4,639 acres) is within the Town of Sahuarita, and 42% (93,214 acres) is within unincorporated Pima County. A negligible amount of this planning area (22 acres) is a small portion of the City of South Tucson.

The areas of more intense residential uses are: (1) Swan Road and Singing Cactus Lane (Verano Specific Plan), and (2) S. Houghton Road and Camino del Toro (Corona de Tucson, Santa Rita Ranch, Sycamore Canyon, New Tucson). Large, undeveloped tracts of land owned by Arizona State Land and federal land management agencies have significantly influenced the existing development pattern of privately owned property. This influence is not expected to change in the next 20 or more years.

Central Planning Area (8)

Within the Central planning area,_50,862 acres (64%) are developed/non-vacant (includes agricultural and ranching lands). Most of the planning area is built with scattered exceptions throughout the planning area. Of the vacant land (29,026 acres) 4% is County-owned, 13.4% is federally owned, 21% is municipally owned, 23% is privately owned, and 38.3% is state owned. The major undeveloped area is located southeast of roughly Camino Seco and Irvington Road, a large portion (10,800 acres) of which is the Houghton Area Master Plan (HAMP) adopted by the City of Tucson on June 7, 2005. The largest portion (76%) of HAMP is owned by the Arizona State Land Department.

The areas of more intense residential development are at main intersections and along major roads, particularly north of Speedway Boulevard and south of 22nd Street including the Rita Ranch development, but with the exception of the area around Davis Monthan Air Force Base (DMAFB) and in the southeastern portion of the planning area. Commercial development is concentrated along Interstate-10, along major roads particularly Oracle Road north of Grant Road, along Broadway Boulevard from Swan Road to Wilmot Road, and all along Speedway Boulevard.

Within unincorporated Pima County, a relatively intense commercial area exists west of DMAFB and south of 36th Street near Palo Verde Road. Additionally, the University of Arizona Science and Technology Park, the Target distribution center, and a canning facility are located near Interstate 10 and Rita Road.

Catalina Foothills Planning Area (9)

Within the Catalina Foothills planning area, 66,502 acres (33.3%) are developed/non-vacant (includes agricultural and ranching lands). Of the vacant land (133,896 acres or 66.8% of the total area) 90.2% is owned by the federal government (primarily Coronado National Forest), 8.0% is privately owned, 3.7% is state owned, 1.2% is County owned and .5% is municipally owned.

The major undeveloped areas are the Coronado National Forest, the major washes (Rillito River, Tanque Verde Wash and Pantano Wash) and their tributaries, Saguaro National Park, and a few isolated, privately-owned parcels.

The Catalina Foothills are predominantly one residence per acre (RAC) development. North of Oracle Jaynes Station and west of Shannon Road are higher 3-4 RAC developments with scattered spots of dense residential development along Oracle Road and Ina Road. East of Oracle Road, the area is overwhelmingly one residence per acre. Higher residential densities of approximately seven residences per acre are found along majors and some cluster-type developments (e.g. Sunrise Ridge and Sunrise Presidio Townhouses, Sabino Springs) are built along major routes. There are some scattered, isolated parcels that remain undeveloped in the planning area, with the exception of some larger parcels of mostly .3 – 1 RAC density located east of Catalina Highway. On the east side of the planning area and south of Tanque Verde Road is mainly .3 – 1 RAC development. There are scattered nodes of commercial development at major intersections throughout the planning area, with the exception of the far eastern portion where commercial development is scarce. Industrial development is essentially non-existent.

Rincon Valley Planning Area (10)

Within the Rincon Valley planning area, 24.8% (30,304 acres) is developed (i.e. non-vacant which includes agricultural and ranching lands). Of the 91,858 acres of vacant land in the planning area, 42% is federally owned, 39% is state owned, 11% is privately owned, 8% is County owned, and less than 1% is municipally owned. The major undeveloped areas are: 1) federal lands (Saguaro National Park and Coronado National Forest (Rincon Mountains)); 2) state lands surrounding the area of Pistol Hill Road and Old Spanish Trail, scattered around Marsh Station Road, and large parcels east of Marsh Station Road; 3) privately-owned parcels including the mostly undeveloped Rocking K project and other lands scattered between state land parcels. The unincorporated areas of more intense, existing residential development are the Garrigans Gulch area, Rancho del Lago and Vail areas.

Tortolita Planning Area (11)

Within the Tortolita planning area, 31% (46,163 acres) is developed (i.e. non-vacant which includes agricultural and ranching lands). Of the 104,288 acres of vacant land in the planning area, 43% is federally owned, 34% is state owned, 17% is privately owned, 4.5% is County owned, and 1% is municipally owned. The major undeveloped areas are: 1) federal lands (Coronado National Forest – Catalina Mountains); 2) state lands particularly north of the Rancho Vistoso development and east of the Lago del Oro Parkway, and to a lesser extent 3) privately-owned parcels planned for low-density residential development located north of Linda Vista Boulevard. The unincorporated areas of more intense, residential development are south of Linda Vista Boulevard.

San Pedro Planning Area (12)

Within the San Pedro planning area, 28,538 acres (16.4%) are developed/non-vacant (includes agricultural and ranching lands). Of the vacant land (67,838 acres) 46.5% is state-owned, 45.3% is federally owned, 4.8% is county owned, and 2.8% is privately-owned. Development of the planning area is limited to several ranches along the San Pedro River.

San Pedro's population is small compared to all other planning areas. The planning area had a population of 137 and 107 in 2000 and 2010, respectively. This planning area experienced at 22% decrease in population in the same time frame. This is the only planning area that experienced a decrease in population from 2000 to 2010.

This planning area is characterized as very rural with mostly ranching, farming and rural-residential uses. It is located on the east side of the Catalina Mountains and disconnected from the metropolitan area. With an area of 272 square miles, this planning area had a population density of 1 person per square mile in 2000, and in 2010. Accounting for the population decrease in that decade, the population density decreased to 0 persons per square miles according to Bureau of the Census population counts.

Ajo-Why Planning Area (13)

According to the "Ajo Community Comprehensive Plan" prepared by the University of Arizona School of Planning and Community Planning and Design Workshop (April 2001) prepared for the Western Pima Community Council, "Ajo has a distinct land use pattern that is typical of a post-company owned town. Twenty-five percent of private land in Ajo is vacant."

Of the total 981,488 acre Ajo-Why planning area, 98 percent is under federal ownership. Other ownership is as follows: privately-owned/non-mining lands are .6 percent, privately owned/mining lands are .8 percent, county owned are .3 percent, and state owned lands are .3 percent of the total area. Formerly one of the largest copper mines in the world, the New Cornelia pit in Ajo is over a mile wide.

Existing land uses include agriculture, single-family residential, multi-family residential, manufactured home, commercial and office, and some industrial uses. Ajo is surrounded by 12 million acres of public and tribal land, which include Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge.

Existing land uses in Why include single-family residential, a few commercial uses including gas stations, a small casino owned and operated by the Tohono O'odham Nation, and RV parks.

Employment and Employment-related Land Uses

Table 3.1.b shows existing employment and employment-related uses by planning area. Employment and employment-related land uses include commercial, office and industrial uses.

TABLE 3.1.b: Existing Employment Uses by Planning Area

Planning Area	Commercial/Office Land Use (Acres)	Industrial (Acres)
Avra Valley	2,729	490
Tucson Mountain	1,744	813
Southwest	1,776	198
Altar Valley	564	0
Upper Santa Cruz	3,928	235
Mountain View	643	0
Southeast	4,840	1,888
Central	8,366	3,220
Catalina Foothills	5,135	102
Rincon Valley	984	359
Tortolita	5,472	189
San Pedro	264	0
Ajo/Why	165	1.2

Source: Pima County GIS Department, 2013

Avra Valley Planning Area (1)

Employment is found in commercial areas along I-10, the Town of Marana and the community of Picture Rocks as well as in facilities scattered in various parts of the planning area. Key employers include the Marana Unified School District with two high schools and six elementary schools, the Town of Marana, the Marana Health Center with 195 employees, Trico Electric Cooperative with 130 employees, and Asarco with 175 employees at the Silver Bell Mine. Tucson Water operates the Central Avra Valley Storage and Recovery Project. The Avra Water Co-op is located in Picture Rocks.

The Marana Regional Airport is located inside this planning area. Just across the Pinal County line is the Evergreen Aviation/Marana Aeroscape Solutions, a major aerospace employer.

Overall the area accounts for approximately one percent of area businesses licenses. Where industry data is available, a preponderance of this area's businesses are in residential construction and various types of services.

Tucson Mountains Planning Area (2)

Employment is clustered along I-10 and the higher-density neighborhoods south of Grant Road, with the exception of Pima Community College West Campus and JW Marriott Resort located in the Tucson Mountains.

The northern I-10 corridor contains significant manufacturing/aerospace/defense activity, including Sargent Aerospace and Defense Corp. (275 employees), FLSmidth Krebs (267 employees), and Dover Diversified. Also located along this corridor is Convergys Corporation, a call center (900 employees), Coca-Cola Bottling Company of Tucson (180 employees) and Arizona Portland Cement/CalPortland cement plant (127 employees).

Retail centers are found at the Arizona Pavilions Shopping Center just south of West Cortaro Road, and at the major intersections of Silverbell Road at St. Marys Road, Speedway Boulevard, and Grant Road, with many smaller retail businesses scattered along St. Marys Road, Grant Road and Grande Avenue.

Hospitality and tourism is an important industry for this area, with the JW Marriott Starr Pass Resort and Spa employing 550 workers, as well as numerous motor inns along the I-10 frontage road from Grant Road to 22nd Street.

The southern, inner-city neighborhoods between Grant Road and Congress Street contain significant employment in the government, education, social services and health care sectors. Carondelet Health Network accounts for approximately 2000 jobs, between administrative offices located on North Forbes off of Grant Road and St. Mary's Hospital located in Menlo Park Neighborhood. Education employers include Marana Unified School District, Tucson Unified School District, Pima Community College West Campus and Community Campus, and Arizona State Schools for the Deaf and the Blind. This area also includes the western terminus of the Tucson Modern Street Car south of Congress Street and west of I-10.

Overall the area accounts for approximately 5% of area business licenses. Where industry data is available, a preponderance of businesses are in trade and various types of services.

Southwest Planning Area (3)

The SWIP area includes Ryan Airfield General Aviation Airport, owned and operated by the Tucson Airport Authority. The airfield is currently planning for future expansion to serve the anticipated aviation business needs of the region.

Altar Valley Planning Area (4)

Employment is found in small businesses along State Route 86, in the communities of Arivaca and Robles Junction, as well as at scattered sites in various parts of the planning area. Key employers include Altar Valley Unified School District - with one elementary and one middle school – and the Three Points Fire District.

Overall, the area accounts for approximately 0.3% of Tucson business licenses. Where industry data is available, a preponderance of businesses are in residential construction, landscaping, retail trade, and other services.

Upper Santa Cruz Planning Area (5)

Copper mining is a major economic activity in this planning area, with employment centers at Asarco on the northern boundary of the area and Freeport-McMoRan west of Green Valley. These employers reported 7,065 jobs, collectively, in April 2011, according to the Star 200. Senior residential and health care services account for significant employment in the community of Green Valley with 530 jobs at La Posada at Park Centre Inc., and others in smaller, assisted living facilities.

Business license records show 323 businesses listed for zip codes that fall (at least partially) in this planning area. Although industry classification data is incomplete for this dataset, available information indicates a preponderance of enterprises in the construction and service sectors, with approximately 30% in construction and 20% in retail trade. Census commute times for this planning area show that 37% of residents may work within or near this planning area, with travel time to work of 15 minutes or less.

Mountain View Planning Area (6)

The sparsely-populated planning area contains very limited economic activity, with just five Tucson business licenses. Rosemont Copper's proposed mining operation in the planning area proposes to employ 1,000 people during the construction phase, if implemented, and between 400 and 500 ongoing workers during full operation.

Southeast Planning Area (7)

Employment centers are primarily located in the northern portion of this planning area. Raytheon, Tucson International Airport and associated industries are significant employers. Other employment areas include commercial and industrial uses in the area north of Irvington Road between Interstate 10 and Interstate 19 and correctional facilities along Wilmot Road and Old Vail Connection.

Pima County's One Stop Program (Community Services, Employment and Training Department) has identified significant opportunities for workforce development and training in this planning area. There are 3,207 business licenses listed for zip codes that fall (at least partially) in this area. One Stop has surveyed 49 companies in these zip codes and identified 960 jobs. Census commute times, which are comparable to countywide data, indicate that 25% of residents may work within or near the planning area, with travel time to work of 15 minutes or less.

The aerospace and defense industries are leading contributors to our region's economy. To protect the existing employment base and support future expansion of these industries, an Aerospace-Defense Corridor has been identified that encompasses the Tucson International Airport, Raytheon, and Arizona Air National Guard facilities.

Central Planning Area (8)

Commercial development is concentrated along Interstate-10, along major roads particularly Oracle Road north of Grant Road, along Broadway Boulevard from Swan Road to Wilmot Road, and all along Speedway Boulevard. Within unincorporated Pima County, a relatively intense commercial area exists west of DMAFB and south of 36th Street near Palo Verde Road. Additionally, the University of Arizona Science and Technology Park, the Target distribution center, and a canning facility are located near Interstate 10 and Rita Road. The Port of Tucson, and intermodal, logistics and distribuition facility, is also located within this planning area.

This planning area contains approximately 250,000 or 55% of the county's jobs, with employment centers at the University of Arizona, Downtown, along the commercial corridors described above, and scattered throughout the planning area. Based on the 2010 American Community Survey estimated commute times for the City of Tucson as many as 75% of residents may work within or near this planning area, with travel time to work of 30 minutes or less.

Business license records show 14,090 businesses listed in this planning area for the fourth quarter of 2011, 51% of all current Tucson licenses. The 2009 Economic Census reported 20,547 business establishments countywide. According to that dataset 98% of local businesses have fewer than 100 employees; 52% have fewer than five.

Although industry classification data is incomplete for the business license dataset, available information indicates approximately 6% of local businesses are in construction, 2% in manufacturing, 3% in wholesale trade and 14% in retail trade. Transportation and warehousing accounts for another 2% of businesses, information and financial services each 1%, respectively, and real estate 9%. Of those licenses with an industry classification code, 17% are in the professional, scientific and technical services area.

Countywide employment data also shows a preponderance of jobs in service sectors (89% of nonfarm jobs) with the biggest concentration - 22% - of jobs is in government agencies, with business services, health, trade and leisure/tourism each accounting for between 10% and 14% of local jobs. Notwithstanding this, manufacturing employment - especially Aerospace Products and Parts - is critically important to the regional economy in terms of its concentration of high-paying jobs, share of exports and competitive advantage. In Pima County, the employment share of Aerospace and Defense is 12 times higher than U.S. average.

Catalina Foothills Planning Area (9)

Employment is clustered along the southern and western edges of the planning area, along arterials such as Oracle Road, River Road, East Speedway Boulevard, East Broadway Boulevard and East 22nd Street. Many of the area's businesses are service-based, with retail centers found at Oracle Road and Ina Road, Grant Road and Tanque Verde Road, La Encantada at Campbell Avenue and Skyline Drive and other major intersections. Hospitality is a significant contributor, with scenic resort properties throughout the Catalina foothills. Top employers are Catalina Foothills School District, Northwest Medical Center, Long Realty Co., Tierra Antigua Realty, Canyon Ranch, and Loews Ventana Canyon Ranch.

Overall the area accounts for approximately 21% of Tucson business licenses; where industry data is available, a preponderance of businesses are in trade and various types of services.

Rincon Valley Planning Area (10)

The planning area contains minimal employment, with isolated, service-based enterprises along Old Spanish Trail and a small business district on Colossal Cave Road in Vail. The Vail School District is a major employer, with Cienega High School and Old Vail Middle School and two elementary schools located in the planning area. Overall, the area accounts for less than one percent of Tucson business licenses; where industry data is available, a preponderance of businesses are in trade and various types of services.

Tortolita Planning Area (11)

Employment in this planning area is concentrated along Oracle Road. According to the 2007 Economic Census, the Town of Oro Valley contains 568 businesses and accounts for approximately 8,000 of the County's jobs. Retail trade, hospitality, healthcare/bioscience, and manufacturing account for the preponderance of jobs. Key employers include Roche Ventana Medical Systems, Honeywell, Northwest Medical Center and Hilton El Conquistador Resort. The Census identified 100 establishments and approximately 1,100 jobs (mostly retail and hospitality) in the unincorporated community of Catalina.

Business license records indicate another 1,285 businesses that are in Marana or in the unincorporated area, concentrated in the construction, retail, professional services, administrative services, and landscaping/environmental services industries.

San Pedro Planning Area (12)

Economic activity in this planning area is limited to several ranches along the San Pedro River. There are no Tucson business licenses in this area.

Ajo/Why Planning Area (13)

Public sector employers in the area include the Ajo Unified School District, the US Border Patrol, Pima County, US Postal Service, and National Park Service. Private sector employers in the area include Freeport McMoRan Copper and Global, Inc., International Sonoran Desert Alliance, Desert Senita Community Health Center, the Tohono O'odham Nation, Olson's Market, and Circle K.

Current Zoning by Planning Area

Table 3.1.c shows current zoning acreage by planning area.

Exhibits 3.1.e and 3.1.f, included at the end of this chapter, show current zoning and Exhibit 3.1.g and 3.1.h, included at the end of this chapter, show existing overlay zones.

TABLE 3.1.c: Current Zoning Acreage by Planning Area

Planning Area	Institutional Reserve	Rural Residential	Suburban Ranch	Single Residence/ Suburban Homestead	Mixed Dwelling/ Multiple Residence	Manufactured and Mobile Home	Trailer Homesite	Transitional	Commercial	Industrial	Multiple Use	Master Planned Community	Golf Course Overlay	Mount Lemmon	Major Resort
1. **Avra Valley**	133,562.04	151,921.24	857.01	4,268.38	0.00	0.00	0.00	36.09	133.32	1,220.30	0.00	0.00	0.00	0.00	0.00
2. **Tucson Mountains**	6,916.19	2,048.74	18,461.95	4,298.21	0.00	0.00	89.30	0.00	96.95	196.75	0.00	241.68	0.00	0.00	0.00
3. **Southwest**	16,748.75	108,148.72	5,297.29	5,450.08	2,027.35	867.30	613.21	345.52	680.50	646.40	0.00	2,964.70	0.00	0.00	0.00
4. **Altar Valley**	76,896.83	626,455.92	282.98	8,715.88	0.00	0.00	0.00	9.20	47.92	0.00	0.00	0.00	0.00	0.00	0.00
5. **Upper Santa Cruz**	0.00	152,766.86	944.28	2,860.33	1,468.99	170.17	112.55	1,538.91	682.31	139.48	0.00	545.01	621.53	0.00	0.00
6. **Mountain View**	67,131.13	115,787.37	0.00	678.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7. **Southeast**	28,083.38	123,435.02	522.68	5,209.44	766.58	139.08	254.25	188.64	425.73	7,533.44	603.68	6,591.76	0.00	0.00	0.00
8. **Central**	0.00	1,196.03	136.22	528.54	248.74	58.65	34.66	15.54	325.84	3,974.09	1,708.28	535.78	0.00	0.00	0.00
9. **Catalina Foothills**	123,289.05	1.56	23,664.10	31,731.15	2,133.81	14.32	94.63	1,088.69	783.89	13.18	6.23	545.35	0.00	687.16	0.00
10. **Rincon Valley**	51,843.87	58,759.90	2,386.32	2,051.09	49.32	58.17	0.00	0.00	92.22	592.92	0.00	5,564.36	0.00	0.00	0.00
11. **Tortolita**	41,195.03	22,172.47	11,233.11	5,417.30	2,694.02	23.65	23.82	415.45	532.30	61.81	0.00	241.44	0.00	17.82	42.74
12. **San Pedro**	83,034.69	91,059.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.74	0.00
13. **Ajo-Why**	**No Data Available**														
Total All Planning Areas:	**628,700.96**	**1,453,753.72**	**63,785.94**	**71,209.15**	**9,388.81**	**1,331.33**	**1,222.42**	**3,638.06**	**3,800.99**	**14,378.39**	**2,318.19**	**17,230.08**	**621.53**	**829.72**	**42.74**
Total County:	**1,513,083.08**	**3,900,076.17**	**63,786.07**	**76,016.56**	**10,239.36**	**1,409.34**	**1,422.98**	**3,707.23**	**4,035.45**	**18,185.46**	**2,318.19**	**17,230.59**	**621.53**	**829.72**	**42.74**

Source: Pima County Geographic Information Systems, 2013

Aggregate Mining Operations

Pima County is endowed with many mineral resources, not only copper mines, but also important products such as sand, gravel, and limestone used everyday in supporting the infrastructure of our cities.

While official state maps showing the locations of these operations are not yet available, many sand and gravel operations are located along Tucson's major washes or in alluvial areas such as open spaces on vacant Tucson International Airport and farm lands. At least, nine private sand and gravel operations exist for a total of 22,350 acres.

Some of the larger stakeholders have more than one location in Pima County. In general the companies in the County are Vulcan, Granite Construction, Portland Cement, Cemex, Asarco, Freeport-Mcmoran Copper & Gold (Ajo), and Central Arizona Block Company. Arizona Rock Products Association (ARPA) and Arizona Geological Society (AGS) are the industry's resources for sand and gravel operations. Additionally, there is one large sand and gravel operation north of Ajo in western Pima County and the others are scattered in eight of the twelve other planning areas.

TABLE 3.1.d: Sand and Gravel Operations (Note: These figures are not based on official state maps.)

Map ID Number	Planning Area	Acres
1.	Avra Valley	1,935
2.	Tucson Mountains	1,435
3.	Southwest	531
4.	Altar Valley	0.00
5.	Upper Santa Cruz	11,285
6.	Mountain View	0.00
7.	Southeast	5,722
8.	Central	672
9.	Catalina Foothills	41
10.	Rincon Valley	728
11.	Tortolita	0.00
12.	San Pedro	0.00
13.	Ajo/Why	NA
Total of All Planning Areas		22,350

Source: Pima County GIS Department, 2013

Military Airports

Davis-Monthan Air Force Base (DMAFB) and the 162nd Air National Guard Fighter Wing portion of Tucson International Airport (TIA) are military airports within Tucson city limits. There is a military installation located at the Barry M. Goldwater Air Force Range located north of Ajo, but is is located primarily within Maricopa County. Comprehensive planning and zoning for the environs of these airports includes unincorporated areas of Pima County. In addition to national security, these military airports provide economic benefits to the region. DMAFB is one of the region's major employers with approximately 7,500 (2013) military positions and approximately 2,900 (2013) civilian jobs[1]. Including retiree data, the base circulated approximately $1.5 billion into the local economy and created approximately 4,400 jobs in 2013[1].

DMAFB's location within the city presents issues of potential encroachment of incompatible land uses and development patterns, and building construction types which could jeopardize public health, safety, and welfare. In turn, this could endanger the continued viability of DMAFB to carry out its current and future missions, which could result in its closure. The *February 2004 Davis-Monthan Air Force Base/Tucson/Pima County Joint Land Use Study* (JLUS) is intended to guide the decisions made by a variety of public and private entities in relation to compatible land use around DMAFB. In addition to the State of Arizona and its agencies, the Department of Defense, DMAFB, local jurisdictions, and private interests within the area can contribute to the implementation of the recommendations of the JLUS.

The JLUS defines recommended compatible uses and performance standards that are used by Pima County and the City of Tucson to guide development in order to protect public health, safety, and welfare and Davis-Monthan's mission and its economic benefits. Implementation of the JLUS Compatible Use Plan is fundamental to achieving these goals, and integration of land use recommendations into general and comprehensive plans and zoning ordinances is a key element in implementing the JLUS.

Arizona Revised Statutes (ARS) §28-8481(J) requires compliance with requirements applicable to zoning and development in the defined "high noise or accident potential zone" of DMAFB in accordance with the Compatible Land Use Plan of the February 2004 JLUS. In 2004, the Military Airport (MA) comprehensive plan designation was adopted to restrict zoning options to ensure compatible zoning within the within high noise (Noise Control Zones) and accident potential (Approach-Departure Corridors) zones of DMAFB in line with the JLUS Implementation Program Strategies. In 2008, the Pima County Zoning Code and the International Building Code were amended to implement the JLUS Compatible Land Use Plan recommendations.

The JLUS Implementation Program provides a number of implementation strategies. Some of the other strategies that have been utilized include land acquisition through bonds and use of the State Military Installation Fund to purchase existing incompatible land use development.

[1] FY 13 Davis-Monthan AFB Economic Impact Analysis 2014.

3.2 Existing Gro*wth* Areas

There are three designated growth areas according to the existing Comprehensive Plan. The areas are an industrially-zoned (primarily) area near the airport, the Flowing Wells area, and the City of Tucson. The existing growth area policies are: 1) The encouragement of mixed use planning, multimodal opportunities and pedestrian and bicycle access; 2) Development should add architectural attractiveness and protect the character and privacy of adjoining residential areas; 3) Residential proposals should increase densities to not less than 8 RAC and include mixed uses and a variety of housing types; and, 4) The encouragement of commercial development that supports area residents and creates multimodal transportation options.

Community Development and Neighborhood Capacity

The Community Development and Neighborhood Conservation Department utilizes various local, state and federal resources to conduct community development and revitalization activities focusing efforts in the most stressed neighborhoods and unincorporated areas in Pima County. Existing efforts are managed within these specialized programs: Neighborhood Reinvestment; Neighborhood Stabilization Program; Community and Rural Development; Homeless and Special Populations; and, Outside Agencies as detailed below. The Community Development and Neighborhood Conservation Department also includes the Affordable Housing program which is found later in this chapter under "Housing and Community Design".

Home Repair and Weatherization

This program consists of both Pima County and agency administered efforts that directly provide various grant assistance to qualified low-income homeowners in South Tucson, Marana, Sahuarita, Oro Valley and unincorporated communities. The various granted funded services include: emergency home repair; energy efficient and weatherization upgrades; handicap and accessibility retrofits; housing rehabilitation; and, repair or replacement of major systems such as heating and cooling, roof, septic, electrical, gas and water. Owner-occupied conventional, manufactured, or mobile homes are eligible. Elderly; persons with disabilities; families with children; and, households with high energy burdens/uses are prioritized to receive funding. Pima County's in house program utilizes specialized County staff and procured job order contractors to execute coordinated home repair and weatherization scopes of work. Multiple funding sources are utilized to provide services to unincorporated Pima County residents. In addition to the County's managed program, HUD Community Development Block Grant (CDBG) funds are utilized to contract and fund complementing emergency home repair, housing rehabilitation, and elderly/handicap accessibility modification programs administered by local non-profits and sub-recipient government agencies including the Town of Marana and the City of South Tucson. Pima County and its local government and non-profit home repair and weatherization partners typically complete over 200 projects per year as reported in Pima County's Consolidated Annual Performance Evaluation Report (CAPER) to HUD.

Neighborhood Reinvestment

The Neighborhood Reinvestment Program promotes stability and revitalizes stressed communities through the funding of small capital improvement projects selected through a community consensus process. The program is bond-funded and revitalizes neighborhoods with small community-based capital improvement projects such as sidewalks, park improvements, and street lighting improvements.

In addition to providing organizing assistance to communities through its community-based project application process, Neighborhood Reinvestment Program staff are also leveraging their community contacts and organizing skills to assist communities at all different capacity levels. To date, 94 projects have been completed as detailed in the Neighborhood Reinvestment Annual Report.

Neighborhood Stabilization Program (NSP)

Congress created the Neighborhood Stabilization Program (NSP) to assist with the community problems that are the result of the mortgage foreclosure crisis. Pima County utilized NSP 1 and NSP2 resources to revitalizes targeted areas through economic development activities and housing market stabilization. NSP funds may be used for activities which include, but not limited to:

- Establish financing mechanisms for purchase and redevelopment of foreclosed homes and residential properties;
- Purchase and rehabilitate homes and residential properties abandoned or foreclosed;
- Establish land banks for foreclosed homes;
- Demolish blighted structures;
- Redevelop demolished or vacant properties.

Neighborhood Stabilization Program 1 (NSP1)

The Department of Housing and Urban Development (HUD) began the Neighborhood Stabilization Program (NSP1) to stabilize communities hardest hit by foreclosures, delinquencies, and the decline of housing values. NSP provides emergency assistance to state and local governments to acquire and redevelop foreclosed properties. Pima County received $3,086,867 in grant monies to purchase foreclosed or abandoned homes and to rehabilitate, resell, or redevelop these homes in order to stabilize neighborhoods and stem the decline of house values of neighboring homes. The program was authorized under Title III of the Housing and Economic Recovery Act of 2008.

NSP1 Project Highlights

- A total of 11 newly renovated homes transferred to the City's El Portal Program and are actively generating program income.
- Non-profit partners have successfully developed new housing in the City of South Tucson

- Ajo Plaza Redevelopment project (the redevelopment of 29,320 SF of vacant commercial space in the south building of the Ajo Plaza) is actively being revitalized by owner and developer, International Sonoran Desert Alliance (ISDA). Other County supported planning revitalization efforts for the Ajo Plaza include, Plan for the Revitalization of the Ajo (Arizona) Town Plaza, conducted with the Conway School, Graduate Program in Sustainable Landscape Planning and Design.

Neighborhood Stabilization Program 2 (NSP2)

The general stabilization goals of NSP2 are to expand opportunities for homeownership, halt declining home values, and improve neighborhood conditions. Pima County and eight sub-grantees worked together to apply for and implement the NSP2 Grant. The $22.1 million NSP2 grant is funded by the US Department of Housing and Urban Development (HUD) through the American Recovery and Reinvestment Act (ARRA). The grant is targeted to 30 census tracts covering neighborhoods in south and central Tucson, as well as the City of South Tucson and an unincorporated area of Pima County. In order to determine the effectiveness of NSP2 activities, Pima County contracted with University of Arizona, College of Architecture, Planning and Landscape Architecture (CAPLA), Drachman Institute to complete the following studies and area plans:

- Provide a record of existing conditions in sample neighborhoods from within the NSP2 target area (*NSP2,* Neighborhood Profile and Existing Conditions, *Volumes I and II*)
- Develop survey instruments and train County interviewers in data collection skills to obtain baseline data from individual residents in the selected neighborhoods and from families that have moved into homes with NSP2 assistance (*NSP2, Residential Data Collection Report, Volume III)*
- Provide a record of existing conditions in five commercial corridors in the NSP2 target area (*NSP2,* Commercial Corridors, Profiles of Existing Conditions, *Volume IV*).

Figure 1: NSP2 Target Area

Community and Rural Development

This program is primarily responsible for the administration of US Housing and Urban Development (HUD), Community Development Block Grant (CDBG) funds. In addition to planning and administration, typical activities include funding local programs and projects that promote development of: cultural, recreational and public (social) services; community facilities; capital infrastructure; health and fire safety; housing; and, economic development initiatives. Eligible activities must benefit low and moderate income individuals, households or communities within South Tucson, Marana, Sahuarita, Oro Valley, and unincorporated Pima County. Federally designated Pima County Community Development Target Areas; Colonia's; Neighborhood Revitalization Strategy Areas (NRSA's); and, other identified and highly stressed neighborhoods/communities are prioritized to receive CDBG funding. Approximately 40 CDBG programs and projects are recommended for funding per annum as approved by the Board of Supervisors and identified in the Pima County HUD Annual Action Plan to HUD. Pima County's required Fair Housing compliance efforts are also funded via CDBG.

Brownfields and Revitalization

In communities across the United States, both rural and urban, the legacy of the country's industrial past now lays dormant in areas where once vibrant industrial and commercial districts existed. A brownfields is a site that has actual or perceived contamination; nevertheless, these sites have potential for redevelopment and reuse. Previous uses such as gas stations, manufacturing sites or industrial facilities are now abandoned paved lots, derelict buildings, and home to rusting equipment.

These sites are often deemed a liability due to the "potential" of perceived contamination hindering their reuse and redevelopment; however, the utilization of available federal and state brownfields initiatives can provide local governments, private developers, non-profit agencies, financial institutions, insurance companies, and community activists the tools and resources necessary to successfully redevelop these denigrated areas.

The purpose of the Pima County Brownfields Program is to take advantage of available federal, state, and local resources to promote brownfields revitalization activities. This is accomplished by analyzing the distribution, quantity, and conditions of brownfields sites in Pima County. A fuller understanding of these potential brownfields sites will encourage the reuse of these abandoned, deteriorated, and underutilized properties into productive and viable land uses facilitating community and economic revitalization in targeted areas. The program fosters a broad economic and community development strategy for Pima County and is designed to complement existing and proposed revitalization initiatives. The Pima County Brownfields Program places emphasis on addressing brownfields sites as a mechanism to:

- Establish, implement and expand upon a successful Pima County Brownfields Program.
- Utilize and pursue available brownfields resources to facilitate and expand economic development opportunities specifically focusing in Pima County Community Development Target Areas and proposed Infill Incentive Districts.
- Engage, educate and foster active and interested communities within Pima County to partner and pursue available brownfields resources.
- Continue to work closely with other brownfields programs within Southern Arizona to develop a more regional approach to brownfields redevelopment.
- Incorporate CDBG funds to create commercial facade, demolition and clearance to complement brownfields efforts.

To date the Pima County Brownfields Program has completed 75 Phase I and Phase II Environmental site assessments in Pima County creating new businesses and development.

Homeless and Special Populations

Program is responsible for the consolidated administration of multiple grants that provide various housing and supportive services to the homeless and special populations. Federal grant and general funds are coordinated and managed to fund an estimated 31 agency programs per year. However, HUD Emergency Solutions (ESG), Supportive Housing Program (SHP), and Housing Opportunities for People with AIDS (HOPWA) grants are the primary funding sources. In addition to administrative duties, combined HUD funded eligible activities include, but not limited to: homeless prevention and rapid re-housing programs; homeless outreach; motel vouchers and emergency shelter; transitional and permanent supportive housing; operations and maintenance; tenant based rental assistance; support services; employment and training; and homeless management information system (HMIS).

In addition to HUD programs, the Homeless & Special Populations division also coordinates and manages Pima County's Federal Emergency Management Agency (FEMA) Emergency Food and Shelter Program.

Outside Agencies

The Pima County Outside Agency (OA) program provides funding to non-profit organizations which serve economically and socially disadvantaged populations through human service programs. The Pima County Board of Supervisors establishes funding for the OA program and an appointed Committee holds a public process to review requests and make recommendations to the Board. Specific Outside Agency program objectives include the following:

- Direct funds to programs & agencies that have demonstrated a beneficial community impact.
- Identify gaps and community assets to determine an effective systematic approach for allocating funding.
- Identify best practices implemented by agency programs and act as a resource for other agencies to obtain best practice models and information.
- Provide technical to agencies for program enhancement & board/staff development.

The Outside Agency Advisory Committee, with members appointed by the Board of Supervisors and the County Administrator, met throughout the year to review the progress programs have made and discuss issues that the agencies may have including the contractual process, the contractual requirements, the outcomes and outputs and the organizational capacity to deliver quality services.

Programs are organized into service categories and funded on a fiscal year basis. Service categories typically including: Community Support; Emergency Food and Clothing; Senior Support; Support Services, Shelter & Domestic Violence; Youth and Young Adults; and, General Services. The amount of funding for each service category is based upon the Committee's determination of community needs. Typically up to 80 local agencies are funded per two year funding cycle as detailed in Outside Agency Annual Impact Reports submitted fiscally to the County Administrator and Board of Supervisors.

Land Use Corridors

Certain existing and proposed major corridors in Pima County provide significant opportunities to focus commercial, research, industrial employment and other types of development where these uses are the most effective and mutually beneficial. Economic development corridors are defined in the Economic Development Chapter. Environmental corridors such as wildlife corridors and riparian corridors providing connectivity throughout the County are defined in the Open Space and Environmental sections of this Chapter.

3.3 Open Space

While the Open Space Element addresses only those lands that Pima County specifically owns in fee or possesses a perpetual property right for conservation purposes, this Background discussion is more expansive and reviews the full scope of the County's land conservation efforts, which include property rights that are more term limited like grazing leases. The County currently owns 98,286 acres of parklands and natural areas, and manages thousands of acres of grazing leases for conservation.

The reasons underlying the County's land conservation are diverse and reflect the broad scope of community priorities embedded in the Sonoran Desert Conservation Plan. Parklands and natural areas have been acquired to prevent the encroachment of land uses incompatible with maintaining the integrity and long-term viability of Davis-Monthan Air Force Base operations; to protect lands with important archaeological artifacts and cultural resources; to promote public safety and watershed health by removing floodprone lands from development; to enhance the public's opportunities for outdoor recreation; to preserve culturally important land uses and values; and to create a landscape that conserves lands with high ecological value and promotes biological connectivity.

Voter-approved County bonds in 1974, 1986, 1997, and 2004, have generated $230 million for the acquisition and expansion of parklands and natural areas. These bond dollars have, in many cases, allowed the County to leverage other funding sources, such as grants and federal funds, to effectively increase the amount of funds available. In addition to purchasing properties, donations from private property owners have contributed to the County's portfolio of parklands and natural areas. Since 2004, nearly 1,600 acres have been donated to the County including significant properties adjacent to Saguaro National Park and the Catalina Mountains which would have been very costly to acquire otherwise. These donated properties are noted in Table 3.3.a

The following are a few examples that illustrate how the County has capitalized on multiple funding sources and made strategic acquisitions to secure parklands and natural areas that respond to the community's needs and priorities:

- ***Davis-Monthan Air Force Base Urban Encroachment Prevention***. Pima County spent $10 million approved by voters in 2004 to purchase 461 acres in the vicinity of the base. Uses on these properties are limited to prevent future development and inappropriate uses and to deter large numbers of visitors. Compatible uses such as solar generating facilities are desirable.
- ***Coyote Mountains Archaeological Complex: Old Hayhook Ranch***. The acquisition of 839 acres was funded using bonds (approx. $1.4 million) plus a Recovery Land Acquisition Grant from the U.S. Fish and Wildlife Service. The property encompasses high value wildlife habitats and a complex of Hohokam villages which the Tohono O'odham consider ancestral sites; it is also adjacent to the Bureau of Land Management's Coyote Wilderness Reserve. The property is managed to preserve the exceptional natural and cultural resources as well as the biological connectivity with the Coyote Mountains.
- ***Canada del Oro (CDO) Floodprone Land Acquisition***. The Pima County Regional Flood Control District expended over $9 million from a variety of funding sources including bond funds, District tax levy, and a $3 million federal grant to acquire approximately 193 acres that were subject to repetitive flooding. Funds were also used to assist in the relocation of the home owners displaced by the 2003 flooding exacerbated by the Aspen Fire in the upper watershed earlier that year. The CDO is also a significant riparian area where biological diversity is similar to that found only at Cienega Creek. Impacts to the riparian corridor due to groundwater withdrawals from private wells in the area was alleviated with the acquisition as 23 active wells were retired. Stewardship of these lands emphasizes maintenance of the riparian environment and controlling unauthorized uses such as vandalism, trespass, wildcat dumping, and wood cutting.
- ***Marley Ranch Conservation Area***. Once completed the total acquisition will be 114,400 acres of fee lands, conservation easements, plus state and federal grazing leases. The first phase of acquisition occurred in 2009 and secured 6,337 acres of fee lands at a cost of just over $20 million funded by the 2004 bond. The balance (17,663 acres in fee, 1,700-acre conservation easement, 85,900 acres state grazing lease, and 2,800 acres BLM grazing permit) is expected to come as

future bonds are approved by the voters. This ranch is one of the largest working ranches remaining in Southern Arizona. Historically, it was a principal focal point for Native American and Spanish settlement. It is has had human occupation for the last 10,000 years and contains village sites and other evidence of the Hohokam as well as Historic period ranches such as the Batamote Ranch. Because the size and location of this Ranch Conservation Area allow for a physical connection between the Buenos Aires National Wildlife Refuge and other County open space acquisitions, native wildlife including far-ranging species like jaguar can move through and access the ecologically important mountain systems of Southern Arizona. The size and scope of these lands also supports numerous recreational opportunities including hiking, mountain biking, wildlife viewing, hunting, recreational rock hounding, nature photography, and primitive camping. Drainages within this Ranch Conservation Area also play an important role in aquifer recharge for Tucson and the Green Valley/Sahuarita area.

- ***Sweetwater Preserve***. 2004 bond funds were used to acquire this 880-acre property in order to protect a key segment of the Sweetwater Wash as well as high quality recreational opportunities for hikers, mountain bikers, and equestrians. The recreational opportunities and high value natural resources of this property had long-standing prominence in the area. Area residents' response to potential development of the property was decisive. Over 50 neighborhoods, environmental and community organizations publicly supported acquisition and, in an unprecedented move, 180 individuals contributed $30,000 to defray outstanding property taxes in order for the County to secure an option to buy this property. According to a recent national poll by Singletracks.com released in June 2014, Sweetwater Preserve was voted Number 4 in the list of the *20 Most Scenic Mountain Bike Trails in the Western US.*

In total, these acquisitions are a significant accomplishment. They are testament to this community's desire to be multi-faceted in how it chooses to address future development, fiscal responsibility, community health and safety, quality of life, and our heritage as residents of the Sonoran Desert. Our open space acquisitions have contributed to directing urban growth and expansion to those areas having greater infrastructure support, deterring traditional urban sprawl, and making urban infill more viable. Facilitating a more compact urban form is also fiscally more responsible by maximizing revenues from existing infrastructure and services and by limiting the increased operations and maintenance costs associated with the expansion of sewers, roads, law enforcement, and other services provided by the County. Additionally, protecting and conserving the long-term viability of natural and cultural assets is an important investment in one of the region's most important economic drivers, geo-tourism. Maintaining our rural communities and ranching economy, as well as protecting the ecosystems of the Sonoran Desert also enhances quality of life, creates life-style diversity, and improves environmental health for current and future generations.

One area of concern going forward is how those land use projects that are authorized by Federal approvals such as mining, electrical transmission corridor development, and natural gas pipeline construction will affect the long-term integrity of County parklands and natural areas. These types of

projects are subject to few, if any, of Pima County's regulatory authorities. This consequently leaves the County in a less than desirable position to control impacts on parklands and natural areas when federal authorizations approve such projects. Furthermore, these authorizations typically do not provide adequate consideration of or mitigation for the County's obligation for long-term management and maintenance of parklands and natural areas. Examining these location of known projects (some of which are listed below) that require federal authorization reveals that such projects are already creating significant footprints across County parklands and natural areas. This implies that impacts associated with the construction and long-term operation of these projects will continue to plague the County's ability to maintain and protect those resources for which parklands and natural areas were acquired.

Known Projects Requiring Federal Authorization that Cross Pima County Parklands and Natural Areas:

- SunZia Southwest Transmission Project
- Southline/Western Area Power Administration (WAPA) Transmission Line
- Sierrita Gas Pipeline Project
- Rosemont Mine

Conserving parklands and other natural areas is an important ingredient in the appeal and livability of any community and is an index of a community's identity. It is one of those attributes that gives a destination its personality and sense of place. Preserving parkland and other natural areas also attracts high-quality businesses and employers, increases property values, and draws residents who want to enjoy an enhanced quality of life. Open space can be an economic development driver creating corridors of opportunity that provide connectivity to urban and exurban areas and make our region healthier and more attractive to residents, visitors, and entrepreneurs and employers looking to relocate their industries.

Table 3.3.a: Pima County Parklands & Natural Area Acquisitions

Resource Conservation/ Preserve Areas	Acres
A7 Ranch	41,252.0
Rancho Seco	37,113.2
Diamond Bell Ranch	30,757.7
Tucson Mountain Park	19,706.4
Sopori Ranch	15,485.2
Six Bar Ranch	13,602.4
Bar V Ranch	13,494.3
M Diamond Ranch	10,201.6
Marley Ranch	6,348.0
Sands Ranch	5,033.5
FLAP (multiple sites)	4,900.9
Canoa Ranch	4,853.9
King 98 Ranch	4,330.2
Cienega Creek Natural Preserve	4,267.8
Tortolita Mountain Park	3,924.8
Buckelew Properties	3,035.2
Empirita Ranch	2,713.6
Colossal Cave Mountain Park	2,219.0
Cienega Corridor	1,686.9
Oracle Ridge	1,173.4
Buehman Canyon	1,050.3
Sweetwater Reserve	890.8
Clyne Ranch	880.2
Old Hayhook Ranch	838.5
Honey Bee Biological Corridor	676.3
Lords Ranch	638.7
Arthur Pack Regional Park	513.1
Walden	447.3
Brawley Wash/Manville-Garcia	395.8
36th Street Corridor	373.5
Madera Highlands	373.3
Agua Verde Creek	353.9
Ajo	350.7
Drainageway	292.5
Cochie Canyon	286.0
Tumamoc	277.0
Bingham Cienega Natural Preserve	267.9
Tanque Verde Creek	216.6
Los Morteros	210.0
Rancho Del Cielo	162.4
Bee	160.2
Andrada	158.0
Segurson Donation	150.8
Southeast Corridor	141.4
Arivaca Open Space	122.1
Lower Santa Cruz Replenishment	104.6
Rocking K	103.6
Starr Pass Resorts Easements	103.1
Roy Drachman Agua Caliente Regional Park	100.6
Trico	96.6
Elephant Head Sec.15 Mit. Lands (Kreutz)	79.2

Resource Conservation/ Preserve Areas	Acres
Tanque Verde & Houghton Partners LLC	77.7
Malcolmson Donation	73.8
Marana Cottonwoods	72.5
Terra Rancho Grande	72.1
Valencia Site	68.2
PCDOT Mitigation Land	67.8
Avra Valley I-10 Wildlife Corridor	66.2
Dos Picos	55.8
Cultural Resource Parcel	54.1
Southeast Regional Park	52.8
Canoa Ranch Phase II	52.5
Cortaro-Hartman	49.0
Elephant Head Sec.15 Mit. Lands (Easely)	43.8
Manzanita Park Extension	40.4
Park?	40.2
Esther And David Tang	40.1
Elephant Head Sec.15 Mit. Lands	39.9
Picture Rocks District Park	37.9
South Wilmot LLC	35.5
Robson Quail Creek Parcel	28.7
Agua Caliente Creek	24.4
Dakota Wash	23.0
Doucette	22.0
DOT Section 7	19.6
Habitat 36Th/Kino	19.4
Holden Donation	18.4
Reay Rezoning - CLS Off Site Mitigation	18.0
Bear Creek Ranch	17.8
Steam Pump Ranch	15.3
Continental Ranch Development, LLCc	15.2
Sneed Parcel	14.0
San Domingo Flood Prone Area	14.0
Honey Bee Village Preserve	13.0
Treehouse	12.5
Robles Ranch	11.2
Tucson Mountain Park Biological Corridor	9.9
Linda Vista/Patrick Property	9.3
Mission & 36th Subdivision	7.6
Reid Parcel	7.3
Coronado National Forest	5.4
Mission Gardens	4.5
Lazy C Ranch Estates	3.3
CDO Hazard Mitigation	2.5
Dunbar School	2.5
San Pedro Chapel	2.2
Ina Overlook	1.1
Ajo Train Depot	0.9
Wal-Mart Conservation Easement	0.9
West Branch Santa Cruz	0.5
Marley Purchase Options	97,573.9

Source: Pima County Infrastructure Plan, 2013

3.4 Environmental

The Maveen Marie Behan Conservation Lands System

The Maveen Marie Behan Conservation Lands System (CLS) was adopted as part of the Environmental Element of the Pima County Comprehensive Plan 2001 Update in December 2001 and was updated June 21, 2005. In 2009, it was renamed as the Maeveen Marie Behan Conservation Lands System to commemorate Dr. Behan's extra-ordinary contribution in bringing the CLS to fruition.

The CLS identifies and maps those areas where priority biological resources occur within Pima County. It also establishes policy guidelines for the conservation of these resources; guidelines are to be applied to certain types of land use changes that require approval by the Board of Supervisors. Other elements include definitions of seven priority biological resource categories, conservation guidelines, implementation strategies, and a map.

The Board has applied the CLS to well over 80 requests for land use changes since 2002. The Board and County Administrator's Office also negotiate with mining corporations and others not regulated by the County but doing business here to mitigate voluntarily for their project-related impacts to lands and resources within the CLS. A tribute to the soundness of the CLS is that the policy has been in place for 13 years with only one update to allow for the incorporation of new scientific information. The CLS was constructed according to the most current tenets of conservation biology and biological reserve design. The CLS:

- perpetuates the comprehensive conservation of vulnerable species;
- retains those areas that contain large populations of focal vulnerable species;
- provides for the adjacency and proximity of habitat blocks;
- preserves the contiguity of habitat at the landscape level; and
- retains the connectivity of reserves with functional corridors.

The collective application of these individual tenets produces a CLS that retains the diverse representation of physical and environmental conditions, preserves an intact functional ecosystem, minimizes the expansion of exotic or invasive species, maximizes the extent of roadless areas, and minimizes fragmentation. Implementation of the CLS not only conserves those biological resources that exist today but, because of its landscape focus, preserves the future ebb and flow of resources essential to a healthy functioning ecosystem. The seven CLS conservation land categories reflect relative values of biodiversity for various lands across the landscape.

Adherence to Conservation Lands System Guidelines will accomplish the following:

- Protect against the loss of conservation values and landscape integrity through in-place preservation and restoration or enhancement of degraded or otherwise compromised natural resources.
- Create development that retains conservation values at both the micro and macro landscape scale by minimizing impacts to site-specific sensitive conservation values, maximizing landscape continuity, facilitating the movement of native fauna and pollination of native flora across and through the landscape, promoting the long-term diversity of native flora and fauna, and preserving the viability of the CLS.

Based on the science of the SDCP with participation and oversight by the SDCP Science Technical Advisory Team (STAT), seven CLS conservation land categories (CLS categories) were created, defined, and mapped. Each category has an associated conservation guideline policy (conservation guidelines can be found in Chapter 3 – Land Use Policies). The seven categories are: (See Glossary for definitions).

Important Riparian Areas are critical elements of the Sonoran Desert where biological diversity is at its highest. These areas are valued for their higher water availability, vegetation density, and biological productivity. They are also the backbone to preserving landscape connectivity.

Biological Core Management Areas have high biological values. They support large populations of vulnerable species, connect large blocks of contiguous habitat and biological reserves, and support high value potential habitat for five or more priority vulnerable species.

Special Species Management Areas are crucial to the conservation of three species of special concern to Pima County: the cactus ferruginous pygmy-owl, Mexican spotted owl, and southwest willow flycatcher.

Multiple Use Management Areas support significant biological values, but these values do not attain the level associated with Biological Core Management Areas. They support populations of vulnerable species, connect large blocks of contiguous habitat and biological reserves, and support high value potential habitat for three or more priority vulnerable species.

Scientific Research Areas are lands within the Tucson Basin that are managed for scientific research: the Santa Rita Experimental Range and the University of Arizona's Desert Laboratory at Tumamoc Hill.

Agricultural In-Holdings within the CLS are areas where active, or abandoned, agriculture lands exist within the Conservation Lands System.

Critical Landscape Connections are six broadly-defined areas where biological connectivity is significantly compromised, but where opportunity to preserve or otherwise improve the movement of wildlife between major conservation areas and/or mountain ranges still persists. Roads, other infrastructure services, and residential and commercial land uses within these areas, depending on configuration, can

result in habitat loss and fragmentation that inhibits the movement of native fauna and interrupt the pollination processes of native flora. These six areas generally focus attention on maintaining connectivity with the Santa Cruz River in northwest Tucson and southern Pima County, between the Catalina and Tortolita Mountains, between the Tohono O'odham Nation and Tucson Mountains, along the Cienega Creek corridor, and through Avra Valley.

As the CLS created a new paradigm for development of privately-owned property in unincorporated Pima County, a great deal of initial effort was devoted to developing and implementing procedures and requirements that promote implementation of the CLS. Significant accomplishments include:

- Modification of Site Analysis inventory requirements for rezoning applications to better identify the presence of conservation values and identify areas most suitable for development;
- Modification of for comprehensive plan amendment submittal requirements to include information on conservation values;
- Modification of Biological Impact Report requirements for rezoning and conditional use permit applications to standardize information necessary to assess potential impacts to conservation resources and the integrity of the CLS;
- Standardized the review process for comprehensive plan amendment and rezoning applications to determine the application's conformance with CLS, consistency with existing or logical expansion of infrastructure, and long-term conservation of highly valued natural resources; and
- Promulgated a new zoning ordinance to allow for the transfer of development rights.

Climate and Emerging Environmental Issues

Climate

Changes in the climate will continue to negatively affect the environment. The Assessment of Climate Change in the Southwest United States observes that the regional climate is already becoming warmer, with severe droughts becoming more common. This trend is expected to continue, and may be coupled with greater precipitation extremes in winter, decreased summer precipitation, and more intense flooding.

As a result of climate change, the western electric grid becomes vulnerable as demands for energy increase. The reliability of transportation systems is expected to decrease; water supplies will become increasingly stressed; the local economy may suffer as a result of decreased tourism and recreational opportunities; and the health of vulnerable populations will likely suffer.[2] Wildfires are projected to increase. Both natural and managed ecosystems in the southwest look to be affected by climate

[2] EPA (2013). *Southwest Impacts & Adaptation*, http://www.epa.gov/climatechange/impacts-adaptation/southwest.html

change[3]. The extent to which communities are negatively impacted by climate change will depend heavily on their adaptive capacity and proactive actions taken to prepare for its impacts.

Greenhouse gases are gases that trap heat in the atmosphere. Greenhouse gases include carbon dioxide (CO_2) which is produced through the burning of fossil fuels, solid waste, trees and wood products and through certain chemical reactions; methane (CH_4) which is released during the production and transport of coal, natural gas and oil, as well as from livestock and other agricultural practices and from landfills through the decay of organic waste; nitrous oxide (N_2O) which is produced through agricultural and industrial activities including fossil fuels and solid waste; and, fluorinated gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) which are synthetic and are emitted from a variety of industrial processes. Fluorinated gases are powerful greenhouse gases. Carbon dioxide is removed from the air when it's absorbed by plants (called sequestration). The effect of each type of gas on climate change depends on how much gas is in the atmosphere, how long they remain in the atmosphere, and how strongly the type of gas impacts global temperatures.[4] Addressing climate change throught the reduction of greenhouse gasses can occur on a local scale. Reducing vehicle miles traveled (VMT) is a key strategy which can be done by making other modes of travel such as walking and biking viable. Greenhouse gases can be reduced by investing in electric, hybrid, natural gas transportation methods.

Pima County has taken a number of steps to plan for and mitigate the negative effects of climate change and increase the resilience of the human and natural dimensions of the environment to climate-induced changes including:

- Increasing the production of renewable energy to replace fossil fuels. [5]
- The development and adoption of plans and strategies to improve water quality and insure the availability of an adequate water supply[6][7][8][9][10]
- The development of drought response preparedness plans[11]
- Efforts to reduce vehicle travel and increase the use of alternative modes of transportation[12]
- Increasing energy efficiency standards in both County owned and privately owned buildings[13][14]
- Reducing the risk of negative effects on public health resulting from climate change impacts[15][16]

[3] Regional Climate Impacts: Southwest, Global Change Research Program
[4] Climate Change – Overview of Greenhouse Gases, US Environmental Protection Agency
[5] Pima County Sustainability Resolution: Resolution No. 2007-84, Renewable Energy Requirements
[6] 2011-2015 Action Plan for Water Sustainability, Water Supply: pg. 20
[7] 2007 RWRD, Regional Optimization Master Plan
[8] Drought Response Plan and Water Wasting Code of Ordinances: Chapter 8.70
[9] Pima County Local Drought Impact Group
[10] 2007 BOS Sustainability Resolution Requirements, Reduction requirements for water consumption by county operations
[11] Drought Response Plan and Water Wasting Code of Ordinances: Chapter 8.70
[12] Travel Reduction Ordinance: Chapter 17.40
[13] 2007 BOS Sustainability Resolution Requirements: LEED Silver Building Standard for County facilities
[14] International Energy Conservation Code: Ordinance 2012-34

- Improving stormwater management strategies to minimize runoff and flooding in urban areas[17][18]
- Adoption of diverse strategies to reduce loss of life and property from flooding and erosion;
- Acquisition and long-term retention of natural open space. In their natural, vegetated state, grassland and riparian area can absorb excess carbon from the atmosphere relative to developed areas and can mitigate some of the urban heat island effect;
- Acquisition priorities for habitat protection are geographically diverse and biased toward acquisition of riparian habitat to preserve watershed and ecological function;
- Diversity in latitude and elevation of land acquisitions that expand existing reserves or assist in retaining ecosystem connectivity;
- Identification and protection for areas that have served as ecological refuge for species during time of past climatic variability (riparian areas, talus, limestone);
- Sponsorship of Natural Resources Conservation Services (NRCS) drought assistance to achieve temporary reductions in stocking rates on ranches not owned or managed by Pima County;
- Modifications of stock-watering systems to provide safer and more lasting access to water for wildlife; and
- Buffelgrass management in County preserves and along County roadways to reduce the threat of wildfire and loss of native species.

Emerging Environmental Issues

Buffelgrass and Other Invasive Species

Currently Pima County is involved in various programs to eradicate invasive species such as buffelgrass, fountain grass, and giant reed along with many, others from our natural slopes, washes, preserves, and urban areas. Buffelgrass, in particular, is an aggressive species and a significant fire threat. The grass spreads fast and burns hot, endangering native species. The non-profit organization, Southern Arizona Buffelgrass Coordination Center, http://www.buffelgrass.org is very active in leading the "Beat Back Buffelgrass" campaign. Many volunteer groups go out into the natural and urban areas to eradicate invasive species. It is a regionally important concern to the preservation and conservation of the unique flora and fauna of the Sonoran Desert.

Wildfire

There are years when drought in Tucson causes high fire danger risks. Climate change and invasive species such as Buffelgrass are adding to the wildfire threat. Fire can change the natural composition of

[15] Pima County Community Wildfire Protection Plan
[16] Runoff Detention Systems: Ordinance 16.48
[17] Runoff Detention Systems: Ordinance 16.48
[18] Low Impact Development

the desert from the diversified, green, Sonoran Desert to grasslands. Wildfires are a major threat to the Sonoran Desert and especially the native saguaros as well as outlying residential areas. The Pima County Community Wildfire Protection Plan 2013 is a local planning effort to integrate state and federal level fire planning, identify high risk lands, improve fire prevention and suppression activities, enhance firefighter safety, identify funding needs and opportunities, and improve public education and outreach.

Air Quality

Another issue facing Pima County is the potential to exceed air quality standards for ozone. Ozone is a colorless form of oxygen (O3) that occurs both naturally in the Earth's upper atmosphere and at ground-level primarily as a result of human activities. Ground-level ozone is formed when two types of pollutants react in the presence of sunlight and heat and is often called smog. These pollutants are known as volatile organic compounds and oxides of nitrogen. They are found in emissions from fuel combustion sources such as motor vehicles. Pima County is currently meeting the ozone standard set by the US Environmental Protection Agency, but the standard may be revised to between 0.06 and 0.07 parts per million. If this happens, Pima County is likely to be designated as a non-attainment area, which can require costly control measures and affect federal funding for transportation projects. Even if the standard is not made more stringent for the protection of human health, future choices for transportation and industry Pima County needs to be aware of potential problematic levels of ozone.

Water Quality

“Emerging contaminants” are present in a growing number of water sources that are used for human and animal consumption. These contaminants include certain pharmaceutical compounds (hormones), cosmetic, and personal care products that are released into the nation’s watercourses and aquifers primarily through urban runoff, municipal sewage, and industrial discharges. Pima County’s ongoing improvements to the wastewater treatment systems are the single most effective step that can be taken here at the local level to minimize the impact of emerging contaminants on public health and the environment. However, new compounds will continue to be created in the future and may change with time. Public education, additional research, monitoring, and support of new programs by the Pima County Board of Supervisors will be needed.

3.5 Housing and Community Design

Housing Affordability

Housing affordability represents not just the cost of rent or mortgage. Affordability is the cost or benefit of living in a community that's accessible to good jobs, quality schools and healthcare; that's safe, adequately served by local utility companies, public infrastructure; that's furnished with grocery stores, and many other factors that meet the current and future needs of any household. As stated in the County's Five Year HUD Consolidated Plan, "effective local housing policies and priorities reflect the needs and desires of households and families."[19]

The average household size in Pima County is 2.54 people and ranges from a low of 2.41 in Oro Valley, primarily a retirement-oriented community, to a high of 3.06 in South Tucson, a primarily family-oriented community.[20] Sixty percent of households include only one or two people; younger families reside in the urban communities of Tucson and South Tucson, while older families reside in suburban and rural communities, and more than half the workforce is employed in five primary industries including healthcare/social assistance, retail trade, educational services, public administration and accommodation/food service. Wages remain low despite a growing economy with the average Tucson resident earning 88% of what the average U.S. worker earns.[21]

The following tables include average housing costs, gross rent as a percentage of household income, year structure built, and average household income per sub region and provide an assessment of housing affordability based on national affordability standards from HUD.

[19] City of Tucson and Pima County Consortium 2010-2015 HUD Consolidated Plan, Pg. 14, ("ConPlan"), http://cms3.tucsonaz.gov/files/hcd/Tucson%20Pima%20County%202010-2014%20Consolidated%20Plan.pdf

[20] Ibid

[21] The American Dream Lost: Foreclosures in Pima County, Arizona, Southwest Fair Housing Council ("Dream Lost"), prepared by Richards Rhey and Ari Posner, September 20, 2004, Pg.13, http://www.docstoc.com/docs/38383492/The-American-Dream-Lost-Foreclosures-In-Pima-County-Arizona

TABLE 3.5.a: Housing Affordability 1990

Place/ Planning Area	Average Household Income
Arizona	$27,540
Pima County	$25,401
Planning Areas	
Avra Valley	$28,146
Tucson Mountains	$34,876
Southwest	$28,839
Altar Valley	$28,302
Upper Santa Cruz	$37,351
Mountain View	$32,458
Southeast	$22,856
Central	$25,655
Catalina Foothills	$46,955
Rincon Valley	$41,715
Tortolita	$41,285
San Pedro	$46,010
Ajo/Why	$18,531
Tohono O'Odham	$12,614

Source: US Bureau of the Census, 1990

TABLE 3.5.b: Housing Affordability 2000

Place/ Planning Area	Average Household Income
Arizona	$40,558
Pima County	$36,758
Planning Areas	
Avra Valley	$47,096
Tucson Mountains	$53,885
Southwest	$41,567
Altar Valley	$40,164
Upper Santa Cruz	$52,387
Mountain View	$53,704
Southeast	$35,028
Central	$36,800
Catalina Foothills	$66,306
Rincon Valley	$62,482
Tortolita	$63,409
San Pedro	$79,594
Ajo/Why	$32,459

Source: US Bureau of the Census, 2000

TABLE 3.5.c: Housing Affordability 2010

Place/ Planning Area	Average Household Income
Arizona	$50,448
Pima County	$45,521
Planning Areas	
Avra Valley	$60,485
Tucson Mountains	$68,841
Southwest	$52,253
Altar Valley	$51,834
Upper Santa Cruz	$63,665
Mountain View	$55,236
Southeast	$49,550
Central	$46,100
Catalina Foothills	$78,669
Rincon Valley	$99,897
Tortolita	$78,035
San Pedro	$94,050
Ajo/Why	$38,608

Source: US Bureau of the Census, 2010

The Foreclosure Crisis in Pima County

Foreclosures have affected all income levels and areas in Pima County. Since 2008, there have been 55,531 Notice of Sales (NOS), and 32,169 Trustee Deeds filed. Trustee Deeds indicate households went all the way through foreclosure, short sale, or deed in lieu. Recovery continues to be a major priority for affordable housing, as studies show Low-Moderate Income (LMI) households are the most affected. Although housing values have increased and homes are gaining equity, housing values in the LMI areas are slower to recover.

A 2005 study (The American Dream Lost: Predatory Lending and Foreclosures in Pima County) conducted by the Southern Arizona Fair Housing Council identified a trend in predatory and sub-prime lending targeting LMI and minority neighborhoods.[22] These same neighborhoods were hardest hit with foreclosures in 2008-2013. Another report titled "Wasted Wealth" (How the Wall Street Crash Continues to Stall Economic Recovery and Deepen Racial Inequity in America May, 2013) examines the ongoing impacts of the foreclosure crisis on the country and in particular on people of color.[23] It found that

[22] Wasted Wealth, How the Wall Street Crash Continues to Stall Economic Recovery and Deepen Racial Inequity in America, by Benn Henry, Jill Reese and Angel Torres, Alliance for a Just Society, May, 2013) Pg. 1, http://allianceforajustsociety.org/wpcontent/uploads/2013/05/Wasted.Wealth_NATIONAL.pdf

[23] Wasted Wealth, How the Wall Street Crash Continues to Stall Economic Recovery and Deepen Racial Inequity in America, by Benn Henry, Jill Reese and Angel Torres, Alliance for a Just Society, May, 2013), Pg. 7, http://allianceforajustsociety.org/wpcontent/uploads/2013/05/Wasted.Wealth_NATIONAL.pdf

wealth was lost across the board from the Recession, but significantly more so for people of color. One reason was directly linked to the foreclosure crisis. The Federal Reserve reported in March of 2013 that "Families of color hold significantly higher percentages of wealth in home equity, with 52% of total assets for Latino families and 49% for Black families, compared to just 28% for White families".[24] While households who directly experienced foreclosure lost all their equity, the entire LMI community has seen their equity wealth lost due to decline in property values of foreclosed homes.

In a report published by the Federal Reserve Bank of San Francisco – District 12 (including Arizona), the demand for rental housing has increased during the foreclosure 'crisis'. The fastest growing part of the rental market is the share of single-family units – an increase of 7.6% between 2007 and 2012 (Choi*, pg 5). Related to this increased inventory is the rise in absentee ownership which "raises important community development questions and issues around neighborhood stabilization, rental costs, property maintenance, and lost asset building opportunities for potential first-time homeubyers." (Choi*, pg. 2) The only bright side to this trend is the impact on rents particularly for LMI households. Rents have decreased somewhat in Pima County during the period of 2007 to 2012 from 45.0% to 44.5%, respectively (Choi*, pg. 7).

**Community Development Research Brief: The Rise of Single Family Rentals in Arizona, California and Nevada, Federal Reserve Bank of San Francisco, Laura Choi, Community Development Department, September 2014.*

Affordable housing through homeownership and safe decent affordable rental units continue to be a priority. The Housing Program of the Community Development and Neighborhood Conservation department offers a comprehensive one-stop housing center where Pima County residents can find resources, information, and direct services for housing. As an example, The Pima County Housing Center offers the public classes on financial education that include credit repair and debt management through a small grant received from Freddie Mac to help residents recover from foreclosure. Though the market has reduced the cost of housing, low wages, tighter credit restrictions and increased down payment requirements make it difficult for LMI residents to buy a home. In the past, federal funding provided the gap needed for homebuyers to purchase their first home. With federal funds shrinking by 48% over the past 3 years, it makes it more difficult for affordable housing developers who used these funds to reduce the price of housing for LMI households.

From 2000 to 2008 single family housing stock nearly doubled and 98% was single family.[25] Renters and lower income households often choose multi-family or manufactured housing which accounts for 65% of unincorporated, rural Pima County housing stock. Housing stock that is 30 years or older

[24] City of Tucson and Pima County Consortium 2010-2015 HUD Consolidated Plan, ("ConPlan"), Pgs. 15 & 16, http://cms3.tucsonaz.gov/files/hcd/Tucson%20Pima%20County%202010-2014%20Consolidated%20Plan.pdf
[25] Ibid, Pg. 21

represents 45% of Pima County stock and over 75% of that in South Tucson. The need for rehabilitation, replacement, historic preservation and energy-efficiency improvements is great.[26] Ownership increases with household income. While 79% of middle and high income households are owners, the rate declines to 54% for low and moderate income households, 46% for very low income households, and 35% for extremely low income households.[27]

Government programs define cost burden as paying more than 30% of gross household income for total housing cost (rent or mortgage and utilities). For lower-income households, the burden is magnified by having less income to afford essentials such as clothing, food, transportation and childcare.

While 11% of owners and 26% of renters have some housing problem, the percentages are much greater among minority populations. Sixteen percent of Black or African American owners and 15% of Hispanic owners have greater housing problems and among renters, 31% of Black or African Americans and 29% of Hispanics have serious housing problems.[28]

Household Characteristics

Household Characteristics 1990, 2000, and 2010

The following tables show total population, total housing units, average household size, total occupied units, renter occupied and owner occupied, vacant units and housing for seasonal, recreation or other use for 1990, 2000 and 2010 by planning area. Planning Area 14 is included for statistical purposes only. Pima County has no jurisdiction over the Tohono O'odham Nation.

[26] Ibid, Pg. 22
[27] Ibid, Pg. 23

[28] City of Tucson and Pima County Consortium 2010-2015 HUD Consolidated Plan, ("ConPlan"), Pg. 24, http://cms3.tucsonaz.gov/files/hcd/Tucson%20Pima%20County%202010-2014%20Consolidated%20Plan.pdf

TABLE 3.5.d: Household Characteristics 1990

Place/Planning Area	Total Population	Total Households	Total Housing Units	Average Household Size	Occupied Housing Units	Owner Occupied Households	Renter Occupied Households	Vacant Units
Arizona	3,665,228	1,437,551	1,368,843	2.62	1,368,843	878,561	490,282	290, 587
Pima County	666,880	298,207	261,792	2.49	261,792	159,467	102,325	36,415
Planning Areas								
1) Avra Valley	9,890	3,913	3,458	2.86	3,458	2,883	575	455
2) Tucson Mountains	30,724	11,960	10,879	2.68	10,879	7,381	3,498	1,081
3) Southwest	51,324	20,967	17,990	2.85	17,990	13,842	4,148	2,977
4) Altar Valley	3,759	1,743	1,418	2.65	1,418	1,199	219	325
5) Upper Santa Cruz	17,547	11,654	8,858	1.96	8,858	7,656	1,202	2,796
6) Mountain View	678	320	260	2.55	260	214	46	60
7) Southeast	72,361	25,458	21,966	3.16	21,966	14,123	7,843	3,492
8) Central	279,082	132,053	117,639	2.29	117,639	56,325	61,314	14,414
9) Catalina Foothills	140,837	65,685	58,021	2.41	58,021	39,377	18,644	7,664
10) Rincon Valley	1,549	640	560	2.75	560	463	97	80
11) Tortolita	47,906	19,439	17,328	2.76	17,328	13,545	3,783	2,111
12) San Pedro	54	65	18	3.00	18	2	16	47
13) Ajo/Why	3,401	2,056	1,445	2.35	1,445	1,064	381	611
14) Tohono O'odham	7,768	2,254	1,952	3.98	1,952	1,393	559	302

Source: US Bureau of the Census, 2000 Population Counts Agregates by Place and Planning Area

TABLE 3.5.e: Household Characteristics 2000

Place/Planning Area	Total Population	Total Households	Total Housing Units	Average Household Size	Occupied Housing Units	Owner Occupied Households	Renter Occupied Households	Vacant Units
Arizona	5,130,632	1,901,327	2,189,189	2.64	1,901,327	1,293,556	607,771	287,862
Pima County	843,746	332,350	36,6737	2.47	332350	213603	118,747	34,387
Planning Areas								
1) Avra Valley	16,922	5,783	6,318	2.85	5,784	4,895	889	534
2) Tucson Mountains	46,211	16,955	18,466	2.61	16,955	12,506	4,449	1,511
3) Southwest	69,186	23,451	26,238	2.94	23,451	18,094	5,357	2,787
4) Altar Valley	6,923	2,495	2,924	2.77	2,495	2,101	394	429
5) Upper Santa Cruz	24,586	12,544	16,031	1.94	12,544	10,947	1,597	3,487
6) Mountain View	1,152	456	523	2.50	455	407	48	68
7) Southeast	92,940	27,293	30,187	3.21	27,293	17,887	9,406	2,894
8) Central	309,344	130,150	141,506	2.29	130,150	64,062	66,088	11,356
9) Catalina Foothills	171,595	73,555	80,147	2.31	73,554	50,792	22,762	6,593
10) Rincon Valley	3,808	1,334	1,431	2.85	1,333	1,221	112	98
11) Tortolita	89,597	34,539	37,794	2.58	34,539	27,956	6,583	3,255
12) San Pedro	126	55	106	2.29	56	40	16	50
13) Ajo/Why	3,903	1,754	2,621	2.22	1,754	1,359	395	867
14) Tohono O'odham	7,453	1,986	2,445	3.73	1,987	1,336	651	458

Source: US Bureau of the Census, 2000 Population Counts Agregates by Place and Planning Area

TABLE 3.5.f: Household Characteristics 2010

Place/Planning Area	Total Population	Total Households	Total Housing Units	Average Household Size	Occupied Housing Units	Owner Occupied Households	Renter Occupied Households	Vacant Units
Arizona	6,392,017	2,380,990	2,844,526	2.68	2,380,990	1,571,687	809,303	463,536
Pima County	980,263	388,660	440,909	2.46	388,660	248,970	139,690	52,249
Planning Areas								
1) Avra Valley	22,853	8,193	9,327	2.73	8,194	6,712	1,482	1,133
2) Tucson Mountains	63,422	24,164	26,283	2.53	24,164	16,867	7,297	2,119
3) Southwest	89,341	29,813	34,021	2.99	29,813	22,230	7,583	4,208
4) Altar Valley	7,062	2,714	3,446	2.60	2,714	2,253	461	732
5) Upper Santa Cruz	49,822	22,918	29,279	2.17	22,919	19,406	3,513	6,360
6) Mountain View	1,334	547	630	2.42	547	456	91	83
7) Southeast	116,512	34,847	39,246	3.17	34,846	22,969	11,877	4,400
8) Central	321,216	133,717	150,614	2.31	133,717	63,633	70,084	16,897
9) Catalina Foothills	176,907	79,360	88,481	2.21	79,360	54,078	25,282	9,121
10) Rincon Valley	12,861	4,521	4,970	2.84	4,521	3,969	552	449
11) Tortolita	108,154	44,272	49,560	2.44	44,271	33,776	10,495	5,289
12) San Pedro	103	43	85	2.40	43	30	13	42
13) Ajo/Why	3,524	1,630	2,389	2.15	1,630	1,135	495	759
14) Tohono O'odham Nation	7,152	1,921	2,578	3.60	1,921	1,456	465	657

Source: US Bureau of the Census, 2010 Population Counts Agregates by Place and Planning Area

Housing and Community Design

In 2012, Imagine Greater Tucson engaged the community in a discussion regarding community design and growth pattern scenarios. The Preferred Future Scenario depicts a region that is more compact, efficient, walkable, bikeable, greener and transit-oriented than it would be if we were to continue with a business-as-usal approach to growth. This future emphasizes creating areas with increased density and greater mix of land uses. The building blocks include centers, neighborhoods, transportation corridors, and employment areas. Large regional centers (Downtown Tucson or Marana and Oro Valley) will anchor the region with employment, higher density housing, shopping, and institutional uses. Town Centers will anchor transit corridors, walkable commerce areas and feature low to midrise buildings. Neighborhood centers will honor the adjacent residential neighbors with scaled form and use.

Compact and Mixed Use Development

Compact development means that buildings, parking areas, streets, driveways, and public spaces are developed in ways that shorten trips, and lessen dependence on the automobile, thereby reducing levels of land consumption, energy use, and air pollution. Compact development promotes full utilization of urban services, such as water lines, sewers, streets, and emergency services, by taking advantage of existing public facilities and minimizing the need for new facilities.

Mixed-use development is appropriate in neighborhood-oriented centers, regional activity centers, high transit corridors, transit nodes, some community commercial centers, redevelopment and areas adjacent to urban areas. Locating stores, offices, residences, public services, and recreation spaces within walking distance of each other in these locations promotes:

- Healthy activities such as walking and biking;
- Independence of movement, especially for the young and the elderly who can conveniently walk, cycle, or ride transit;
- Safety through around-the-clock presence of people;
- Reduction in auto use, especially for shorter trips;
- Support for those who work at home, through nearby services and amenities; and
- A variety of housing choices, so that the young and old, singles and families, and those of varying economic ability may find places to live.

Examples of appropriate mixed-use include a corner store in a residential area, an apartment near or over a shop, and a lunch counter in an industrial zone. For increased compatibility with surrounding areas, mixed-use development can be horizontal or vertical. Horizontal forms consist of one story development combining commercial at appropriate locations while vertical mixed-use provides retail or services at ground level defining the public realm and feature office and residential on subsequent floors. Auto- or truck-dependent uses, such as heavy industrial, distribution, automobile sales lots, and

some drive-up or drive-through facilities should not be located in centers, nodes, or other compact, mixed-use areas because of their negative impact on nearby residences and the pedestrian environment.

Commercial and mixed-use design standards, in tandem with mixed-use zoning, overcomes incompatibility. Additionally, limitations on commercial functions, such as hours of operation and delivery truck access, may be necessary. More fundamentally, to gain the full benefits of a mix of uses, buildings must have convenient access to a connected system of streets and paths. Otherwise, people will still be encouraged or required to use cars, even for the shortest trips.

In Pima County, community centers are becoming multi-use places providing a variety of services. It is anticipated that this trend will continue, taking advantage of horizontal and vertical mixed-use land patterns allowing for the provision of a variety of services in community centers. Pima County has commercial and mixed use design standards for certain types of development but lacks urban design expertise to fully promote this type of development. It also has landscape design manuals that need updating to provide the best practices in creating walkable areas.

Green Building Materials

Green building seeks to reduce energy use, water use, material use and create a healthier indoor environment. The principles of affordability and green building coincide since the subsequent reduction in operating costs makes a building more affordable. Green building seeks to promote efficiencies and sustainability in six areas: location and linkages, site development, water use, energy use, material resources and indoor air quality.

All but one of the national builders as well as several local builders in the Pima County market builds to the Energy Star for Homes standard. There is no current estimate of market penetration for energy star homes, however, in the past research by the Tucson Electric Power Company (TEP) has indicated a participation rate as high as 60%. Certified green homes that achieve…Five homes were certified…in the nationally based U.S. Green Building Councils Leadership in Energy and Environmental Design (LEED) for Homes program. With the exception of energy efficiency in homes, Green Building has seen limited uptake in the private sector.

Current status of green building by category:

- **Location and linkages:** Seeks to reduce automobile dependence, achieve housing and jobs proximity, compact development and diversity of uses. Based on a study by the Center for Neighborhood Technology, when considering transportation costs, the number of affordable

homes in the greater Tucson area is reduced from 73% to 21%.[29] Historic land use patterns and current development do not achieve most green building measures in this area.

- **Site development:** Seeks to decrease the heat island effect and reduce water run-off.
- **Water use:** Seeks to reduce irrigation water use and indoor water use. Xeriscape and drip irrigation is one of the exceptions to local aceptance of green building principles. In 2007 Pima County adopted a requirement for waterless urinals in all new construction, which continues to receive resistance and has not been adopted by other jurisdictions in Pima County. There is also a general reluctance with projects seeking green building certification to use ultra-low flow water fixtures.
- **Energy use:** As noted above, Energy Star for Homes is a relatively positive element of sustainability. One of the largest single sources of energy savings is to "right-size" air conditioners in both new construction and replacements however, the industry remains reluctant to meet code requirements dating from 2004.
- **Material resources:** Local material for building is limited to adobe and concrete. Pima County was instrumental in developing and later adopting a building code to facilitate adobe construction however, adobe remains a specialty material. Concrete block is used in some commercial projects but very seldom in residential work. Principles that reduce the quantity of lumber used in frame construction are rarely used.
- **Indoor air quality:** Seeks to reduce indoor air pollution by use of materials that have reduced volatile organic compound (VOC) emissions. Low VOC materials have become common place in the market since the creation of green building rating systems brought the issue to the forefront, however, use of these materials in mainstream building is very limited.

Many of the green building measures noted above have a slight initial cost increase. Even though there is demonstrated overall positive return on investment for green building,[30] the building industry acceptance of green building is low. This is due to the split incentive: the benefits of the energy efficient, water efficient, healthier building do not accrue to the developer.[31] The Energy Efficient Mortgage was designed to help offset the split incentive but has very limited if any use in Pima County.[32] Energy Efficient Mortgage program (EEM) is a Federal Housing Administration (FHA) program that helps homebuyers or homeowners save money on utility bills by enabling them to finance the cost of adding energy efficiency features to new or existing housing as part of their FHA insured home purchase or refinancing mortgage.

[29] See for example the Seattle area: http://greenworksrealty.com/e-cert_report/Jan-2012-ECert-Graphic.pdf
[30] Center for Neighborhood Technology Affordability Index accessed 9/3/2013 http://htaindex.cnt.org/map/
[31] See for example: http://www.usgbc.org/Docs/Archive/General/Docs1992.pdf and http://www.lexology.com/library/detail.aspx?g=6d193295-389d-48b8-881e-f393aa9a5d74
[32] Personal communication with Eric Painter, Nova Home Loans; Jan Anderson, Long Realty and others

Housing Rehabilitation and Redevelopment

While assisting first-time homebuyers to enter the homeownership market is one important community sustainability strategy, assisting existing homeowners to maintain their housing is equally important. Cost burdened owners are often challenged to maintain their properties and deferred maintenance may lead to deterioration of major housing systems, neighborhoods, and communities.

Existing homeowners may experience cost burden (paying more than 30% of household income for housing) or severe cost burden (paying more than 50% of household income for housing). While owners at all income levels experience cost burden, it is more prevalent among lower-income owners. Sixty-nine percent of extremely low income owners are either cost burdened or severely cost burdened. Fifty-seven percent of very low income, 39% of low and moderate income, 37% of middle income, and 13% of higher income households are also cost burdened.[33]

Housing affordability extends beyond the relationship of housing costs to income. Just as transportation costs impact housing affordability based on location, utilities directly impact housing affordability. The standard measure for affordable rental housing and monthly rent subsidies includes an allowance for utilities derived from average utility costs by unit size. Low and moderate income households and large families occupying older structures are especially impacted by high utility costs. Improving housing affordability and reducing operating costs through improved energy efficiency and sustainable design is an important strategy.[34]

Housing Condition

The more poorly a structure is built, the more costly it is to operate in the long run. The overall goal of energy efficient and sustainable building practices is to provide for long-term affordability and sustainability. Some of the objectives are to recognize transit and transportation accessibility, improve indoor air quality, and positively impact the health and well-being of residents. Energy efficiency has many household and community benefits. The movement is towards long-term cost savings, decreased emissions, increased health, and ultimately increased productivity. Incorporating appropriate materials and techniques into public and nonprofit facilities can also reduce organizational operating expenses, providing for lower overhead and increasing opportunities to serve the community.[35]

[33] City of Tucson and Pima County Consortium 2010-2015 HUD Consolidated Plan, ("ConPlan"), Pg. 31, http://cms3.tucsonaz.gov/files/hcd/Tucson%20Pima%20County%202010-2014%20Consolidated%20Plan.pdf
[34] Ibid, Pg. 24
[35] Ibid, Pg. 24

Age of Housing

Older housing units may be less energy efficient, resulting in higher utility costs for occupants. In addition, some materials such as lead paint (in units built prior to 1978) and asbestos may represent health hazards to occupants. The age of the housing stock is one indicator of housing quality. While many older housing units have been well-maintained and lovingly restored, other older housing units may have been built to outdated building codes using materials and construction techniques that are no longer considered safe or sustainable. Older units are the most likely to require rehabilitation or replacement, historic preservation, and energy-efficiency improvements.

Almost half (45% or 199,606 units) of the housing stock in Pima County is 30 years old or older. The majority of older units are located in Tucson, where 49% of the stock is more than 30 years old, and in South Tucson where 75% of the stock is more than 30 years old. One third of older housing stock was built prior to 1960 when local building codes were not yet adopted or enforced in many areas. Much of the oldest housing stock is in Tucson and South Tucson:

- In Tucson, 53,666 units or 23% of the stock was built before 1960 and another 83,345 or 36% of the housing stock was built between 1960 and 1980.
- In South Tucson 1,002 units or 47% of the stock was built before 1960, and another 807 or 38% of the housing stock was built between 1960 and 1980.[36]

Material and Labor Costs

One argument against energy efficiency improvements and sustainable building has been that material and labor costs are high. However as demand has increased, costs have decreased putting many improvements within the reach of households and builders alike. In fact, many energy efficiency improvements have zero or very low cost. According to Pima County Community Development staff, LEED silver certification costs approximately 2% more than standard construction and can result in significantly lower utility bills and community impacts.

Both the University of Arizona Drachman Institute and the Arizona State University Stardust Center for Homes and the Family have been working towards building models of energy conservation and sustainable design. The Drachman Institute has developed design guidelines and model units that are readily available to nonprofit builders.

[36] Ibid, Pg. 22

The Stardust Center has developed standards (AZ5 ReGreen) that provide energy efficiency retrofit guidelines. Both the AZ5 ReGreen and LEED guidelines provide a menu of techniques and materials that range from zero -cost to high-cost, making it possible for those who are not well-versed in all of the techniques and materials to choose the most efficient and sustainable improvements and building techniques.

Local government has also played an important role in energy efficiency and sustainable building. Pima County is the only recognized local government to provide LEED certification. This certification places energy efficiency and sustainable development expertise within local government, where partnerships and relationships with the affordable housing and community development industry are readily sustained. One success that demonstrates the effectiveness of in-house expertise is the adoption of Green rehabilitation standards by jurisdictions throughout the County. The standards are coordinated with a Certification program for rehabilitation contractors.[37]

TABLE 3.5.g: Pima County Owner Housing Activities, 5-Year Goals And Performance Measures [38]

Activity	5-year Goal & Performance Measure	Funding Source(s)
Owner-occupied Housing Rehab, including Lead Abatement and Historic Preservation	450 units	CDBG, HOME
Acquisition, Rehabilitation, Resale	200 units	HOME
Handicap Accessibility Improvements	150 units	CDBG
Demolition/Reconstruction	30 units	CDBG, HOME

Source: Pima County Development Services Department, 2013

Substandard Housing

This section provides an inventory of substandard housing in need of rehabilitation or demolition by planning area based on census indicators and on best available data. Indicators include:

- **Year Structure was built:** A distinction is made between units built before 1940 and units built thereafter. Research has demonstrated that units built before 1940 are much more likely to be in substandard condition. This factor is probably the most dominant factor in estimating the condition of the housing stock.
- **Persons per Room:** 1.01 or more persons per room is an index of overcrowding.

[37] Ibid, Pg. 25
[38] Ibid, Pg. 76

- **Plumbing Facilities:** Inadequate plumbing facilities are indicated by either a lack of exclusive use of plumbing facilities or incomplete plumbing facilities.
- **Kitchen Facilities:** Inadequate kitchen facilities are indicated by shared use of a kitchen or the lack of a sink with piped water, a stove or a refrigerator.
- **Heating or Cooling:** Inadequate or no heating or cooling.
- **Structure:** Structural repairs needed

TABLE 3.5.h: Substandard Housing by Planning Area 2010

Planning Area	Lacking Plumbing	Lacking Kitchen	Total Housing Units
Pima County	1,257	2,948	444,349
Avra Valley	401	279	9,297
Tucson Mountains	110	177	26,917
Southwest	241	412	34,645
Altar Valley	443	350	4,555
Upper Santa Cruz	289	383	24,862
Mountain View	119	74	2,515
Southeast	716	709	37,543
Central	1,790	2,571	150,989
Catalina Foothills	332	1,194	89,602
Rincon Valley	19	57	3,484
Tortolita	327	396	48,005
San Pedro	73	56	1,569
Ajo/Why	124	202	2,300
Totals	1,257	2,948	444,349

Source: US Bureau of the Census 2010

County Designated Colonias

Section 916 of the Cranston-Gonzalez National Affordable Housing Act of 1990 requires the State of Arizona, to set-aside up to 10 percent of their annual Community Development Block Grant (CDBG) allocations. Pima County has eight colonias that are eligible contenders for Arizona's 10% CDBG set-aside funds.

A "colonia" as defined by Section 916 of the Cranston-Gonzalesz Act is any identifiable community that meets the following criteria:

- Is located within 150 miles of the United States and Mexico border, except within any standard metropolitan statistical area that has a population exceeding 1,000,000;
- Is designated by Pima County as a colonia for eligibility of Arizona CDBG funds;
- Is a colonia based on the objective criteria such as a lack of potable water supply, lack of adequate sewage systems, and lack of decent, safe, and sanitary housing;

- In existence and generally recognized as a colonia before the enactment of the National Affordable Housing Act of 1990.

Additionally, the State of Arizona Department of Housing (ADOH) has developed their own colonia certification list and developed a process to certify Arizona colonias to ensure that they comply with Section 916 of the Cranston-Gonzalez Act of 1990 and Federal Housing and Urban Development's (HUD) Office of Community Planning and Development (CPD) notice 11- 001 to set-aside funds in meeting the colonia residents' needs regarding health and safety in terms of water, sewage, and housing.

A community, county, or tribe wishing to obtain ADOH colonia certification must meet all four of the criteria and must demonstrate eligibility thru extensive historic documentation. In order to be considered an eligible colonia it is important to recognize and document evidence that water, sewer, and/or housing issues were in existence in the community in question, prior to November 1990.

Communities, counties, or tribes wishing to obtain state CDBG funding for colonia projects must first complete the certification process prior to being eligible to participate in a colonia set-aside competitive funding round.

Pima County will continue to work with the federally-designated USDA colonias to certify them under the ADOH guidelines, thereby making such communities eligible for State of Arizona CDGB 'set-aside' funding.

TABLE 3.5.i: Designated Colonias in Pima County

Sub-region	Colonias
Avra Valley	Avra Valley Water Co.
	Marana Town
	Marana Water District
	Rancho del Conejo
	Red Hill Water Coop
Tucson Mtns	Town of Marana
	Rillito
Altar Valley	Sierrita Mountain
	Arivaca
	Three Points
Upper Santa Cruz	Sierrita Mountain
	Sahuarita Town
	Elephant Head
Mountain View	None
Southeast	Littletown
	Old Nogales Highway
	Sahuarita Town
	South Tucson
Central	Littletown
	Marana Town
	South Tucson
Catalina Foothills	None
Rincon Valley	None
Tortolita	Marana Town
San Pedro	None
Ajo/Why	Ajo

Source: Arizona Department of Housing, 2013

3.6 Cultural Resources

This section identifies priority site complexes, priority archaeological sites, and cultural resources on County Conservation Land, existing deficiencies and potential remedies by planning area based on data provided in the Pima County Infrastructure Study, 2013.

Pima County has a long-term commitment to protect its cultural resources, beginning with Board of Supervisors Resolution 1983-104, which provides protection for archaeological and historic sites on County projects. Various existing County ordinances and policies also require the consideration and protection of cultural resources on most projects permitted by the County. The County also ensures that appropriate State and federal cultural resources requirements are met, as required on a project-specific basis; for example, if a Clean Water Act, Section 404 Permit is required, then the County will implement compliance to the federal standard as well as meeting the County standard.

The following County, State, and Federal legal authorities can apply in different situations:

- Arizona State Antiquities Act 1927
- National Historic Preservation Act 1966
- Arizona Historic Preservation Act 1982
- Pima County Board of Supervisors Resolution 1983-104 (and other BOS resolutions, see below)
- Pima County Board of Supervisors Policy C3.17, 2008
- Arizona State Burial Act 1990
- Pima County Comprehensive Plan 2002
- Pima County Zoning Code, Title 18

Following a goal set forth in the regional policies of the current comprehensive plan, as amended June 2012, Pima County has adopted a list of Priority Cultural Resources (PCR) as part of the 2001 Sonoran Desert Conservation Plan. Identification of cultural resources for inclusion on this List was conducted under the oversight and direction of the Sonoran Conservation Plan Cultural and Historic Resources Technical Advisory Team and 20 experts in historic preservation and archaeology. The List is divided into two general categories of cultural resource types, one consisting of 91 archaeological sites and site complexes, and the other consisting of 138 historic sites and structures.

The List includes, and will continue to include, a balanced collection of cultural resources of exceptional value that are representative of the County's diverse cultural history regardless of current jurisdiction. The List primarily serves as a planning tool for development, and designation as a PCR will help ensure that these significant places are provided the highest consideration prior to any county public works project, as well as in select cases, private development. A secondary function of the List, and arguably equally as important, is to encourage through education the stewardship of these exceptional resources by providing for their immediate conservation, and long term preservation, so as to illustrate and commemorate the history and prehistory of Pima County.

In 2004, Pima County voters approved bond funding for projects to preserve cultural resources. Public-approved historic preservation bonds have been used to acquire conservation easements for the repair, rehabilitation, and preservation of significant cultural resources and historic properties listed in the National Register of Historic Places. Many of these Bond projects include an education component and serve to educate the public on Pima County's cultures and history, which benefit the public and local communities. Examples of Bond projects include the *Anza National Historic Trail*. The Anza Trail runs for 60 miles through Pima County and is part of the greater 1200-mile trail that was used in 1775 by Spanish explorers looking for a land route from Sonora to San Francisco.

Other Bond projects that have made a substantial difference in the rehabilitation of historic buildings include the Canoa Ranch Buildings Rehabilitation, Steam Pump Ranch, Ajo Train Depot, and Dunbar School. Bond projects focusing on preserving archaeological sites include Dakota Wash Site, Coyote Mountains, Honey Bee Village, and Pantano Townsite. Preservation of archaeological sites and rehabilitation of historic buildings in Pima County provides economic benefits to local businesses due to tourism and helps maintain and reinforce a local community's sense of place. Pima County shall continue to support the public's interest in cultural resources and historic preservation projects through the County Bond program. See Pima County's website for information on Bond projects: http://webcms.pima.gov/government/bonds/

Cultural Resources Background Evaluation

Research and predictive modeling has enabled the characterization of Pima County lands into three basic categories (low-medium-high) of archaeological sensitivity. Based on these categories, priority Cultural Resources (archaeological and historic sites) are places of such extraordinary importance to the history and culture of the people of Pima County that their conservation is of utmost concern. These documented resources are significant places on the landscape and known to contain material remnants of ancient and/or historic cultures. The assessment that follows addresses the specific cultural resources needs identified by the Pima County Infrastructure Study by planning area.

Identified significant cultural resources on County conservation lands require management. Without care, these resources are subject to erosion processes, inadvertent impacts, and benign neglect. In order to maintain the long-term value of the community's investment to acquire these resources, the County currently employs a volunteer program through Arizona State Parks, called the Arizona Site Stewards Program where volunteers monitor significant cultural resources on lands owned by Pima County. Site stewards are currently monitoring previously recorded sites on a regular basis and record and subsequently report to the County and State Parks. Such monitoring information is fundamental to informing County management strategies.

Current deficiencies in terms of cultural resources in the planning areas could include any of the following depending upon the specific planning area:

- The inadequacy of the level of current inventory status.
- The quality of our current inventory status
- The lack of knowledge of significant cultural resources on a large proportion of County conservation lands or lands proposed for County conservation in the future
- The lack of resources to manage known, significant cultural resources on County conservation lands
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites
- Only a portion a planning area has been inventoried for cultural resources and most surveys were conducted in the 1980s. In many cases, these surveys would be considered outdated by current regulatory standards due to changes in geological processes over time and field techniques. The majority of these surveyed lands were those planned for potential development in the 1980s. Although archaeologists can estimate the probability of finding cultural resources in areas not previously investigated. However, at present, little is known about the cultural resources status on unsurveyed land, or lands proposed for County conservation in the future.

An example of potential remedies are those listed for the Altar Valley planning area:

- Supporting conservation and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.
- One example includes County efforts in nominating historic buildings for listing in the National Register for Historic Places (NRHP) and rehabilitating the historic ranches., such as Robles Ranch. The Pima County conservation area includes a portion of the Coyote Mountains Site Complex but the nomination as the Coyote Mountains National Register Archaeological District has not yet been submitted to the Keeper of the Register.
- Listing significant standing historic structures and archaeological and historic districts is an important step in the preservation and management of historic properties.

Potential Remedies and Projects Per Planning Area

Of most urgency is the need to conserve, restore, document, and rehabilitate known historic sites and buildings and known archaeological sites located within the Tucson Downtown Priority Archaeological Site Complex. The County is actively rehabilitating buildings it has acquired and has conservation easements through at least portions of important archaeological and historic sites associated with the history of Tucson. Greater funding is required to preserve, restore, and rehabilitate buildings. Funding from future bonds and collaborating with nonprofit and private owners and the City of Tucson will continue to be a necessary part in successful conservation of Downtown Tucson.

Another example is there are some cases in which development cannot avoid impacts to significant archaeological sites. In order to remedy this situation, a greater understanding of the cultural resources within a region is helpful in being able to make development decisions that can avoid or lessen the impacts early in the planning process of a development project. Promoting greater use of restoration and rehabilitation in standing structures and conservation easements in sites in the Central planning area (downtown Tucson) is important. One excellent approach that begins to address that we need programmatic ways of recognizing and treating the significant historic and archaeological sites in the downtown Tucson area is the City of Tucson Historic Preservation Office's identification of "Sensitivity Zones". In general, additional systematic surveys conducted to modern standards would be the optimal approach to improve our understanding of the spatial distribution, quantity, and type of cultural resources.

Avra Valley Planning Area (1)

This planning area includes Ironwood Forest National Monument, Brawley Wash, and Saguaro National Park. Small portions of the planning area have been surveyed for cultural resources. The largest of the surveys were carried out over 20 years ago, some of which are associated with the ASARCO mine and others were conducted in the southeasternmost corner of the planning area.

In general, cultural resources survey in this planning area is limited. However, several small, systematically placed block survey areas conducted by the University of Arizona in the past 15 years resulted in the identification of numerous archaeological sites in the Ironwood Forest National Monument.

With the exception of the southeasternmost portion of the planning area, areas where cultural resources surveys were conducted have resulted in the identification of cultural resources. Two Priority Archaeological Site Complexes are found in the planning area: Tucson Mountains B Priority Archaeological Site Complex and Los Robles Priority Archaeological Site Complex.

Priority Archaeological Site Complexes

- Tucson Mountains B Priority Archaeological Site Complex
- Los Robles Priority Archaeological Site Complex

Archaeological Districts Listed in the National Register of Historic Places

- Cocoraque Butte Archaeological District
- Los Robles Archaeological District.

Priority Archaeological and Historic Sites

- Pig Farm Site (Hog Farm Ballcourt Site)
- Saguaro Springs
- Santa Anna del Chiquiburitac Mission
- Camp Pima (CCC)
- Cocoraque Butte
- Producer Cotton Gin
- Tucson Mountain Park

County Conservation Lands

At present, no significant cultural resources are known to be located on County conservation lands. However, portions of several sites (Camp Pima CCC, Cocoraque Butte, Pig Farm Site, Saguaro Springs, and Santa Anna del Chiquiburitac) are located in Federal land preserves.

Existing Deficiencies

Current deficiencies in terms of cultural resources in this planning area primarily concern conservation and cultural resources surveys.

- The lack of resources to conserve and protect known archaeological sites.
- The lack of current survey data.
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites.

Potential Remedies and Projects

This planning area encompasses significant historic and prehistoric cultural resources. Potential remedies that would make a substantial difference in cultural resources preservation would include the County acquisition of conservation lands, supporting conservation efforts and designating conservation areas.

Tucson Mountains Planning Area (2)

This planning area includes land owned by Pima County, Town of Marana, City of Tucson, Tucson Mountain Park, other local parks, Saguaro National Park West, and State Trust Land. The northern half of the area and much of the area along the Santa Cruz River have been surveyed. The surveyed portions also have been characterized as a zone of high archaeological sensitivity (SDCP). The Northern Tucson Basin Survey (Arizona State Museum) 1981-174.ASM, was the largest block survey conducted in this planning area. Fewer surveys have been conducted west of the Santa Cruz River floodplain and in Saguaro National Park West and Tucson Mountain Park. Less is known of the area in the southwestern portion of the area, characterized by low archaeological sensitivity.

Over one hundred archaeological sites are known to exist in the Tucson Mountain planning area. The large majority of the previously identified sites are part of Priority Archaeological Site Complexes (SDCP). Four Priority Archaeological Site Complexes (Tucson Mountains A, Los Morteros, River Confluence, and Middle Santa Cruz) are found in this planning area.

Priority Archaeological Site Complexes

- Tucson Mountains A Complex
- Los Morteros Complex
- River Confluence Complex
- Middle Santa Cruz Complex

Priority Archaeological Sites

- Los Morteros
- Cortaro Fan Site
- Dairy Site
- Saguaro Springs
- Linda Vista
- Bojorquez-Aguirre Ranch
- Yuma Wash
- Roland
- Picture Rocks
- Costello-King
- Hodges Ruin
- Sunset Lime Kiln
- Rabid Ruin
- Los Pozos
- Sweetwater Lime Kiln
- Santa Cruz Bend

- Stone Pipe
- San Augustin/Clearwater
- Solomon Warner/Mill
- Black Sheep Cave

County Conservation Lands

Cultural resources on County conservation lands include Black Sheep Cave, Linda Vista, Los Morteros, San Augustin/Clearwater, and Tumamoc Hill.

Existing Deficiencies

Current deficiencies in terms of cultural resources in this planning area primarily concern conservation and management.

- The lack of resources to conserve known archaeological sites.
- The lack of resources to manage known, significant cultural resources on County conservation lands.
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites.
- Need to conserve National Register-listed sites which are chosen for utility corridors.

Potential Remedies and Projects

This planning area encompasses significant historic and prehistoric cultural resources. The area is characterized by diverse cultural resource types. Supporting conservation efforts and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

As large portions of the planning area are already known to contain significant cultural resources, projects and programs supporting the management of the resources and the lands are necessary projects. One good example of how many significant archaeological sites are currently being managed by Pima County, is through the Arizona Site Stewards Program.

Southwest Planning Area (3)

The Southwest planning area has been identified as a major growth area by the Pima County Southwest Infrastructure Plan (SWIP). As part of the development review process, it is anticipated that cultural resources will be assessed on a project by project basis as development occurs within this area.

The planning area includes the San Xavier District of the Tohono O'odham Nation and the Pascua Yaqui Tribe Reservation. Cultural resources records are unavailable for these areas, however, important cultural and historic resources are present. For instance, the San Xavier del Bac Mission is the oldest intact European structure in Arizona and is a National Historic Landmark and a UNESCO World Heritage Site. The remaining portions of this planning area range between high and low archaeological sensitivity zones, with high sensitivity zones associated with the Santa Cruz River and Black Wash systems. Very little of the planning area has been inventoried for cultural resources, and correspondingly little is known about the cultural resources status in unsurveyed areas. Even so, several large prehistoric sites are known, including National Register-eligible sites, like the prehistoric Hohokam villages of the Valencia Site and Dakota Wash. The Valencia Site is the only prehistoric priority cultural resources site in the area and three Priority Archaeological Site Complexes are associated with the West Branch of the Santa Cruz River. Much of Tucson Mountain Park is incorporated within this planning area; it is designated a Priority Historic Site in the Sonoran Desert Conservation Plan. There are no sites listed on the National Register of Historic Places.

Priority Archaeological Site Complexes

- West Branch Complex
- Valencia Complex
- Middle Santa Cruz Complex

Priority Archaeological Sites

- Valencia Site
- Tucson Mountain Park Priority Historic Site

Altar Valley Planning Area (4)

At least half of the land in this planning area is State Trust Land. Significant portions of land are also within the Buenos Aires National Wildlife Refuge and the Tohono O'odham Nation. Coronado National Forest, private land, Bureau of Land Management, and Pima County lands are also included in the planning area. Very little of the land (less than 10 percent) in the area has been surveyed for cultural resources, and, a similarly low percentage has been developed. The landscape includes a portion of the Baboquivari Wilderness Area, Brawley Wash, and the Altar valley containing braided and dissected wash systems which create diverse natural habitats. The valleys at the bases of canyon mouths of the steep Coyote Mountains provided protected settings suitable for prehistoric human occupation.

Although only a major few surveys (e.g. Dart et al. 1980, Brack 2011) have been conducted, it is expected that cultural resources exist in this planning area that have yet to be recorded. Previously recorded cultural resources and sites are clustered within identified Priority Archaeological Site Complexes (SDCP). The Priority Archaeological Site Complexes in this area include Brawley Batamote, Coyote Mountain, and Gunsight Mountain.

Priority Archaeological Site Complexes

- Brawley Batamote Complex
- Coyote Mountain Complex
- Gunsight Mountain Complex

Priority Archaeological Sites

- Cocoraque Butte
- Blackstone Ruin
- Robles Ranch

Historic Properties Listed on the National Register of Historic Places

- Cocoraque Butte
- Robles Ranch House

Traditional Cultural Property

The Altar Valley planning area also encompasses a portion of the Baboquivari Mountains and Kitt Peak, which is located on Tohono O'odham Nation Indian Reservation lands. Kitt Peak is a Traditional Cultural Property and known to the Tohono O'odham as I'toi's Garden. As I'toi is the creator of the Universe and the Tohono O'odham, Kitt Peak is a sacred place to the Tohono O'odham Nation.

County Conservation Lands

A portion of the Coyote Mountain Priority Archaeological Site Complex exists within County conservation lands located in T17S, R8E, Sections 3, 9, and 10. Pima County owns approximately 804 acres that contain four archaeological sites located in South Mendoza Canyon and White Rincon Canyon, and a portion of the historic Hay Hook Ranch.

Existing Deficiencies

Current deficiencies in terms of cultural resources in this planning area primarily concern conservation and management.

- The lack of resources to acquire conservation lands.
- The lack of current survey data.

- The need for managing and monitoring significant cultural resources so that archaeological sites are not destroyed through pot-hunting and historic buildings are not neglected and destroyed. Survey assessments conclude that a large majority of the archaeological sites have been impacted by looting, particularly from the ground surface.

Potential Remedies and Projects

This area is characterized by diverse cultural resource types. Supporting conservation and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

One example includes County efforts in nominating historic buildings for listing in the National Register for Historic Places (NRHP) and rehabilitating the historic ranches, such as Robles Ranch. The Pima County conservation area includes a portion of the Coyote Mountains Site Complex but the nomination as the Coyote Mountains National Register Archaeological District has not yet been submitted to the Keeper of the Register.

Listing significant standing historic structures and archaeological and historic districts is an important step in the preservation and management of historic properties.

Upper Santa Cruz Planning Area (5)

Although cultural resources (archaeological and historic sites) have been identified throughout this planning area, survey has shown that cultural resources tend to be concentrated in certain areas. The high archaeological sensitivity zone occurs mostly in areas associated with the Santa Cruz River. Other locations that have been previously surveyed just west of the Sierrita Mountains have been designated with moderate sensitivity. The remaining portions of land within this planning area represent low archaeological sensitivity.

Previous research offers a picture on the lifeways of populations that inhabited the land. Surveys have also generated reports on site type and in some cases additional research (e.g. excavation and intensive inventory projects) on significant archaeological and historic sites. Survey in this planning area has resulted in the identification of approximately 200 archaeological and historic sites.

Priority Archaeological Site Complexes

- Eastern Sierrita Complex
- Canoa Ranch Complex

National Register of Historic Places Sites

- Canoa Ranch
- Missile Site 8 - Air Force Facility Missile Site 8 (571-7) Military Reservation in Green Valley, Arizona, is the only remaining on alert Titan II Intercontinental Ballistic Missile (ICBM) complex during the Cold War between 1963 and 1987 (National Park Service). The missiles were built to survive and retaliate on a nuclear attack from the Soviet Union. Titan II carried the largest single warhead used in the ICBM program and was constructed in response to the "missile gap" panic of the late 1950s and early 1960s.

Potential Remedies and Projects

- Additional systematic surveys conducted to modern standards would be the optimal approach to improve our understanding of the spatial distribution, quantity, and type of cultural resources in this area.
- One critical element for management is having an inventory of cultural resources on County conservation lands. The County's cultural resources staff is currently preparing a cultural resources long-term management plan. This plan will include differing levels of proposed survey and inventory on County lands.
- For future planning purposes and management, it may be beneficial to have an understanding of where the significant cultural resources are located with respect to the Conservation Lands System categories. It is important to have at least an initial assessment or a sample survey of proposed County conservation areas to determine the importance of conservation of cultural resources in parallel with other County conservation goals (e.g. natural resources). This enables planning for future Bond projects and would benefit the public to a greater extent.
- There are some cases in which development cannot avoid impacts to significant archaeological sites. In order to remedy this situation, a greater understanding of the cultural resources within a region is helpful in being able to make development decisions that can avoid or lessen the impacts early in the planning process of a development project.

Mountain View Planning Area (6)

Pima County, Cienega Creek Natural Preserve, Coronado National Forest, and Las Cienegas National Conservation Area lands comprise the majority of this planning area. Very little of the land in this planning area has been formally surveyed for cultural resources, and, a similarly low percentage has been developed. The larger block surveys have been completed in the Santa Ritas west of SR 83 as part of the cultural resources compliance process for the continuing development and expansion of the Anamax and Rosemont mines over the past 40 years.

One north-south linear survey (SWCA 1999) running from the northern planning area boundary to the southern boundary resulted in the identification of archaeological sites. Cultural resources likely exist in the canyons along tributaries between mountain ridges, such as in Apache Canyon. These restricted areas of possible prehistoric land use between high ridges are defined as areas of high and moderate archaeological sensitivity (SDCP). Previously recorded cultural resources are clustered within identified Priority Archaeological Site Complexes (SDCP), also defined as areas of high archaeological sensitivity (SDCP). These areas with habitation sites and larger clusters of sites are found in the valleys.

The SDCP predicts a strong positive correlation between Important Riparian Areas (CLS) and archaeological sites in this planning area.

Priority Archaeological Site Complexes

- Davidson Canyon Complex
- Upper and Lower Cienega Creek Complexes

Priority Archaeological Sites

- Greaterville
- Rosemont Townsite
- Donaldson Site
- Total Wreck Mine
- Marsh Station Road

Priority Historic Sites

- Kentucky Camp
- Empire Ranch

Historic Properties Listed on the National Register of Historic Places

- Kentucky Camp
- Empire Ranch
- Empirita Cattle Ranch Rural Historic District

Traditional Cultural Property

This planning area also encompasses a portion of the Santa Rita Mountains, located in the Coronado National Forest that is known to the Tohono O'odham Nation as Ce:wi Duag, "Long Mountain". Ce:Wi Duag is considered a Traditional Cultural Property to the Tohono O'odham Nation. The State Historic Preservation Office has determined Ce:wi Duag eligible for listing on the National Register of Historic Places as a Traditional Cultural Property. *County Conservation Lands*

At present a portion of Marsh Station Road, approximately four acres, is within Pima County preserve lands in T17S, R17E, Section 1.

Existing Deficiencies

Current deficiencies in terms of cultural resources in this planning area primarily concern conservation and management

- The lack of resources to acquire conservation lands.
- The lack of current survey data.
- The need for managing and monitoring significant cultural resources so that archaeological sites are not destroyed through pot-hunting and historic buildings are not neglected and destroyed.
- The need to conserve significant cultural resources (traditional cultural properties, historic sites, and archaeological sites) and protect these resources from being destroyed.

Potential Remedies and Projects

This area is characterized by diverse cultural resource types. Supporting conservation and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

Submitting the research and documentation needed to list significant standing historic structures, archaeological and historic districts, and Traditional Cultural Properties in the National Register of Historic Places is an important step in the preservation and management of cultural resources.

Southeast Planning Area (7)

The Southeast planning area has been populated for many thousands of years. Prehistorically, populations peaked during the period between A.D. 200 and A.D. 1300. Certain parts of the landscape appear to have been more heavily utilized than others. The degree of archaeological sensitivity within this planning area varies across the landscape. Archaeological sensitivity is based on a variety of factors including the presence of documented archaeological and historic sites and Priority Cultural Resources. Based on what is known from cultural resources surveys, the area with the greatest archaeological sensitivity and prehistoric occupation is associated with the Santa Cruz River, where surface water was historically available.

Only about a third of the planning area has been surveyed or inventoried for cultural resources. Previously surveyed areas were conducted on non-contiguous portions of land and little is known about the cultural resources status in un-surveyed areas. For those areas that have been surveyed, most were inventoried over 20 years ago and, on the whole, were motivated by the need to inventory cultural resources in advance of development. Within the area, 643 archaeological or historic sites have been identified. Priority Cultural Resources (archaeological and historic sites) have also been identified within the area.

Priority Archaeological Complexes

- Zanardelli Priority Archaeological Site Complex.
- Middle Santa Cruz Priority Archaeological Site Complex.
- Continental Madera Priority Archaeological Site Complex.
- Santa Rita Priority Archaeological Site Complex.

Priority Historic Sites

- The Historic Community of Sahuarita (1911).
- The Ghost Town of Helvetia (1899).
- Old Nogales Highway. This historic road was significant during the late Historic (A.D. 1900 – 1950) time period.

Central Planning Area (8)

Within this planning area, the high archaeological sensitivity zone occurs in association with prehistoric and historic settlement near the Rillito River, Santa Cruz River, and in the immediate vicinity of downtown Tucson where settlement has been continuous for 4,000 years. The settlement pattern throughout history shows that these localized areas were intensively occupied. To the east and south of these major rivers, the majority of the land included in this area, is within a moderate or low archaeological sensitivity zone.

The planning area includes the origins of the modern city of Tucson, first identified by Spanish missionary, Fr. Eusebio Francisco Kino in the 1690s as San Cosme del Tucson, named after the Piman village of "stjukshon" that he encountered at the base of Sentinel Peak. With the establishment of a mission at stjukshon and a military presidio east of the Santa Cruz River, Tucson became the northernmost outpost of New Spain and what has become the core of downtown Tucson today. This planning area evidences both archaeologically and through its historic neighborhoods, the initial settlement, sequential development, and expansion of the City as it spread northward and southward along the Santa Cruz River and eastward encompassing virtually the entire Tucson valley. Today, there are 30 City historic districts listed in the National Register of Historic Places that reflect the development of Tucson as shown in the attached table and map.

There has been a great deal of research over the past 20 years on the archaeological and historical settlements characterizing the areas associated with the Rillito River, Santa Cruz River and downtown Tucson. Many of these significant sites evident in the built environment or with substantial surface indicators had been previously identified and recorded even prior to the extensive use of systematic survey in contract archaeology. As modern downtown Tucson development increased, however, more surveys, archaeological investigations, and historic property inventories were conducted. The majority of the significant cultural resources are found within localized areas. At least half of the area, between downtown Tucson and the Rillito River, is within a zone of low archaeological sensitivity. Fewer surveys have been conducted and few significant sites have been recorded in this low sensitivity region. The southernmost portion, which accounts for approximately 1/3 of the total area of this planning area, is within a zone of moderate archaeological sensitivity. Priority Cultural Resources (archaeological and historic sites) within the area are places of such extraordinary importance to the history and culture of the people of Pima County and that their conservation is of utmost concern. These previously documented resources are significant places on the landscape and known to contain material remnants of ancient and/or historic cultures.

Priority Archaeological Site Complexes

- River Confluence Complex
- Middle Santa Cruz Complex
- Downtown Tucson Complex

Priority Historic Sites and Priority Archeological Sites

A total of 115 priority priority historic sites and six priority archeological sites have been identified in this planning area. These sites are listed in the Pima County Infrastructure Study.

County Conservation Lands

County conservation lands in the planning area primarily consist of relatively small areas of land areas focused on historic buildings and conservation easements within historic and archaeological sites. Some of these conservation areas include Hodges Ruin, Dunbar School, Roy Place building, 1927 County Courthouse, Wilmot Library, School for Performing Arts, San Pedro Chapel, and future acquisition of the Chicanos por la Causa building.

National Register of Historic Places- Historic Districts

- Feldmans (Speedway-Drachman)
- Sam Hughes Residential
- West University
- John Spring Neighborhood
- University of Arizona Campus
- Indian House Residential
- El Montevideo Residential
- El Encanto Estates Residential
- Pie Allen Residential
- El Encanto Apartments
- Iron Horse Expansion
- Colonia Solana Residential
- Fort Lowell Multiple Resource Area
- El Presidio
- Armory Park Residential
- Barrio Libre
- Aldea Linda Residential
- Barrio El Hoyo
- Barrio El Membrillo
- Blenman-Elm
- Catalina Vista
- Barrio Santa Rosa
- Harold Bell Wright Estates
- Jefferson Park
- Rincon Heights
- San Clemente
- Winterhaven
- Tucson Warehouse
- El Presidio
- Barrio Anita

Existing Deficiencies

Current deficiencies in terms of cultural resources in the planning area primarily concern conservation.

- The lack of resources to conserve, restore, document, and rehabilitate known historic sites, buildings, and archaeological sites on both County-owned and non-County-owned lands in Downtown Tucson.
- The lack of resources to manage known, significant cultural resources on County conservation lands
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites
- The inadequacy of the level of our current inventory status in the low and moderate sensitivity areas and a need for continued documentation or research in high sensitivity areas.

Potential Remedies and Projects

- Of most urgency is the need to conserve, restore, document, and rehabilitate known historic sites and buildings and known archaeological sites located within the Tucson Downtown Priority Archaeological Site Complex. The County is actively rehabilitating buildings it has acquired and has conservation easements through at least portions of important archaeological and historic sites associated with the history of Tucson. Greater funding is required to preserve, restore, and rehabilitate buildings. Funding from future bonds and collaborating with nonprofit and private owners and the City of Tucson will continue to be a necessary part in successful conservation of Downtown Tucson.
- There are some cases in which development cannot avoid impacts to significant archaeological sites. In order to remedy this situation, a greater understanding of the cultural resources within a region is helpful in being able to make development decisions that can avoid or lessen the impacts early in the planning process of a development project. Promoting greater use of restoration and rehabilitation in standing structures and conservation easements in sites in this area is important. One excellent approach that begins to address that we need programmatic ways of recognizing and treating the significant historic and archaeological sites in the downtown Tucson area has been developed by the City of Tucson Historic Preservation Office. This approach includes the identification of “Sensitivity Zones” that include both archaeological and historic sites: some of the earliest settlements in Tucson and major historic sites dating to the founding of Tucson as a Spanish settlement. The Sensitivity Zones within Area 8 include the Court Street Cemetery Zone, the Downtown Tucson City Center Zone, the Hardy-Fort Lowell Zone, and a portion of the Stone Pipe Zone.

- In general, additional systematic surveys conducted to modern standards would be the optimal approach to improve our understanding of the spatial distribution, quantity, and type of cultural resources.

Catalina Foothills Planning Area (9)

Approximately half of the planning area includes land in the Coronado National Forest. The area also includes Pima County, Saguaro National Park (Rincon Mountain District), and private land. Much of the area has not been surveyed for cultural resources. Out of the surveys that have been conducted, the largest of the block surveys were conducted over 30 years ago. The area is characterized by the rugged terrain in the Coronado National Forest and two major watersheds—Tanque Verde Wash and Sabino Creek. Geological processes have likely altered the land surface over the past 30 years enough to change the nature of the archaeological sites that can be seen on the surface. The existing survey data may now be considered somewhat outdated, but many priority historic and archaeological sites that were identified as a result of surveys have been part of comprehensive investigative projects.

Over one hundred archaeological sites are known to exist in the planning area. The large majority of the previously identified sites are part of Priority Archaeological Site Complexes (SDCP) and in areas which have been previously surveyed.

Priority Archaeological Site Complexes

- Tanque Verde Creek Complex
- Rincon Mountains Complex
- Rincon Creek Complex.

Priority Archaeological and Historic Sites

- Sabino Canyon Ruin
- Whiptail Ruin
- Agua Caliente Ranch
- University Indian Ruin
- 49er's Site
- Houghton Road Site
- Bosque Site
- Tanque Verde Wash Site
- Emkay Site
- A7 Ranch
- Tohono Chul Park
- Catalina Foothills Estates
- St. Phillips in the Hills
- Agua Caliente Ranch

- Binghamption Rural Historic Landscape
- Campbell Avenue Farm
- Gallery in the Sun

Historic Properties Listed on the National Register of Historic Places

- Lemmon Rock Lookout House
- Lowell Ranger Station
- Rillito Racetrack
- Charles Todd House
- Deep Well Ranch
- Fort Lowel Park/Hardy Site
- Ramada House
- Saint Phillip's in the Hills Episcopal Church

Existing Deficiencies

Current deficiencies in terms of cultural resources in the planning area primarily concern conservation and management.

- The lack of resources to conserve known archaeological sites and acquire conservation lands.
- The lack of current survey data.
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites.
- The need for managing and monitoring significant cultural resources so that archaeological sites are not destroyed through pot-hunting and historic buildings are not neglected and destroyed.

Potential Remedies and Projects

The area encompasses significant historic and prehistoric cultural resources. The area is characterized by diverse cultural resource types. Supporting conservation and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

One example includes County efforts in nominating historic buildings for listing in the National Register for Historic Places (NRHP). For instance, multiple properties (The Architecture and Planning of Josias Joesler and John Murphey in Tucson, Arizona, 1927-1956) have been listed on the NRHP.

Historic property types include single and multi family residences, commercial projects, institutional buildings, and districts. One example is the Catalina Foothills Estates, a project which began in 1928 with the purchase of 7,000 acres of land to be developed into hacienda style homes with open patios and

stylistic features that used the topography, view, and vegetation to best advantage. Additional buildings designed by Joesler are currently being nominated for listing in the NRHP. Listing such significant standing structures is an important step in the preservation and management of historic properties.

Rincon Valley Planning Area (10)

This planning area includes land owned by Saguaro National Park, State Trust Land, National Forest, private lands, and Pima County lands. Archaeological research has defined the areas of high archaeological sensitivity (SDCP) along the Pantano Wash, Cienega Creek, and Rincon Wash.

Portions of the planning area have been surveyed for cultural resources. The largest of the surveys in the area were carried out over 20 years ago. These include the Saguaro National Monument, Rocking K Ranch, Coyote Creek, Vail, and Colossal Cave surveys. Several hundred archaeological sites are known to exist in this area. The large majority of the previously identified sites are in Priority Archaeological Site Complexes (SDCP). Three Priority Archaeological Site Complexes (Rincon Mountains, Rincon Creek, and Lower Cienega Creek) are within this planning area. Two districts listed on the National Register of Historic Places, the southern portion of the Rincon Mountain Foothills Archaeological District and the Colossal Cave Preservation Park Historic District are found in the planning area.

Priority Archaeological Site Complexes

- Rincon Mountains Priority Archaeological Site Complex
- Rincon Creek Priority Archaeological Site Complex
- Lower Cienega Creek Complex

Priority Archaeological and Historic Sites

- Loma Alta Site
- Pantano Townsite
- Cienega Stage Station
- Marsh Station Road
- Manning Camp
- Colossal Cave
- Cienega Bridge

County Conservation Lands

At present, the Cienega Stage Stop, Marsh Station Road, and Pantano Townsite are on County Conservation lands.

Existing Deficiencies

Current deficiencies in terms of cultural resources in this planning area primarily concern conservation and management, as well as heritage education and public interpretation.

- The lack of resources to conserve and protect known archaeological sites.
- The lack of resources to manage known, significant cultural resources on County conservation lands.
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites.

Potential Remedies and Projects

The planning area encompasses significant historic and prehistoric cultural resources. The sites have information that can reveal large-scale and long-term patterns of economic, social, and cultural processes. Potential remedies that would make a substantial difference in cultural resources preservation would include the acquisition of conservation lands, supporting conservation efforts and designating conservation areas.

As large portions of the area are already known to contain significant cultural resources, projects and programs supporting the management of the resources and the lands are necessary projects. At present, site steward volunteers with the Arizona Site Stewards Program monitor significant archaeological sites in the Lower Cienega Creek Priority Archaeological Site Complex on a weekly basis (between four and six sites in one day). They report their results in a database managed by Arizona State Parks and send written reports to the Regional Coordinator and the Pima County cultural resources coordinator for the sites stewards program. Site stewards also volunteer their time in outreach programs and education to the public to enhance awareness for the importance of site preservation.

Tortolita Planning Area (11)

This planning area includes land owned by Pima County, Town of Marana, Coronado National Forest, Oro Valley, Catalina State Park, and Tortolita Mountain Park. Diverse landscapes including the Santa Cruz River floodplain, the Cañada del Oro Wash, piedmont or bajada, and the more rugged uplands of the Northern Tucson Basin characterizes an area that has also been intensively occupied for thousands of years. Archaeological research has defined a large portion of Planning This planning area is a zone of "high archaeological sensitivity" (SDCP), especially areas associated with prehistoric settlement along Santa Cruz River and in the uplands. At least 30 years of research conducted through both cultural resources surveys and more focused investigations on archaeological settlements have been carried out in the area.

In contrast to other areas in Pima County, the great majority of land in the area has been covered by cultural resources survey—particularly by extensive and large block surveys conducted over 20 years

ago. Topographic restraints and focused research interests may have resulted in slightly less than 100% coverage; however, surveys have contributed greatly to our understanding of the settlement patterns and history in the planning area. More recently, a block survey covered 1,422 acres of ASLD state trust land in the rugged terrain of the Tortolita Mountains, likely to be auctioned in the near future and potentially acquired for conservation purposes. As expected in the outcrops and hills of this portion of the planning area, a variety of sites spanning prehistoric through the historic period were identified during this survey (O'Mack, et. al. June 2012) conducted by William Self Associates, Inc.

Several hundred archaeological sites are known to exist in the planning area. The large majority of the previously identified sites are in Priority Archaeological Site Complexes (SDCP).

Priority Archaeological Site Complexes

- River Confluence Complex
- Middle Santa Cruz Complex
- Marana Mound Complex
- Los Morteros Complex
- Wild Burro Canyon Complex
- Honey Bee Complex
- Upper Sutherland Wash Complex

Priority Archaeological Sites

- Sutherland Wash Site
- Marana Mound
- Honeybee Village
- Romero Ruin
- Steam Pump Ranch
- Cortaro Fan Site
- Dairy Site
- Las Capas

County Conservation Lands

- Steam Pump Ranch Site – Conservation Easement on site owned by Oro Valley
- Sutherland Wash Site – Coronado National Forest
- Honey Bee Village – Fee Simple – owned by Pima County
- Romero Ruin– Catalina State Park – owned by Coronado National Forest

Existing Deficiencies

Current deficiencies in terms of cultural resources in the planning area primarily concern conservation and management, as well as heritage education and public interpretation.

- The lack of resources to conserve known archaeological sites, such as the Marana Mound site.
- The lack of resources to manage known, significant cultural resources on County conservation lands.
- The lack of preservation of significant cultural resources through development which cannot avoid impacts to sites.
- Need to conserve prehistoric settlement systems, such as Marana Mound complex, which also exists along a popular utility corridor.
- The lack of resources for completing rehabilitation of Steam Pump Ranch for use as a public facility.
- The lack of resources for walking trails and interpretation of Honey Bee Village and Los Morteros as heritage education sites.

Potential Remedies and Projects

The planning area encompasses significant historic and prehistoric cultural resources. This area is unique, however, in that entire prehistoric settlements on a regional level still exist. The sites have information that can reveal large-scale and long-term patterns of economic, social, and cultural processes in the Northern Tucson Basin. Potential remedies include purchasing of vast open space lands for preservation purposes. If acquiring large blocks of land is not possible, supporting conservation efforts and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

As large portions of the area are already known to contain significant cultural resources. Projects and programs supporting the management of the resources and the lands such as the the Arizona Site Stewards Program are necessary. At present, site steward volunteers monitor significant archaeological sites such as Sutherland Wash, Honey Bee Village, and Los Morteros on a bi-weekly basis. They report their results in a data base managed by Arizona State Parks and send written reports to the Regional Coordinator and the Pima County cultural resources coordinator for the sites stewards program. Site stewards also volunteer their time in outreach programs and education to the public to enhance awareness for the importance of site preservation.

San Pedro Planning Area (12)

This planning area is bounded on the north and east by the Cochise, Graham, and Pinal County lines and on the west by the Coronado National Forest ridge line. Much of the land is controlled by the Coronado National Forest, Arizona State Land Department, and Saguaro National Park. Very little of the area has

been surveyed. Most of the surveys in the area have focused on the Redington area and Oracle Ridge Mine.

Low archaeological sensitivity areas are associated with the western portion of the area in the Coronado National Forest. Previously identified archaeological sites also cluster along the banks of the San Pedro River.

Priority Archaeological Site Complex

- Redington Complex

Priority Archaeological Sites

- Greaterville
- Rosemont Townsite
- Donaldson Site
- Total Wreck Mine
- Marsh Station Road

Priority Historic Sites

- Kentucky Camp
- Empire Ranch

Historic Properties Listed on the National Register of Historic Places

- Kentucky Camp
- Empire Ranch
- Empirita Cattle Ranch Rural Historic District

Traditional Cultural Property

This planning area also encompasses a portion of the Santa Rita Mountains, located in the Coronado National Forest that is known to the Tohono O'odham Nation as Ce:wi Duag, "Long Mountain". Ce:Wi Duag is considered a Traditional Cultural Property to the Tohono O'odham Nation. Documentation on Ce:wi Duag for listing on the National Register of Historic Places as a Traditional Cultural Property, have been submitted to the State Historic Preservation Office and are currently under review.

County Conservation Lands

At present a portion of Marsh Station Road, approximately four acres, is within Pima County preserve lands in T17S, R17E, Section 1.

Existing Deficiencies

Current deficiencies in terms of cultural resources in the planning area primarily concern conservation of Traditional Cultural Properties and archaeological sites and management of historic ranches.

- The lack of resources to acquire conservation lands.
- The lack of current survey data.
- The need for managing and monitoring significant cultural resources.
- The need to conserve significant cultural resources (traditional cultural properties, historic sites, and archaeological sites) and protect these resources from being destroyed.

Potential Remedies and Projects

The area is characterized by diverse cultural resource types. Supporting conservation and designating conservation areas are efforts that would make a substantial difference in cultural resources preservation.

Submitting the research and documentation needed to list significant standing historic structures, archaeological and historic districts, and Traditional Cultural Properties in the National Register of Historic Places is an important step in the preservation and management of cultural resources.

Ajo-Why Planning Area (13)

Ajo, Arizona is the main gateway to Organ Pipe Cactus National Monument. The historic architecture of its the central plaza is one example of its many historic buildings. In 2012, the Ajo site stewards became active in the area. Much of the 2012-2013 seasons' focused were be border-related. Of the Organ Pipe and Cabeza Prieta land holdings less than 10% have been surveyed for archaeological sites and none of the most heavily impacted areas were examined at all. Over the last four years the Ajo Site Stewards have helped conduct surveys in those areas and numerous sites have been discovered and extensive evidence of shell jewelry production has been located and recorded. Many of these sites have been cut by new two-tracks and roads, and some of them quite severely. The Ajo Site Stewards have also been asked to intensify site monitoring in some areas on the Barry M. Goldwater Range. Detailed analysis of some of these sites under the supervision of range archaeologist Adrianne Rankin will likely occur.

Cultural Resources Heritage Education and Outreach

Outreach is one facet in the implementation of long-term preservation. Pima County has been committed to providing outreach, which include opportunities in education, community and professional involvement, partnerships with outside agencies and organizations, activities, presentations, and reports.

Public education is an important aspect of contributing to facilitating local communities to become actively involved in preservation of cultural resources. Pima County has been involved in areas of public education of cultural resources and shall continue to provide leadership in bringing the goals of cultural resources preservation to the public in a way that encourages active participation. Participation includes different levels of interest and involvement, including for the general public, for avocational and trained volunteers, and for the professional cultural preservationists, including partnerships with non-profit organizations https://www.oldpueblo.org/ that provide both formal technical archaeological training and tours on County-owned lands, providing positions and relevant work experience for college interns from the University of Arizona participation in the annual state-wide Archaeology Expo http://azstateparks.com/archy/ and the Arizona Historic Preservation Conference https://azpreservation.com/ . Pima County is continuing to update the website and the web page for Cultural Resources & Historic Preservation Division is a starting point for the public to find avenues for education through County projects and partnerships, http://webcms.pima.gov/cms/One.aspx?portalId=169&pageId=51010.

Cultural Resources and Historic Preservation Outreach and Volunteers

Pima County has developed an important management role in the Arizona Site Stewards Program. Site stewards are trained and certified by the State Historic Preservation Office and the Governor's Archaeology Advisory Commission http://www.azsitestewardprogram.com/. Site stewards for the Tucson area monitor cultural resources on Pima County lands and report to an Arizona State Parks database and the land manager on the physical condition of of cultural resources, assisting with land management on the Valencia site, Dakota Wash, Los Morteros, Honey Bee Village, and the cultural resources located in the Cienega Creek Natural Preserve.

Cultural Resources and Historic Preservation for New Development

Actions under Chapter 18.81 (grading standards) require that private development projects subject to cultural resources requirements include mitigation. Preservation and avoidance is the preferred mitigation strategy. Current DSD process assists in this goal because cultural resources review has been occurring as early as possible in the development review process making more options possible for construction projects. There is a need to develop incentives to assist developers in preserving cultural resources whenever possible.

Preservation and Maintainanace of Community Traditions

Pima County provides the setting for today's culturally and ethnically diverse population in a dynamic and rapidly growing mix of urban, rural, municipal, and tribal relationships that today continue the traditions that reach back through layers of shared history into the deep prehistoric past. Each layer preserves its unique character while connecting with the common threads of life and community in the desert, linking our shared traditions and collective sense of identity. The County is composed of a mix of cultural and historic landscapes, featuring the open vistas of rural landscapes juxtaposed with expanding urban landscapes supporting diverse communities and micro-communities. Open spaces preserve the wide range of natural and cultural environments, which include thousands of prehistoric and historic archaeological sites marking past human life ways. Ranch lands and rural communities define historic working landscapes and combine a firmly rooted sense of place and continuity of traditions. The built environments of urban landscapes also provide a strong sense of place and community with tangible links to the past defined by historic buildings and structures that define the unique character of private and public places and link them to the contemporary urban environment.

Effective long-range development requires important planning tools like the County's regional infrastructure planning program and other tools to consider effects of development and strategies to preserve and protect the County's cultural resources through:

a. the identification of significant cultural resources in both rural and urban landscapes; and
b. the development of incentives to encourage the conservation and in-place preservation of cultural resources within the County.

Registers can provide local historic properties and districts with appropriate levels of recognition for their archaeological and historic significance for planning and conservation prestige. The criteria for nomination to the Registers are based on the National Register Criteria of Significance, as adapted under *Policy 1b. Pima County Register of Historic Places*. Pima County has more than 100 properties currently listed on the National Register. They include a diverse range of resources, including archaeological sites, historic sites and structures, religious shrines and churches, military installations, historic neighborhoods, and historic structures representing the County's unique architectural heritage. The County will ensure the preservation of those properties listed on the Registers and will nominate additional sites when appropriate. Providing public access to the listed properties can be accomplished by posting the County Register on the County Office of Sustainability and Conservation website and providing links to the State and National Registers' websites. OSC will manage the County Register to ensure timely updates to the list.

Development of incentives to encourage the conservation and in-place preservation and protection of the County's cultural resources is an on-going priority. Cultural resources tax incentive programs are available at the state and federal levels and County staff should facilitate private participation; development of opportunities at the local level will continue to be on-going priority. Public projects such

as the Agua Caliente Ranch and the Colossal Cave rehabilitations are examples of Pima County voters supporting preservation with community funding. In addition to historic preservation expertise, critical architectural, engineering and other technical expertise, contribute to the preservation of these irreplaceable properties. Additional incentives to owners of local historic properties should be explored, such as tax benefits or technical assistance to achieve preservation goals.

Cultural Resources Protection Ordinance

Past County efforts have attempted to revise and adopt a revised comprehensive Cultural Resources Historic Zone overlay. However, the political realities under Proposition 207 hinder such efforts today. The preservation goal of establishing this zone remains valid, as outlined in the 2002 Comprehensive Plan, Addendum, to provide a voluntary protection mechanism for properties not covered by other zoning designations. Special landscapes in the County such as rural working Ranch landscapes and Open Space could be protected without hindering property owners' abilities to manage and use their properties. Other examples of properties that would benefit include individual buildings, corridors or linkages between communities, traditional cultural properties and sacred sites, and rural communities.

Adaptive Use of Cultural Resources

The County prefers adaptive use, or re-use, of historic resources, buildings, and structures over demolition or significant alteration of the resource, whenever possible. This can be accomplished by preservation and rehabilitation of historic resources for compatible uses. Pima County will apply this policy to appropriate County-owned buildings.

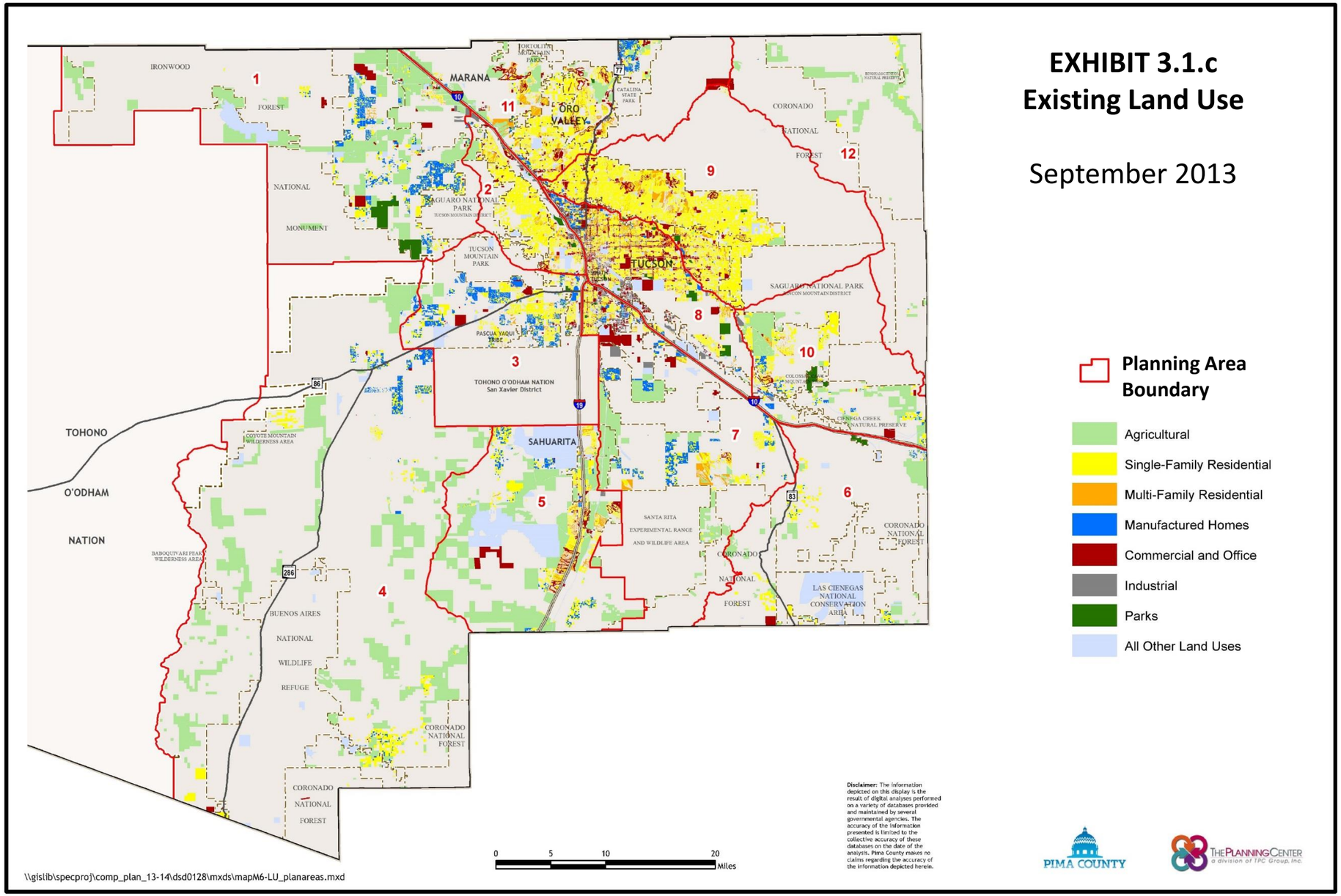
EXHIBIT 3.1.c
Existing Land Use
September 2013
Planning Area Boundary
Agricultural
Single-Family Residential
Multi-Family Residential
Manufactured Homes
Commercial and Office
Industrial
Parks
All Other Land Uses
IRONWOOD
FOREST
NATIONAL
MONUMENT
MARANA
ORO VALLEY
TUCSON
SAHUARITA
CORONADO
NATIONAL
FOREST
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES
NATIONAL
WILDLIFE
REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
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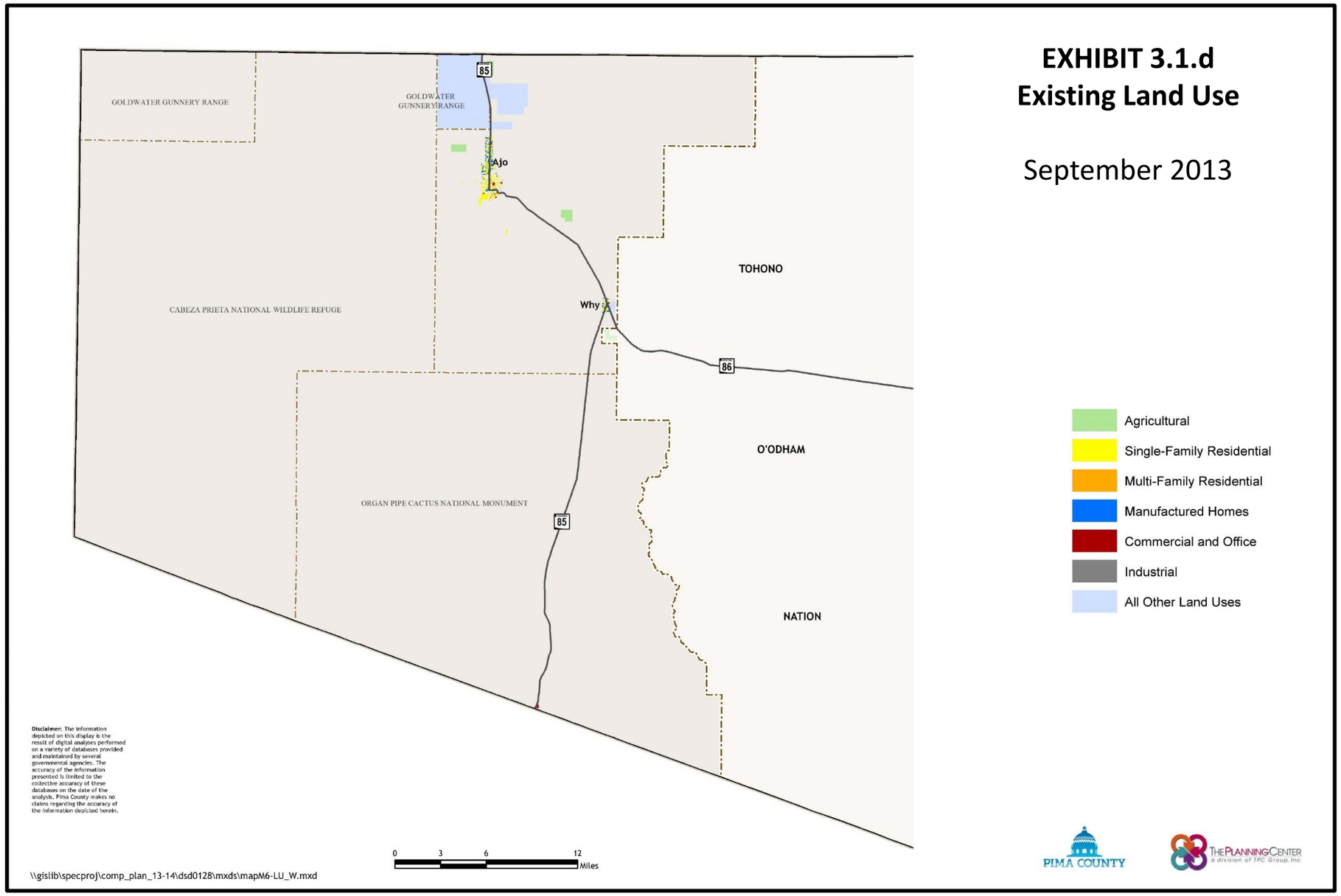
EXHIBIT 3.1.d
Existing Land Use
September 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
TOHONO
O'ODHAM
NATION
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Agricultural
Single-Family Residential
Multi-Family Residential
Manufactured Homes
Commercial and Office
Industrial
All Other Land Uses
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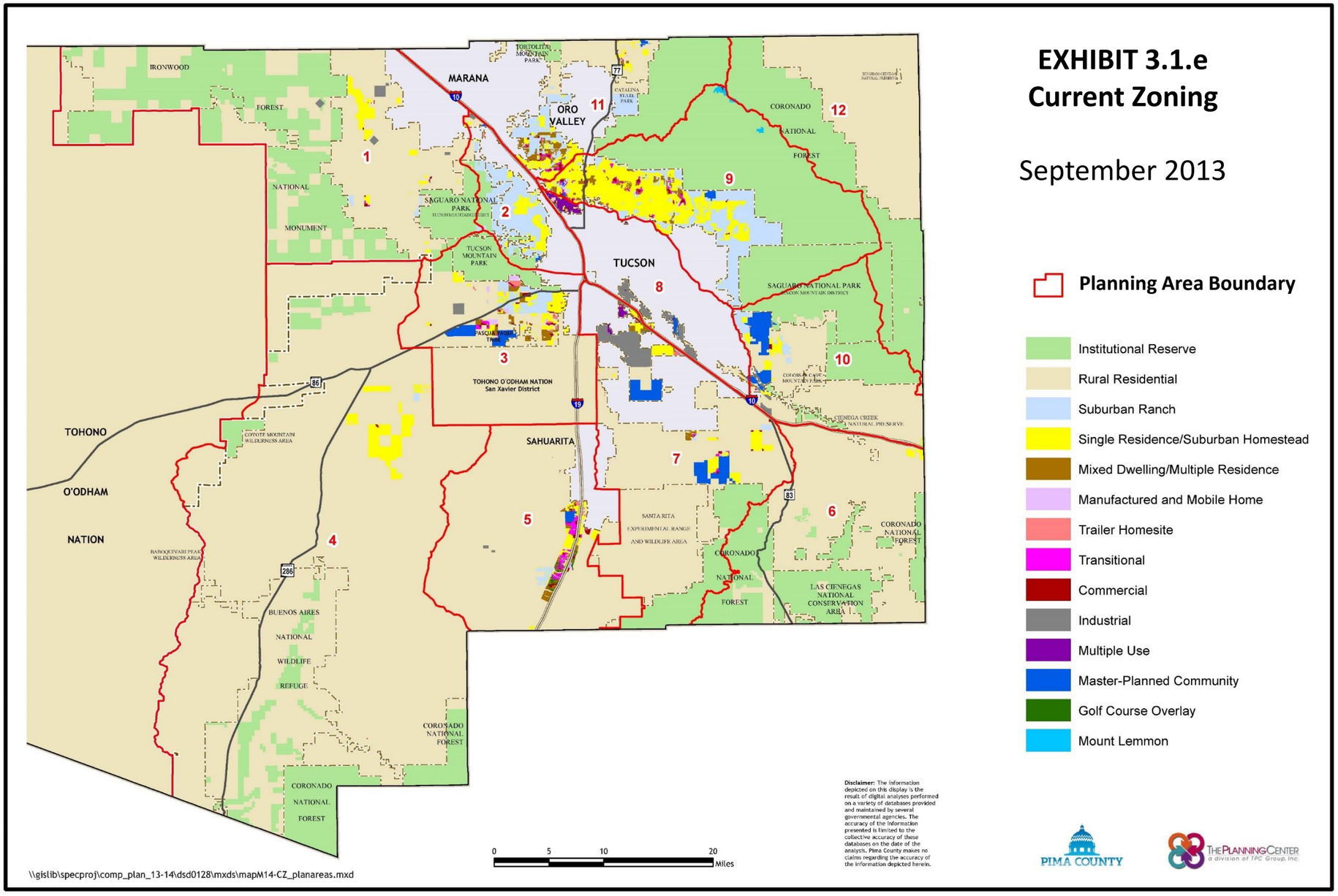
EXHIBIT 3.1.e
Current Zoning
September 2013
Planning Area Boundary
Institutional Reserve
Rural Residential
Suburban Ranch
Single Residence/Suburban Homestead
Mixed Dwelling/Multiple Residence
Manufactured and Mobile Home
Trailer Homesite
Transitional
Commercial
Industrial
Multiple Use
Master-Planned Community
Golf Course Overlay
Mount Lemmon
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
San Xavier District
TOHONO O'ODHAM NATION
IRONWOOD FOREST NATIONAL MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO NATIONAL FOREST
SAGUARO NATIONAL PARK
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
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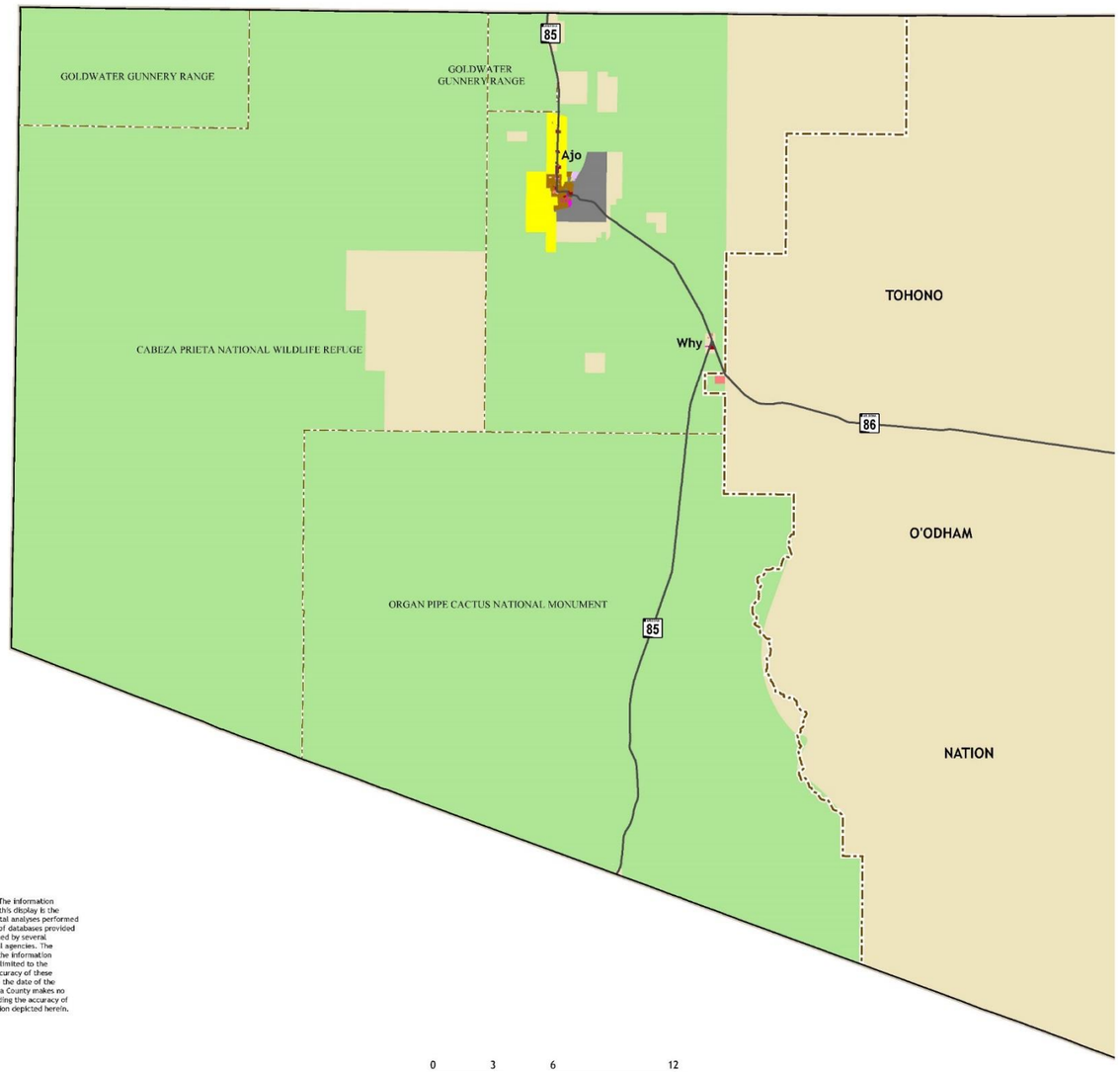

EXHIBIT 3.1.f
Current Zoning

September 2013

- Institutional Reserve
- Rural Residential
- Single Residence/Suburban Homestead
- Mixed Dwelling/Multiple Residence
- Manufactured and Mobile Home
- Trailer Homesite
- Transitional
- Commercial
- Industrial

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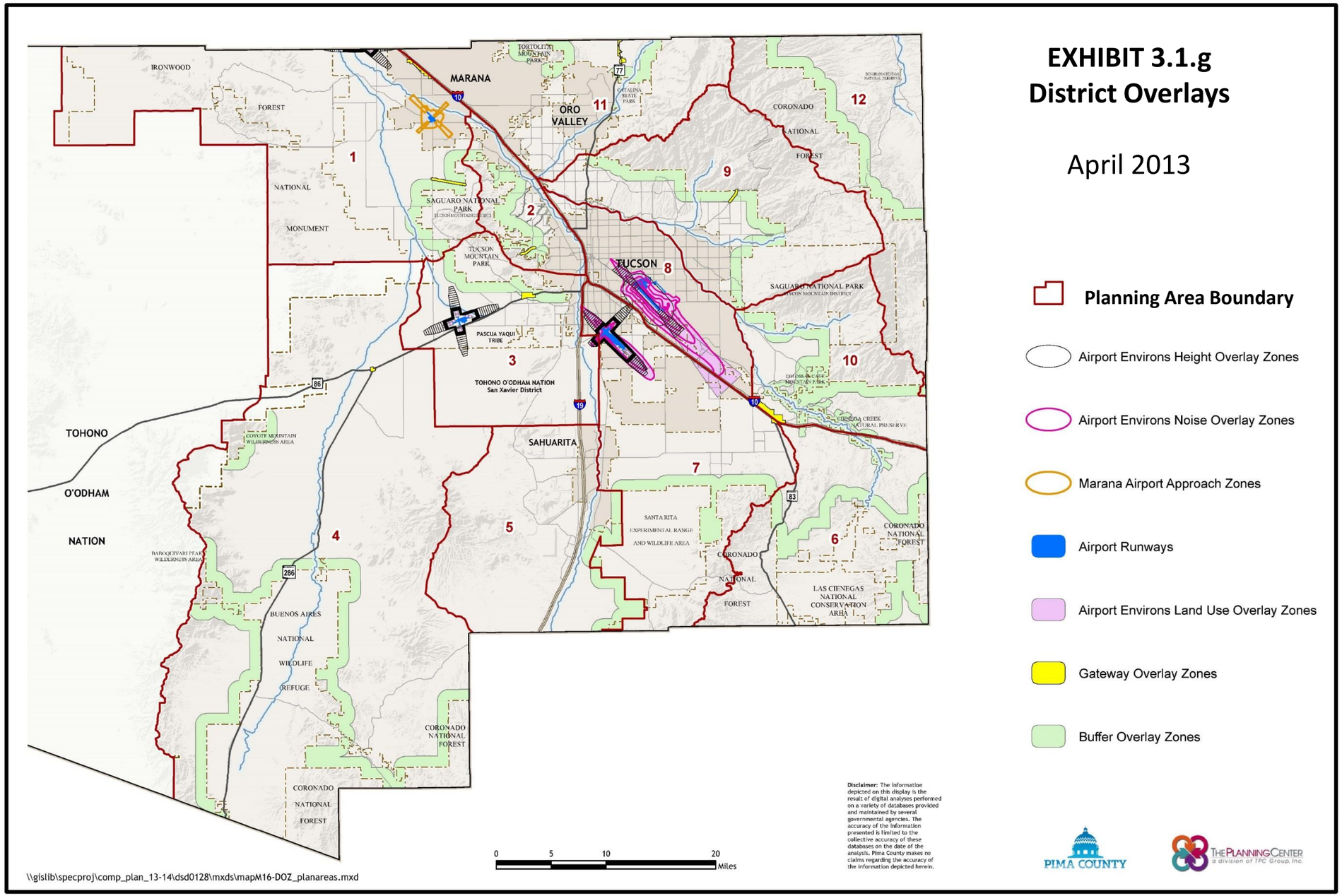
EXHIBIT 3.1.g
District Overlays
April 2013
Planning Area Boundary
Airport Environs Height Overlay Zones
Airport Environs Noise Overlay Zones
Marana Airport Approach Zones
Airport Runways
Airport Environs Land Use Overlay Zones
Gateway Overlay Zones
Buffer Overlay Zones
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION San Xavier District
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
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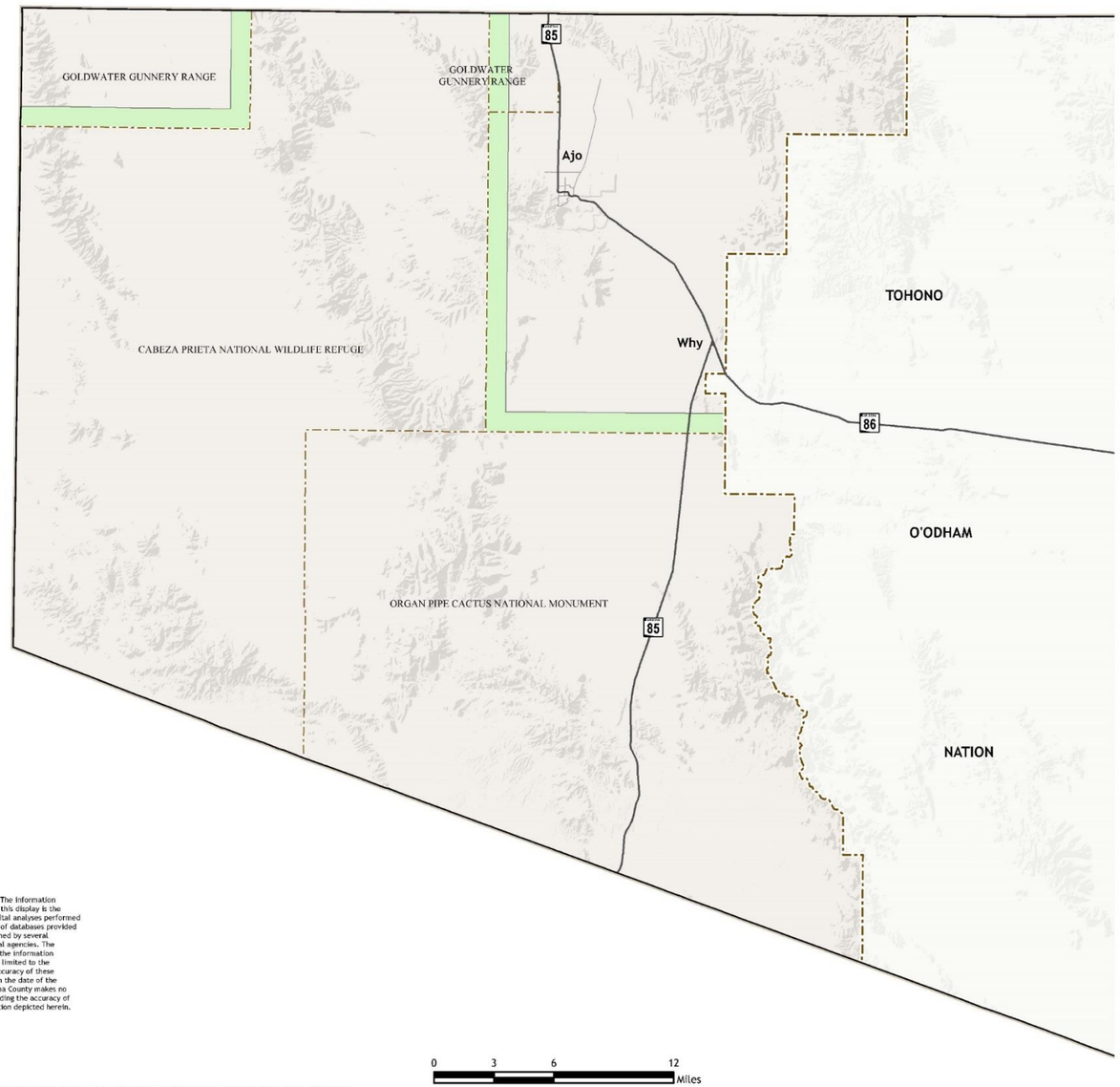

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EXHIBIT 3.1.h
District Overlays

April 2013

Buffer Overlay Zones

PIMA COUNTY

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Physical Infrastructure Connectivity

Chapter 4: Physical Infrastructure Connectivity Background

Key Subjects

- ✓ Transportation
- ✓ Water Resources
- ✓ Energy
- ✓ Wastewater
- ✓ Environmental: Air Quality and Solid Waste
- ✓ Communications
- ✓ Public Buildings and Facilities
- ✓ Trails
- ✓ Flood Control/Drainage
- ✓ Infrastructure Concurrency

Important Notes:

1. The Tohono O'Odham Nation is a sovereign nation. Therefore, it is treated as a planning area for statistical purposes only. It is not an area planned in the update. The County has no jurisdiction over the Nation.

2. All Exhibits referenced in this chapter are included at the end of the chapter.

4.1 Transportation

The County transportation system includes roadways and bridges, railways, bus transit systems, airports, bikeways and pedestrian facilities. The following sections describe each type of facility or system followed by a section describing transportation-related issues. This background assessment leads to the development of goals and policies included in the Policy Volume.

Facilities and Systems

Roadways

The public roadway system includes Interstates 10 and 19, state highways, arterial and collector streets, local roadways and bridges, but the county is responsible for building and maintaining only those public roadways in the unincorporated areas that are not controlled by the state. This includes approximately 1,800 miles of roadways from unpaved rural roads to 6-lane urban arterials.

Bus and Public Transit

Bus and public transit options for county residents are very limited outside the City of Tucson limits. Sun Shuttle operates nine routes that extend to various locations outside of Tucson including Green Valley and Sahuarita to the south and Marana and Oro Valley to the north. Dial-a-ride service is provided for individuals with disabilities and who live within eligible areas. Several SunTran routes - mostly the express routes - extend beyond the city limits to serve county residents. The lack of public transit makes mobility and access more difficult especially for those with lower incomes, the elderly and disabled. Public transit facilities also include bus stops, sidewalks, and bus pull-outs along the county roadway system.

Bicycle Facilities

Bicycle facilities include both the existing roadway network as well as separate shared-use paths. Drivers are required by State law to “share the road” and safely pass cyclists on any street, but many major roadways have 5-6 foot paved shoulders for bicycles. Local streets are also part of the bicycle network, whether signed as bike routes or not. Approximately 3% of all commuting trips are by bicycle, which ranks Tucson 7th in the nation[1]. Cyclists and other non-motorized users can use paved shared-use paths if they want to avoid riding on streets. The best example is The Loop which surrounds metro Tucson via the Rillito River Park, Santa Cruz River Park, Pantano River Park, Julian Wash Greenway, and Harrison Greenway. The county also provides education and encouragement programs including the Safe Routes to Schools Program to encourage more school children to bike and walk to school.

[1] The League of American Bicyclists, 2011

Pedestrian Facilities

Pedestrian facilities generally include sidewalks, crosswalks, traffic signals, paths and benches, bus stops, parking lots and the areas between vehicle parking areas and adjacent buildings. Crosswalk facilities include signalized intersections and specialized pedestrian-only traffic signals that stop traffic in one or both directions at a time to allow pedestrians to cross roadways in between intersections. Shared-use pathways such The Loop and the riverparks as well as walking and hiking trails are also a part of the county pedestrian system.

Aviation and Airports

Public airports in Pima County include Tucson International Airport (TIA), Ryan Airfield, the Marana airport and La Cholla Airpark in Oro Valley. Pima County owns and operates the Ajo Municipal Airport in Ajo, Arizona. While Pima County is not directly involved in airport planning and operations, the TIA as well as the Davis-Monthan Air Force Base strongly impact the regional economy and impact county airspace and adjacent land development by restricting building heights in airport zones.

Rail, Freight and Shipping

The Union Pacific Rail Road runs parallel to Interstate 10 and Interstate 19 to Mexico. Smaller rail spurs are associated with the Asarco Mine operations near Green Valley (along Pima Mine Road) and other locations. The intermodal Port of Tucson is located north of I-10 near Kolb Road along the main Union Pacific rail line. Planned expansion of the Port of Tucson will increase capacity for shipping more goods via rail. Increased trade with Mexico is anticipated which would increase trucking and potentially rail.

Transportation Issues

Several transportation related issues including roadway maintenance, safety and congestion have been raised at public meetings and expressed through public outreach efforts. These issues are discussed in this section and led to the development of transporation goals and policies which are part of the Policy Volume of the comprehensive plan.

Deteriorating Roadway Conditions

County and city roads as a whole are not in great condition despite an aggressive capital improvement program which has widened and improved many arterial roadways since 1997. Approximately two-thirds of all roadways in the county are in poor or failing condition. Fixing these roads is a financial challenge, because many federal and regional (RTA) roadway funds can only be used to build new roads and cannot be spent on maintenance. State roadway funds have also declined. The county is currently spending approximately $23 million per year to fix the worst roadways, but total needs exceed $270 million. Alternative funding is needed to repair our roadways.

Improving Traffic Safety

Roadway and traffic safety is one of the highest priorities for Pima County, which collects and tabulates crash statistics for all roadways and intersections so that deficiencies can be identified and addressed. Roadways with the highest crash rates are prioritized for improvements which can include widening

shoulders, reducing hills and curves, installing pedestrian-activitated crossing signals and other techniques. Many older roadways are not designed to accommodate flooding, so access and safety are problems during summer monsoon and winter rains. Driver education is an ongoing effort to encourage drivers to stay out of washes and avoid texting while driving for example.

Pima County has also been significantly involved in region wide efforts to reduce wildlife/vehicle collisions. Either through the County's own project activities or in cooperation with other regional partners, startegies such as re-sizing culvert drainage features to facilitate passage of wildlife are being implemented on key roadways such as Silverbell and Tangerine Roads where wildlife mortality due to vehicle collisions is known to be a frequent occurrence. Pima County has also made financial contributions, as well as significant staff support, to the implementation of the first overpass crossing structure in southeast Arizona. This structure (along with other necessary amenities), has been made possible due primarily to funding allocations provided by the Regional Transportation Authority's Wildlife Linkage funds and this structure, as well as the other key wildlife features, have been incorporated into the Arizona Department of Transportation's SR 77 widening project. Incorporating the wildlife elements into the roadway project provided not only a great opportunity to maximize construction efficiencies, but also encompassed a critical wildlife connection between the Santa Catalina and Tortolita Mountains where wildlife mortality due to vehicle collision is significant, and would be expected to worsen due to the widened roadway.

Congestion and Capacity

Traffic congestion in Tucson is ranked 15th in the United States but this includes all the roadways within the city limits as well as those within the unincorporated areas[2]. The city, county and PAG all monitor traffic congestion in part by collecting traffic counts on all major and minor roadways. Traffic counts that exceed roadway capacities provide an indicator of congestion problems and suggest where limited funding may be spent. Following an aggressive capital improvement program funded by the 1997 bond issue and the 2006 RTA, many regional roadways and intersections have been widened to mitigate congestion problems. A review of 178 major roadways segments in the county indicates that only twelve, or about 7%, have volumes that exceed capacity. Some of these segments, such as Houghton Road, are being widened.

People are driving less now than in 2007. Similar state and national trends since 2006 have been explained by a number of factors, including the economic recession, increased gas prices, increased fuel efficiency, and fewer younger drivers. Whether or not this trend continues will determine in part where and when future transportation investments should be made. The rate, location, and density of land use development will continue to determine transportation needs and limitations on roadway capacity will increasingly influence land use decisions.

Providing Transportation Choices

The County's built environment is characterized by low-density residential areas with commercial development located along major arterial roadways. Commercial development is often more

[2] Tom Tom Traffic Index, 2014

concentrated at major intersections. As with many suburban and rural communities, many residential areas are not located close enough to commercial areas, employment, and other destinations to encourage walking versus driving. However, there is more interest in walking and bicycling as a means of healthy transport. Unfortunately, traditional zoning and street design discourages walking and instead promotes driving, even for relatively short trips. This is because zoning traditionally separates residential areas from non-residential areas and because subdivisions often do not connect to adjacent areas except via arterial streets. Subdivisions may have only one or two points of entry and exit and cul-de-sacs block off street connections to adjacent neighborhoods, shopping, and parks. A more open and connected street network supports walking and bicycling as convenient, safe, and healthy forms of transportation. Similarly, more flexible zoning allows residential areas to be located closer to shopping, work, and other destinations which make walking and bicycling a more viable means of personal transportation. *(ref. Subdivision and Development Street Standards, p. 3.23-24).*

Improving Public Health

The linkage between transportation and public health has received an increasing amount of attention, as the nation searches to find more ways to address obesity and chronic disease. Americans spend more time in their vehicles, and school age children are walking and bicycling less than they did generations ago. This is a result of many factors such as suburbanization, cheaper housing located further away from city centers, longer driving distances, and safety concerns among others. Zoning laws historically separated housing areas from employment and commercial areas, resulting in people living further away from work, school, and shopping destinations. Transportation policies and investments historically focused on expanding roadway networks and traffic capacity with less focus on alternatives to driving.

There is increasing demand for communities to provide more opportunities for walking and biking by making it easier and safer to walk and ride a bicycle instead of or in addition to driving. Roadways that integrate bicycle and pedestrian facilities can provide alternatives to driving, and communinities themselves can be located and designed to provide more opportunities to walk and bike. Changing settlement patterns and the way we develop our communities to make them more integrated will require changes to zoning and development standards so that people can live closer to work, school and shopping.

Promoting Economic Development and Equity

Transportation investment and economic development go hand in hand. Investing in new roadways and improving existing facilities can stimulate economic development by providing the necessary infrastructure to support existing and growing businesses and attract new employers to the region. Regional access and mobility are important economic factors. Investments in public transit systems can also spur economic development along major transit routes as seen along the City's Streetcar Line. A balanced transportation system that serves all segments of the community can:

- Strengthen neighborhoods
- Engage historically under-represented communities
- Support distinctive places to live, work and play
- Provide people of all backgrounds with better access to opportunities

- Identify those areas that could benefit from Transit Oriented Development (TOD) and mixed use zoning and development

Transportation Planning and Design

Regional Transportation Planning

Transportation planning for the region begins with the long-range Regional Transportation Plan (RTP), administered by the Pima Association of Governments (PAG), which provides a vision for the region's transportation network over the next 30 years. The RTP includes all jurisdictions and all modes of travel, including auto, transit, bike and pedestrian. The PAG Transportation Improvement Plan (TIP) is a five-year schedule and budget of proposed transportation projects within eastern Pima County. Other plans contributing to transportation plans include the Short-Range Transit Plan, the Regional Plan for Bicycling, and other studies such as the Regionally Significant Corridors study.

Major Streets and Scenic Routes

The Pima County Major Streets and Scenic Routes Plan (MSSRP) is a map and an ordinance that 1) establishes adequate future street widths and setbacks along major streets, and 2) designates certain roads as "scenic" which places additional constraints on adjacent building development. Properties located adjacent to major and scenic routes are required to comply with specific setback and height requirements (scenic only). The current setback for major routes is 30 feet plus one-half the future right of way shown on the MSSRP, often 150 feet. The MSSRP is being updated to classify major routes according to size and function, modify right of way widths, and remove the 30 foot additional setback requirement for all major routes. This will provide additional land for private development while preserving an appropriate amount of right of way for future roadway conditions.

Exhibits 4.1.a and 4.1.b, included at the end of the chapter, show existing Major Streets and Scenic Routes.

Complete Streets

While roadways have historically been designed to move as much traffic as possible, current transportation trends are focusing more on building roadways that better accommodate all users of the roadway system, including transit vehicles, pedestrians and bicyclists. Smart Growth America defines complete streets as streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete streets are easier to cross, walk to shops, and bicycle to work. They allow buses or other forms of public transit such as streetcars to run on time and make it safe for people to walk to and from transit stops. Pima County designs roadways to accommodate current and anticpated users of the roadway including buses, bicycles and pedestrians and even equestrians in specific locations. All new roadways include shoulders for bicycle use, and sidewalks are provided where walking is observed or planned.

Green Streets

Another new trend in roadway design and sustainability is the integration of stormwater management within the roadway right of way. Roadways that are designed to accommodate stormwater typically drain water off the roadway through channels and culverts. Rather than seeking to collect and remove all stormwater, berms and swales can be incorporated into the non-paved areas alongside roadways. This allows rainwater to be directed into basins to water trees and into landscaped areas that allow water to infiltrate rather than be carried away. These systems can reduce irrigiation needs for landscaping, encourage walking by providing shade trees alongside roadways, and reduce the amount of water that is directed away from communities.

TABLE 4.1.a: Roadways with Highest Volume to Capacity Ratios

Roadway	Limits	# of Lanes	Traffic Volume	Traffic Capacity	Over/ Under Capacity	Speed Limit	Transit	Bike	FHWA Classification	MS&SRP Classification	Vol/Cap Ratio
Cortaro Farms Rd	Stargrass Dr to Thornydale Rd	2	18,800	14,900	over	40	N	N	Urban Minor Arterial	Scenic Major	1.26
Houghton Rd	Escalante Rd to Corte Madera	2	24,500	14,900	over	45	N	Y/N	Rural Minor Arterial	Major Scenic	1.64
	Old Vail Connection Rd to Old Vail Rd	2	15,000	13,600	under	55	No	Yes	Rural Principal Arterial	Major Scenic Route	1.10
Ina Road	CDO Wash to La Cholla Blvd	4	35,400	33,000	over	45	Y	Y	Urban Principal Arterial	Scenic Major	1.07
	La Cholla Blvd to Skyline Dr	4	35,000	33,000	under	45	Y	Y	Urban Principal Arterial	Major Scenic	1.06
Orange Grove Rd	Orange Blossom Ln to Shannon Rd	2	24,100	14,900	over	45	Y	Y	Urban Principal Arterial	Major	1.62
	La Cholla Blvd to Oracle Rd	2	22,000	14,900	over	45	N	Y/N	Urban Principal Arterial	Major	1.47
	Oracle Rd to Skyline Dr	2	16,000	14,900	over	45	N	Y	Urban Principal Arterial	Major	1.07
River Road	Shannon Rd to Alvernon Way	4	36,000	33,000	under	45	Y	Y	Urban Principal Arterial	Major Scenic	1.09
Skyline Dr	Ina Rd to Sunrise Dr	4	34,000	33,000	under	45	N	Y	Urban Principal Arterial	Major Scenic	1.03
Sunrise Dr	Skyline Dr to Craycroft Rd	4	36,500	33,000	under	45	Y	Y	Urban Principal Arterial	Major Scenic	1.11
Thornydale Road	Cortaro Farms Rd to Camino del Norte	2	19,500	14,900	over	45	Y	N	Urban Minor Arterial	Scenic Major	1.31

Source: Pima County Department of Transportation, 2014.

4.2 Water Resources

Water, the most limiting factor in the Sonoran Desert, is a subject of focus throughout the Southwest, specifically in Arizona as increasing water demands are placed. When addressing growth and development in Pima County, the impacts for this natural resource must be considered.

Water Availability

Water supply sources available in Pima County include imported Colorado River water through the Central Arizona Project (CAP) canal, groundwater and reclaimed water produced at Tucson Water's reclaimed water facilities adjacent to the Agua Nueva Water Reclamation Facility (WRF). Underground Storage Facilities, of which there are six, store renewable water, either CAP water or reclaimed water, in an underground aquifer.[3] [4]

Arizona Department of Water Resources (ADWR) manages the State's Assured Water Supply Program which covers subdivisions within the Tucson Active Management Area (AMA). This program was created as part of the 1980 Groundwater Management Act to conserve groundwater. The assured water supply regulations require all new subdivisions to be served by a water provider with a designated assured water supply or to be certified as having an assured water supply.

Groundwater Replenishment District: The Central Arizona Groundwater Replenishment District (GRD) was created to allow subdivisions with no access to renewable water to continue to grow while meeting assured water supply rules. The GRD agrees to replenish the groundwater that will be pumped to serve the subdivision and the subdivision agrees to pay GRD's costs to acquire renewable water and replenish it on behalf of the subdivision.

Water Supply and Demand Management

The Bureau of Reclamation completed a study of the Colorado River Basin that supplies seven states, and the Central Arizona Project (CAP) with its share of 1.5 million acre feet delivered annually to Pima County as well as Pinal and Maricopa counties. Basin-wide, shortfall between projected water supply and demand is likely; an estimated 3.2 million acre feet or more a year by 2060.

The Arizona Department of Water Resources (ADWR) reached a similar conclusion in the report, Arizona's Next Century: A Strategic Vision for Water Supply Sustainability. Some areas of the state are expected to experience constrained growth due to water shortage and new water supply acquisition or importation will be required.

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3 http://www.azwater.gov/azdwr/WaterManagement/Recharge/TypesofRechargePermits.htm

4 Knowledge Portals: Energy Management: Energy Efficiency and Pumping: FAQ's, Water Research Foundation, www.waterrf.org, 2013

Lake Mead, supply source for CAP water, is forecast to continually decline due to the recurring structural deficit of more water required by the Basin states than is naturally supplied to the reservoir. This deficit, although exasperated by drought, exists despite it. Water level at Mead serves as a trigger for mandatory reductions of CAP water. The increasing probability of lower water levels corresponds to the likelihood of less CAP water delivered to Pima County- although at first only impacting the agricultural sector.

The Bureau of Reclamations and the Arizona Department of Water Resources (ADWR) studies recommend using all water supplies as efficiently as possible and the expansion of reclaimed water use for non-potable purposes to ease potable demand. Effluent has and will continue to be a key water supply in the state's management plans and goal of safe yield, or hydrological balance. Yet both reports agree that no one strategy will solve future imbalance; augmentation will be required despite conservation and reuse efforts.

Exhibits 4.2, included at the end of the chapter, shows Water Service Areas servicing Pima County by planning area.

Table 4.2.a shows total acreage within water service areas by planning area.

TABLE 4.2.a: Water Service Areas Total Acreage by Planning Area

Planning Area	Water Service Areas (Acres)
1) Avra Valley	15,848.83
2) Tucson Mountains	28,045.41
3) Southwest	27,701.09
4) Altar Valley	5,464.72
5) Upper Santa Cruz	16,696.82
6) Mountain View	0.00
7) Southeast	61,076.82
8) Central	69,591.23
9) Catalina Foothills	68,281.54
10) Rincon Valley	9,104.59
11) Tortolita	47,072.04
12) San Pedro	0.00
Total All Planning Areas:	**348,883.08**
Total County:	**348,885.25**

Source: Pima County Geographic Information Systems, 2013

Avra Valley Planning Area (1)

This planning area is one of the few areas that has experienced rising groundwater levels along the Santa Cruz River corridor primarily due to the presence of CAP recharge facilities and reclaimed water discharged, however, ground water levels in the vicinity of Brawley Wash and west of the Tucson Mountains have declined.[5]

No reclaimed water is delivered in this planning area; the reclaimed water infrastructure does not extend to this area. Much of the residential water service is provided by exempt wells that provide water to unregulated subdivisions.
The water providers are:

1) Marana Water (a municipal water utility) provides water service primarily within its limits.[6] Marana Water is taking its full CAP allocation;
2) Avra Valley Water Co-op provides water service to the Picture Rocks area. Avra Valley Water Co-op has a CAP allocation but does not take it;
3) Tucson Water is the largest municipal water provider in Pima County and has a CAP allocation.

In the Avra Valley planning area, Tucson Water only provides water service to three isolated service areas (i.e. eastern boundary of the Ironwood Forest, southwest of El Tiro Road and Anway Road, and near Silverbell Road at the western boundary of the Town of Marana). [7]

There are four GRD subdivisions within the planning area. Marana Water and Tucson Water are both member service areas of the GRD. There are a number of recharge facilities in the planning area, so replenishment conducted by the GRD occurs relatively close to where the water is being withdrawn. Tucson Water has not used the GRD to replenish on its behalf, but could do so if the need arises. Marana has used the GRD to replenish.

Tucson Mountains Planning Area (2)

Tucson Water, Marana Water and Avra Valley Water Cooperative are all providers in this area and have CAP allocations. The smaller water providers are Avra Valley Water Cooperative, Lazy C Water Service and Logan Hills Water Company. Only Avra Valley Water Co-op has a CAP entitlement and none have a reclaimed water entitlement. There are no member GRD subdivisions in this planning area. Depth to groundwater varies widely in this planning area. Reclaimed water in the Tucson metropolitan area is produced at the Tucson Water's reclaimed water facilities adjacent to the Agua Nueva WRF.

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5 ADWR Water Atlas, Volume 8, Section 8.5 Tucson Active Management Area, page 380.
6 Town of Marana 2010 Potable Water Master Plan, Final Draft, Westland Resources, September 2010.
7 City of Tucson Water Service Area Policy, City of Tucson Resolution 21602, adopted August 4, 2010.

Southwest Planning Area (3)

Tucson Water and Metro Water are the major water providers in this area. Both water providers have CAP allocations. In 2012, Tucson Water began taking delivery of its entire 144,172 acre-feet entitlement of CAP water at its Clearwater Renewable Resource Facility located at the western portion of Planning Area 3. CAP water is recharged in two recharge facilities, Central Avra Valley Storage and Recovery Project (CAVSARP) and South Avra Valley Storage and Recovery Project (SAVSARP) where it is blended with groundwater. The CAP/groundwater blend is recovered in water wells located around the recharge basins and delivered to Tucson Water customers throughout their service area. CAVSARP is permitted by ADWR to recharge up to 100,000 acre-feet of CAP water, while SAVSARP is permitted to recharge up to 60,000 acre-feet of CAP water.

Metro Water plans to enter into a CAP wheeling agreement in the future that will deliver CAP water from the Tucson Water recharge facilities to areas to be served by Metro Water. Some parcels in Planning Area 3 are within the City of Tucson non-expansion area, meaning no water service provider is designated to serve these parcels. Reclaimed water could be made available from the Avra Valley WRF, but no reclaimed water delivery system is in place.

Altar Valley Planning Area (4)

The major source of water is groundwater. No major water providers are located in this planning area. Residential water service is provided by non-exempt wells. No reclaimed water is available to this area.

Upper Santa Cruz Planning area (5)

The major source of water is groundwater. Other water supply sources are CAP water, reclaimed water and mountain front recharge. The planning area is served by six major municipal water providers, several smaller providers and a number of privately-owned groundwater wells. The major municipal water providers are Farmers Water Company, Green Valley Domestic Water Improvement District, Community Water Company of Green Valley, Sahuarita Water Company, Las Quintas Water Company, and Quail Creek Water Company. The two water providers with CAP allocations are Community Water Company of Green Valley and the Green Valley Domestic Water Improvement District.

Replenishment facilities in the planning area include Pima Mine Road Recharge Project, Robson/Quail Creek, Town of Sahuarita Recharge Facility, and the FICO Groundwater Savings Facility (it has not stored water because of the lack of physical infrastructure to deliver either CAP or effluent). Reclaimed water from the Green Valley WRF is fully committed to golf course irrigation. Effluent from the Arivaca Junction WRF is delivered to a local ranch and is restricted to agricultural use.

Mountain View Planning Area (6)

The major source of water is groundwater. No major water providers are located in this planning area. Residential water service is provided by non-exempt wells. No reclaimed water is available to this area.

Southeast Planning Area (7)

Tucson Water is the primary water company providing potable service. This planning area receives a blend of CAP water and groundwater. For the City, groundwater will remain an important supply source to meet peak demand and provide a backup supply. Other water providers include the Vail Water Company and, to the south in the Sahuarita/Green Valley Area, the water providers include Farmers Water, Sahuarita Water, Community Water and Green Valley Water Company. There are also small individual water providers including Voyager RV which serves an RV campground and the Arizona State Prison as well as numerous exempt private wells.

Reclaimed water is available to an urbanized portion of this planning area and effluent is recharged through percolation ponds at the Green Valley and Corona de Tucson Water Reclamation Facilities.

Central Planning Area (8)

A majority of the planning area is within the incorporated area of the City of Tucson and receives most of its water supply from Tucson Water. Other water providers include Flowing Wells Irrigation District and the Vail Water Company. Davis-Monthan Air Force Base provides its water within the base boundaries and the University of Arizona provides about half of its water supply through groundwater wells and the remainder is provided by the city's water utility.

Reclaimed water treated by Pima County and delivered through Tucson Water's reclaimed water system serves municipal parks and golf courses. There are two major stormwater harvesting projects located in this planning area.

Catalina Foothills Planning Area (9)

This planning area has few GRD subdivisions. The major water providers are Metro Water and the Mt Lemmon Water District, serving Summerhaven, which provides water service derived from mountain springs. Tucson Water provides municipal water service.

Groundwater is an important source and beginning in 2000, groundwater levels in the central area have increased due to Tucson Water's delivery of the CAP/groundwater blend. Tucson Water delivers reclaimed water within its service area. A comparatively smaller source of water, rainfall and snowmelt, replenish the aquifer as mountain front recharge[8] and a number of springs are located in this planning area (e.g. Agua Caliente, Bear Wallow and La Cebadilla).

[8] http://www.azwater.gov/azdwr/WaterManagement/AMAs/documents/ch2-tuc.pdf

Metro Water was created to serve a specific portion of unincorporated northwest Tucson but has added three service areas in unincorporated Pima County including the Hub located in the Catalina Planning Area. Metro Water has a CAP allocation which is primarily recharged. Metro Water has a reclaimed water entitlement through an agreement with Tucson Water but currently has no plans to deliver reclaimed water directly to areas within this planning area.

Rincon Valley Planning Area (10)

Municipal water providers that serve this area include Vail Water Company, Spanish Trail Water Company and Saguaro Water Company. Tucson Water serves a small portion of the area.

Vail has a CAP allocation and had taken its full allocation and recharged it at facilities in the Marana area[9]. Vail Water Company has no share of reclaimed water. Spanish Trail has a CAP allocation and recharges at facilities in the Marana area. [10] Spanish Trail has a share of reclaimed water which is recharged. Although both Vail and Spanish Trail water companies have CAP allocations, their delivery systems do not access CAP water directly due to the lack of infrastructure. In 2013, Vail entered into a wheeling agreement with Tucson Water for the recharge and subsequent direct delivery of the utility's CAP allotment, a maximum of 1,857 acre-feet a year, thereby eliminating that volume of groundwater pumping in the Vail service area and the hydrological disconnection between recharge and recovery sources. Saguaro Water Company service area has a number of GRD subdivisions. Saguaro Water Company has no CAP allocation or reclaimed water. Tucson Water only provides water service to two small areas. Rural areas without service from these providers rely on private wells. A comparatively smaller source of water, rainfall and snowmelt, replenish the aquifer as mountain front recharge.[11]

Tortolita Planning Area (11)

Major municipal water providers that serve this area include the Town of Oro Valley, Town of Marana, Metro Water and Tucson Water. The service areas of Oro Valley and Metro Water are entirely within this planning area. Tucson Water serves isolated areas and the Town of Marana's water utility serves limited portions of the planning area. The Town of Oro Valley's water utility generally serves its incorporated area. Oro Valley has a CAP allocation. Oro Valley has an effluent entitlement through an agreement with Tucson Water. Several smaller water providers also provide residential water service. Rural areas that do not receive municipal water from these water providers rely on private wells for water service.

The County and City of Tucson have an intergovernmental agreement regarding effluent entitlements and the City also has separate agreements with Oro Valley, Marana and Metro Water for effluent entitlements. In this planning area, the Marana water utility serves three specific areas. Marana

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9 ADWR Annual Status Report found at: http://www.azwater.gov/azdwr/WaterManagement/Recharge/PermittedFacilities.htm

10 ADWR Annual Status Report found at: http://www.azwater.gov/azdwr/WaterManagement/Recharge/PermittedFacilities.htm

11 http://www.azwater.gov/azdwr/WaterManagement/AMAs/documents/ch2-tuc.pdf

currently relies exclusively on groundwater.[12] All of their entitlement is recharged to offset groundwater pumping. Tucson Water provides reclaimed water to several golf courses. Several smaller water providers provide municipal water to this planning area. None of these providers has a CAP or reclaimed water entitlement. There are several GRD member subdivisions. This planning area is highly dependent on groundwater because it is up gradient from the renewable sources of water, CAP water and reclaimed water, and because of the distance to these water sources.

San Pedro Planning Area (12)

The major source of water is groundwater. No major water providers are located in this planning area. Residential water service is provided by non-exempt wells. No reclaimed water is available to this area.

Ajo Planning Area (13):

Municipal water service is provided by the Ajo Improvement Company, a private water company regulated by the Arizona Corporation Commission. Groundwater is the major source of water for this area. The Ajo Improvement Company has approximately 1,100 customers and sold 0.5 acre-feet in 2012, according to an annual report filed with the Corporation Commission.[13]

Water Demand Assessment

Pima County is not a water provider and is not responsible for assuring water supply for residential or commercial users therefore the County does not have actual demand data. Yet Pima County does ask for 100 year assured water supply from the developer while approving a residential subdivision. There is no requirement for 100 year assured supply for commercial development. On per capita basis, residential demand has not increased due to various conservation approaches adopted by municipalities.

Current Water Demand

This section summarizes current water demand by planning area where data is available.

Avra Valley Planning Area (1)

This planning area is generally characterized as rural residential. Based on a population of 22,856 and an average per capita water consumption of 120 gallons per person per day, the estimated water demand in is 384 acre-feet per year.

The planning area is sparsely populated with pockets that have developed through unregulated lot splits. Many areas are not served by a municipal water provider and obtain their water from exempt wells. Exempt wells are primarily used for residential, non-irrigation purposes and have a maximum pump capacity of 35 gallons per minute. These wells are less regulated by the Arizona Department of

[12] Town of Marana 2010 Potable Water System Master Plan, August 31, 2012
[13] http://www.azcc.gov/Divisions/Utilities/Annual%20Reports/Wastewater.asp

Water Resources (ADWR) and are exempt from reporting well pumping volumes to ADWR. The proliferation of exempt wells can decrease groundwater levels. Because of its rural nature and number of unregulated subdivisions, many areas in the planning area are not connected to the public sewerage system and rely on individual septic tank systems for residential sewage. The northeast portion of the planning area is connected to a public sewerage system as detailed by the Regional Wastewater Reclamation Department (RWRD). For the less dense, rural areas, lack of connection to a public sewerage system means this wastewater cannot be captured as reclaimed water and used for irrigation and landscape.

The major demand for water in the area includes:

- Schools and parks with turf facilities utilize potable supplies since no reclaimed water infrastructure is available in this planning area. There are no golf courses in this planning area.
- Agricultural Water - The eastern portion of the planning area has 38,045 acres of agricultural lands. Groundwater pumping for agricultural use is regulated by ADWR. Only land with an Irrigation Grandfathered Right can be irrigated with groundwater within an AMA. The landowner must participate in one of two ADWR water conservation programs.
- Mining – The ASARCO Silverbell Mine is located in this planning area. Mines have rights to pump groundwater pursuant to Type 1 and Type 2 non-irrigation grandfathered water rights and groundwater withdrawal permits. The amount of groundwater used can fluctuate widely depending on the copper market conditions.

Tucson Mountains Planning Area (2)

This planning area is generally characterized as residential. Based on a population of 63,422 and an average water usage of 120 gallons per person per day, the estimated potable water demand in this planning area is 7.7 million gallons per day or 8,600 acre-feet per year. The largest commercial/industrial user is Carondelet St. Mary's Hospital which uses approximately 234,226 gallons per day and receives water service from Tucson Water.

Other water use sectors in this planning area include turf and sand/gravel operations. The predominant turf water demand is from parks and golf courses. Four golf courses are located in this area and all but one receives reclaimed water from the City reclaimed water system. A list of the area's golf courses, water source and water provider is listed in Table 4.2.b.

TABLE 4.2.b: Water Source and Water Provider for Golf Courses

Golf Course	Water Provider	Water Source
Starr Pass	Tucson Water	Reclaimed
Silverbell	Tucson Water	Reclaimed
El Rio	Tucson Water	Reclaimed

Quarry Pines	CMID	Groundwater

Source: Pima County Infrastructure Plan, 2013.

Schools and parks typically have playground and sports fields irrigated with water. The City of Tucson's parks are irrigated with reclaimed water and include Menlo Park, Joaquin Murrieta Park and Santa Cruz River Park from Mission Lane to Grant Road. Christopher Columbus Park is irrigated with low quality non-potable groundwater. Opportunities exist to bring reclaimed water to Sportspark as the Tres Rios (Ina Road) WRF is close by. The Town of Marana operates a number of parks in this planning area that are irrigated with groundwater. These include Continental Ranch Community Park, Continental Reserve Park, Wade McLean Neighborhood Park and Crossroads at Silverbell District Park.

Southwest Planning Area (3)

Pima County's Southwest area has been identified by County planners as a potential and strategic growth area. To accommodate population growth, the existing infrastructure must be improved and expanded. The Pima County Southwest Infrastructure Plan (SWIP) provides a basis for infrastructure decision-making related to development in the Southwest area. It quantifies the nature, phasing, financial impacts, and funding possibilities for those flood control, parks and recreation, transportation, water, wastewater infrastructure and other improvements that are necessary to service future saturation growth within the study limits. The SWIP includes a framework for sustainable infrastructure planning for water conservation and reuse.

Altar Valley Planning Area (4)

Encompassing a total of 1,027 square miles Altar Valley is the largest planning area in Pima County. With a total population of 7,044 in 2010 and a population density of 7 persons per square mile, Altar Valley is one of the least populated areas in Pima County. Only approximately 73.9 percent of this planning area, or 485,377 acres, is located within Pima County unincorporated area as large portions are included in the Buenos Aires National Wildlife Refuge, the Coronado National Forest, Baboquivari Peak Wilderness Area, and sections of the Tohono O'odham Nation.

Currently, approximately 84,200 acres, or 11.8 percent of this planning area is developed/non-vacant land including ranching/agricultural uses or open space. Of the vacant land, 56.1 percent is State owned; 29.8 percent is federally owned; 8.6 percent is owned by the Tohono O'odham Nation, 1.8 percent is County owned; and 0.5 percent is municipally owned. Most of the planning area is undeveloped with the following exceptions: Diamond Bell Ranch subdivisions; unplatted GR-1 zoned residential areas; Three Points and Arivaca.

The area's limited residential development is low density and dispersed in nature. The major water users include agriculture, mining, golf courses and schools, Tucson Water, and municipal, County, State

and Federal parks. Figure 1 shows major water users in the area. Figure 2 shows major water providers in the area. There is a total of 21 water providers in this planning area.

Green Valley Planning Area (5)

This planning area is generally characterized as a retirement community with a population of 49,820. The primary water users in this planning area are metal mining and agriculture. Other water uses include municipal, golf courses and sand and gravel operations. The following table shows current and projected water use data based on 2006 water use for each user sector.

TABLE 4.2.c: Green Valley Planning Area Water Use (acre-feet per year)

Major Water Users	Actual Water Use[14]	Projected Water Use[15]	
Year	2006	2015	2025
Metal Mining[16]	34,600	54,000	54,000
Agriculture	29,800	28,100	18,700
Municipal	7,575	14,100	16,300
Golf Courses	4,375	5,600	5,600
Sand & Gravel	475	700	700
Total	76,825	102,502	95,300

Source: Pima County Infrastructure Plan, 2013.

Metal Mining

Metal mining is the single largest groundwater user in the planning area. Two mines, Freeport McMoRan and ASARCO, use approximately 34,600 acre-feet of water annually and account for 45 percent of the water demand in the area. These mines have rights to pump groundwater pursuant to Type 1 and Type 2 non-irrigation grandfathered rights

Reclaimed water from the Green Valley Water Reclamation Facility is fully committed to golf course irrigation. Effluent from the Arivaca Junction Water Reclamation Facility is delivered to a local ranch and is restricted to agricultural use.

[14] *Estimated Water Usage for Upper Santa Cruz Providers and Users Group Years: 2006-2030*, USC/PUG, January 10, 2009.
[15] Tables ES-10and ES-11 *CAP Water Use Feasibility Analysis and Delivery System Optimization Study*, prepared by Malcolm Pirnie for the Arizona Department of Water Resources (1998).
[16] Includes ASARCO and Freeport McMoRan.

Two water providers have CAP allocations; Community Water Company of Green Valley (CWCGV) has an allocation of 2,858 acre-feet per year while Green Valley Domestic Water Improvement District (GVDWID) has an allocation of 1,900 acre-feet per year. CWCGV and GVDWID recharge their CAP water at recharge facilities located outside of Area 5. The remaining water providers pump groundwater pursuant to Type 1 and Type 2 non-irrigation grandfathered rights.

Golf Courses

Golf courses use groundwater to irrigate turf grass and landscaping. ADWR regulates the amount of groundwater used by golf courses. There are eight golf courses in this planning area. Six courses use groundwater provided by either the local municipal water providers or they pump groundwater pursuant to a Type 1 or Type 2 non-irrigation grandfathered right. One golf course, Canoa Ranch is required to offset groundwater pumped by purchasing an equivalent amount of CAP water. The CAP water is recharged outside of the planning area. Another golf course, Quail Creek, purchases reclaimed water from Pima County's Green Valley Water Reclamation Facility and recharges it at an adjacent underground storage facility. The stored reclaimed water is recovered at the golf course site and used to irrigate turf. Golf courses account for 6 percent of the water demand in the planning area.

Sand and Gravel

Sand and gravel operations use water to remove fine-grained particles. Water is also used to produce ready-mix concrete, to control dust and other operations. In addition to recycling wash water, ADWR requires additional conservation measures relating to dust control and related clean-up activities. Sand and gravel operations use only one percent of the water demand in the planning area.

Mountain View Planning Area (6)

The Mountain View planning area encompasses 183,813 acres in the southeastern region of Pima County. Of this total, 60.8 percent is within Pima County jurisdiction, 21.3 percent is Coronado National Forest, 17.5 percent is Las Cienegas National Conservation Area, and 0.5 percent is Cienega Creek Natural Preserve. Privately owned lands constitute 14.5 percent of the planning area. The State Land Department owns 45.8 percent; the Bureau of Land Management owns 20.4 percent and the Coronado National Forest owns 14.5 percent of the planning area.

In 2010, the population was 1,331 with a population density of 5 persons per square mile. This sparsely-populated planning area contains very little development activity. Developed areas are primarily large lot single-family residential. There is no water data available for this area.

Potential remedies and projects within this area will depend upon agreements with federal and state landowners as well as the for-profit businesses operated in the area, which the County has limited ability to regulate.

Southeast Planning Area (7)

This planning area encompasses approximately 221,882 acres in the south-central region of eastern Pima County. Of this total, approximately 121,164 acres or 55 percent of the planning area is owned by the Arizona State Land department. Privately owned lands include 70,344 acres or 32 percent of the planning area. The balance of the planning area include lands owned by the Tohono O'odham Nation and the federal government, specifically the U.S. Forest Service and the Bureau of Land Management. By jurisdiction, 20 percent is within the City of Tucson, 2 percent is within the Town of Sahuarita and 42 percent is within unincorporated Pima County.

Water providers include the Vail Water Company serving the New Tucson Area; to the south in the Sahuarita/Green Valley Area water providers include Farmers Water, Sahuarita Water, Community Water and Green Valley Water Company. There are also small individual water providers including Voyager RV which serves an RV campground and the Arizona State Prison as well as numerous exempt private wells.

Reclaimed water is available to the urbanized portion of this planning area, generally along Drexel Road east of 6th Avenue, and north along 6th Avenue. Effluent is recharged through percolation ponds at the Green Valley and Corona de Tucson Wastewater Treatment Facilities.

Central Planning Area (8)

This planning area is generally characterized as residential, commercial and industrial. Based on a population of 321,216 and a per capita water use of 120 gallons per person per day, the estimated residential water use of this planning area is 43,200 acre-feet per year. Major commercial and industrial users and their average daily water consumption are shown in the following table.

TABLE 4.2.d: Major Water Users Central Planning Area

Commercial/Industrial Customer	Average Daily Water Use (gallons per day)
Davis Monthan Air Force Base	1,112,350
Tucson Electric Power	453,200
Carondelet St. Joseph Hospital	222,400
Tucson Medical Center	194,800
Southern Arizona Veterans Affairs Health Center	185,600
University Medical Center	178,300
University Physicians Hospital at Kino	114,400
Kalil Bottling Company	89,700

Source: RWRD Industrial Wastewater Control, 2013.

This planning area is highly urbanized and includes turf amenities such as regional and neighborhood parks that rely on either potable water or reclaimed water for irrigation. There are over eighty parks maintained by the City of Tucson, most of which use reclaimed water from the City's reclaimed water system. The City also maintains agreements with Tucson Unified School District, Amphitheater School District, Sunnyside School District and Flowing Wells School District to provide reclaimed water to school facilities where feasible. Five golf courses are located within this planning area four of which are connected to the City of Tucson's reclaimed water system.[17]

Catalina Foothills Planning Area (9)

This planning area is generally characterized as residential. Based on a population of 176,901 and an average per capita water consumption of 120 gallons per person per day, the estimated water demand in this planning area is 23,800 acre-feet per year. Industrial water use is limited to golf courses.

[17] Randolph North, Del Urich, DMAFB Blanchard and Fred Enke are golf courses connected to the city reclaimed system. Dorado Golf Course is a private course with rights to pump groundwater.

TABLE 4.2.e: Golf Course Water Provider and Water Source Catalina Foothills Planning

Golf Course	Water Provider	Water Source
La Paloma	Tucson Water	Reclaimed
Ventana Canyon	Tucson Water	Reclaimed
Skyline Country Club	Tucson Water	Reclaimed
Quail Canyon	GC Owner	Groundwater
Arizona National	Tucson Water	Reclaimed
Forty-Niners	Tucson Water	Reclaimed
Tucson Country Club	Tucson Water	Reclaimed
Rolling Hills	GC Owner	Groundwater

Source: Pima County Infrastructure Plan, 2013.

Schools and parks typically have playground and sports fields irrigated with water. Most parks within the City of Tucson are irrigated with reclaimed water. Tucson Water has agreements with the Tucson Unified School District to provide reclaimed water to many schools.

Rincon Valley Planning Area (10)

This planning area is generally characterized as residential. Based on a population of 12,859 and an average per capita water consumption of 120 gallons per person per day, the estimated water demand in the area is 1,728 acre-feet per year.

This planning area has one golf course, del Lago. It has surface water rights to Cienega Creek and diverts surface water to irrigate the golf course turf.

Schools and parks typically have playground and sports fields that require irrigation. Since there is no reclaimed water infrastructure in this planning area, schools and park turf are irrigated with groundwater. Delivery of reclaimed water to this area would reduce groundwater pumping and is a sustainable, renewable water source.

Tortolita Planning Area (11)

This planning area is generally characterized as residential. Based on a population of 108,250 and an average water usage of 120 gallon per person per day, the estimated potable water demand in this planning area is 13 million gallons per day or 11,600 acre-feet per year. Major commercial and industrial potable water users and their average daily water consumption are shown in the following table.

TABLE 4.2.f: Major Water Users Tortolita Planning Area

Water User	Water Provider	Average Daily Water Use (gallons per day)
Northwest Hospital	Metro Water	116,000
Hilton Resort	Oro Valley	113,300
Sunrise of La Cholla	Metro Water	72,500
La Cholla Airpark	Oro Valley	71,600
Catalina Canyon Apts	Metro Water	67,300
PM Enclave Apts	Metro Water	65,000
Foothills Mall	Metro Water	64,300
Rockridge Apts	Oro Valley	57,900
Oro Valley Hospital	Oro Valley	50,800
HLS La Reserve Properties	Oro Valley	46,300

Source: Pima County Infrastructure Plan, 2013.

Other major water users in this planning area include schools, parks and golf courses. Many of Pima County's golf courses are located in this planning area and most receive reclaimed water from various entities that have reclaimed water entitlements. A list of the area's golf courses, water source and water provider is included in the following table.

TABLE 4.2.g: Golf Course Water Source Tortolita Planning Area

Golf Course	Water Provider	Water Source
Crooked Tree	Pima County	Reclaimed
El Conquistador	Oro Valley	Reclaimed
The Gallery	Tucson Water	Reclaimed
Heritage Highlands	Tucson Water	Reclaimed
Oro Valley Country Club	Oro Valley Country Club	Groundwater
Omni Tucson National	Metro Water[18]	Groundwater & Reclaimed
The Club at Vistoso	Oro Valley	Reclaimed
Ritz-Carlton	Tucson Water	Reclaimed
Stone Canyon	Oro Valley	Reclaimed
Pusch Ridge	Oro Valley	Potable
Sun City Vistoso	Oro Valley	Reclaimed

Source: Pima County Infrastructure Plan, 2013.

[18] Omni Tucson National will receive reclaimed water when Metro Water delivery system is complete.

Schools and parks typically have playground and sports fields irrigated with water. Many schools and parks located in this planning area are not irrigated with reclaimed water. Opportunities to extend the reclaimed system where other turf users may exist could be explore.

San Pedro Planning Area (12)

This planning area encompasses approximately 174,332 acres in the northeastern region of Pima County. By jurisdiction, 90,180 acres or 51.7 percent is unincorporated Pima County, 75,070 acres, or 43.1 percent, is the Coronado National Forest, 8,867 acres or 5.1 percent is the Saguaro National Park (east) and 215 acres, or .12 percent is the Bingham-Cienega Natural Preserve. Located within this area is Mt. Lemmon which has a small year round population. According to the U.S. Bureau of the Census counts, the total population of this planning area decreased from a total of 137 persons in 2000 to a total of 107 persons in 2010. With an area of 272 square miles, this planning area has a population density of 1 person per square mile in 2000 and 2010 respectively.

Mt. Lemmon Water district is the water provider for the area. With fewer trees to catch rainfall more water replenishes supplies. Additionally, the Mt. Lemmon Water district has added more than a million gallons of storage capacity. However, if the monsoons do not provide a consistent source of water, a system of water rationing goes into effect.

The first step is voluntary rationing following notices about the amount of water they use. The second step is mandatory. The third step is to shut down parts of the system and tell people they can bring water up from Tucson if necessary. [19]

Ajo-Why Planning Area (13)

The communities of Ajo and Why are located in this planning area. The Basin and range aquifer system supplying Ajo extends underground over 200,000 square miles, and is composed of contained pockets of water within a network of saturated and highly permeable sand and gravel called basin and fill. Though seemingly vast, water levels in portions of this aquifer have been significantly depleted. [20]

A subsidiary of Freeport-McMoran, Ajo Improvement Company (AIC), owns two wells that supply 1,100 Ajo households with water. Water in Ajo is pumped from the wells north of town and held in two storage towers near the Mine Pit. AIC also sells water to two other utility companies, Five Acres Water Company, which then resells the water in different geographic territories within Ajo. There are also private wells throughout the Ajo area that draw on the aquifer. It is unknown to what extent these wells are functioning. The site specific availability of water for new wells cannot always be predicted. An

[19] https://www.azpm.org/p/top-news/2010/8/12/169-mt-lemmon-faces-drought-challenge/

[20] Ahron Lerman, Susannah Spock, and Sean Walsh (2011) A Sonoran Oasis: Developing a Local Food System for Ajo, Arizona, Conway School of Landscape Design, Ajo, Arizona.

observation well must first be drilled to determine the suitability of a well. The testing can add more cost to an already expensive drilling process. [21]

Water in the Ajo area is of poor quality due to high levels of naturally occurring arsenic and fluoride, which the utility companies filter out to state regulated levels. Owners of residential wells may or may not filter their water. The naturally occurring arsenic and fluoride and presence of up to seventy potential brownfield sites in Ajo suggest that testing water before use on edible crops would be prudent. [22]

There is no available current water demand data related in this planning area.

Projected Water Demand

In accordance with Arizona Administrative Code (AAC) R18-5-502 through -509, Pima County Department of Environmental Quality (PDEQ) is authorized to review and approve plans for water line extensions, modifications, or relocations, as well as new water sources, tanks, or other infrastructure for a Public Water System, in order to ensure that it is constructed in accordance to State standards and engineering guidelines published by the Arizona Department of Environmental Quality (ADEQ) under Engineering Bulletin Number 8 and Number 10. PDEQ is responsible for identifying new water systems that meet the definition of a PWS, and working with operators and responsible parties to ensure production and distribution of safe drinking water.

A Public Water System (PWS) is defined as a water system which serves 15 or more connections, or 25 or more people, for more than 60 days a year. There are approximately 200 currently identified PWS in Pima County. Without a centralized public water supply facilities monitoring system, the number of PWS makes it difficult to obtain consistent PWS data such as facility design capacity, estimated demand per capita in gallons, estimated current demand, and estimated facility surplus capacity and number of potable water connections for residential and non-residential uses.

The projected water demand is based on population projections, land use data, facility design capacity, estimated demand per capita in gallons, estimated current demand, and estimated facility surplus capacity and number of potable water connections for residential and non-residential uses. Without such baseline data, it is impossible to estimate projected water demand. The compilation of such data is beyond the scope of this Comprehensive Plan.

[21] Ahron Lerman, Susannah Spock, and Sean Walsh (2011) A Sonoran Oasis: Developing a Local Food System for Ajo, Arizona, Conway School of Landscape Design, Ajo, Arizona.

[22] Ibid.

City/County Wastewater Study

The Water and Wastewater Infrastructure, Supply and Planning Study (WISP) was completed in November 2011 with the adoption of the Action Plan for Water Sustainability (Action Plan). Implementation of the WISP Action Plan began in March 2011. Year-End Progress Reports on WISP Action Plan implementation describes the action items that have already been completed and the progress of shared Pima County and the City of Tucson water sustainability goals.

Progress has been made and is continuing in realization of WISP goals. Pima Prospers serves as the fundamental planning document that accomplishes a majority of the action items within WISP's Comprehensive Integrated Planning component, linking land use and water resources planning. Recent data are better informing design guidelines for neighborhood stormwater harvesting and regional assessment of residential development's water use, furthering goals associated with WISP's Demand Management component. Pima County has adopted a Net-Zero Energy Building Code, began administration of the Conservation Effluent Pool (CEP), revised riparian mitigation guidelines and drought management plans, accepted a strategic plan for utilization of the County's reclaimed water and partnered in the EPA-funded study of the Lower Santa Cruz River. Meanwhile, work continues on a joint recharge project with the City and issuance of the County's Section 10 permit and implementation of the Multi Species Conservation Plan is pending following federal approval.

Pima County and the City of Tucson have made great strides in completing action items identified in WISP.One item that remains unresolved for some in unincorporated Pima County is Tucson Water's Water Service Area Policy (CIP 21). In 2013, Mayor and Council adopted refinements to the 2010 City policy that resulted in the refusal of water service in designated growth areas. The refinements provide service to properties abutting current Tucson Water connections within certain limitations and allow for an appeals process upon denial of service and exceptions for economic development. While an improvement from the previous policy, some properties may remain in a non-expansion area with limited options for service.

Staff will continue to implement the WISP Action Plan and will report on progress made on continuing action items in annual Year End Progress Reports.

Water Conservation and Protection

The City/County Water and Wastewater Infrastructure, Supply and Planning Study listed accomplishments of phase 2 goals and recommendations for demand management. Tucson Water's Community Conservation Task Force (CCTF) recommended a plan based on cost benefit analysis for enhanced water use efficiency programs with a focus on technology. The CCTF recommendations to Mayor and Council resulted in the development of a conservation fee to fund Tucson Water's conservation programs.

Adopted in 2008, the City of Tucson Water Harvesting and Graywater ordinances mandate that new commercial development utilize water-harvesting practices to meet 50% of the site landscape water requirement and dual plumbing to allow for graywater system installation in new homes.

Pima County 2006 and 2007 Water Conservation Code Amendments include requirements now in place for waterless urinals and automatic faucets in commercial buildings, sub-water meters in multifamily construction, pool covers for new pools and use of reclaimed water for new golf courses. In new construction, separate reclaimed-ready irrigation plumbing and irrigation with seasonal adjustments and rain sensors are required and restrictions on large water fountains and water features and turf areas are in place.

Pima County Green Building and LEED Certification programs were established in 2008 promoting the construction of sustainable homes.

Southern Arizona Water Rights Settlement Act

In 1982, the Southern Arizona Water Rights Settlement Act (SAWRSA) was enacted by Congress to address the water right claims of the San Xavier and Shuck Toak Districts of the Tohono O'odham Nation. SAWRSA awarded the districts an annual entitlement to 37,800 AF of CAP water and 28,200 AF of settlement water to be delivered by the Secretary of the Interior to the two districts. The districts may also pump annually up to 13,200 AF of groundwater from non-exempt wells. In addition to state and local financial contributions, the City of Tucson contributed 28,200 AF annually of effluent to be used by the Secretary to facilitate deliveries to the districts (through sale or exchange).

In December 2004 the President signed into law P.L. 108-451, the Arizona Water Settlements Act. Title III of the Act amended the 1982 SAWRSA and provided a mechanism to implement the settlement. The amendment identified the source of the settlement water as CAP Non-Indian Agricultural priority water. The Nation may lease its CAP water within the CAP service area. State law was amended to provide additional protection to groundwater resources on the San Xavier Reservation, and allow the Nation to store its CAP water in an in lieu fashion. The settlement was implemented in December 2007 and includes dismissal of claims against non-Indian parties in U.S. and State courts, and approval of the settlement by the Gila Adjudication Court for incorporation into the final decree in that case.

Although Pima County does not have jurisdiction over sovereign nations, the County works cooperatively with both the Tohono O'odham Nation and the Pascua Yaqui Tribe under existing intergovernmental agreements.

Tradeoffs for Human Populations, Energy Production and Economic Development

The development and implementation of renewable energy opportunities, efforts, and projects can present significant challenges in ecosystem and water management and ecosystem tradeoffs. For example, the solar power facility in Gila Bend may require as much as 60,000 acre-feet per annum (AFA)

of groundwater for cooling according to hydrologist Larry Onyskow. This estimate exceeds the estimated groundwater recharge rate of more than 9,000 to 88,000 AFA not including withdrawals from other water uses in the area. Although 100 – 246 million acre-feet of groundwater may be stored in the Lower Gila Basin, data and distribution of ground water throughout the entire area is not readily available, particularly for the 1220-square-mile Ten Mile Wash sub-basin in which the community of Ajo is located. [23]

Even with general data on the Lower Gila Basin, determining groundwater availability for a specific location in the sub-basin will require further scientific research, possibly including the drilling of test wells. [24]

Large-scale generation of solar power requires enormous areas of land to hold the multiple arrays of PV cells. Heating just a typical house may require a "collector area" of 200 square feet. Therefore, a large tract of land and habitat may be lost to produce solar energy which in turn impacts water recharge. The water required to cool such arrays may result in less sustainable practice than the solar energy production yield.

A way to minimize tradeoffs for human populations, energy production, habitat and economic development, partnerships with the local university in the study of the impacts of clean energy production on other natural resources such as water must be conducted. The current practices are policy and legislator driven with very little integrated studies looking into the interdependence on numerous impacts and tradeoffs.

Emerging Issues

This section identifies emerging issues such as groundwater shortages, climate, and CAP Colorado River Supply.

Arizona Department of Water Resources (ADWR) Tucson Active Management Area

The Arizona Department of Water Resources (ADWR) manages the state's Assured Water Supply Program which covers subdivisions within Active Management Areas such as the Tucson Active Management Areas (Tucson AMA). This program was created as part of the 1980 Groundwater Management Act to conserve groundwater. The assured water supply regulations require all new subdivisions to be served by a water provider with a designated assured water supply or for an individual subdivision to be certified as having an assured water supply. In Planning Area 5, Sahuarita

[23] Arizona Department of Water Resources 2011
[24] United States Geological Survey (USGS) 2010.

Water Company has been designated as having an Assured Water Supply by the ADWR through membership with the Central Arizona Groundwater Replenishment District. [25]

Subdivisions within the water service area of the other water providers must obtain a certificate of assured water supply from ADWR. Commonly, the subdivision joins the Central Arizona Groundwater Replenishment District which replenished groundwater pumped on their behalf.

Safe Yield Task Force was convened by the Arizona Department of Water Resources' Groundwater Users Advisory Committee (GUAC) to evaluate strategies for achieving safe yield in the Tucson Active Management Area by 2025. The Task Force explores priority issues that include CAP Utilization, recovery of long term storage credits, sub-area management and agricultural and industrial groundwater rights. Alternatives will be developed and submitted to the GUAC for further implementation and could form the basis of the Tucson Active Management Area's Fourth Management Plan.

Groundwater Shortage and Drought Impacts

According to the Arizona Department of Water Resources (ADWR), Local Drought Impact Groups (LDIG) consists of water providers and local, state and federal agencies. Pima County's LDIG meets bimonthly to monitor drought conditions, discuss drought impacts and coordinate drought declarations and responses. LDIG meetings include presentations on the winter and summer seasons from the National Weather Service, overview of the U.S. Drought Monitor from the Climate Assessment for the Southwest, Tucson Water's annual drought assessment and a status report on the Colorado River and reservoir levels at Lake Mead and Lake Powell from the Central Arizona Water Conservation District.

Pima County has had in place a Drought Response Plan and Water Wasting Ordinance since 2006. The year following its adoption, Pima County issued a Drought Stage One declaration in conjunction with the City of Tucson. This declaration has remained in place since then and its response measure is voluntary reduction in water use. During this time, Pima County's LDIG, functioning as the drought monitoring committee established in the ordinance, has met regularly to monitor the status of drought in Pima County and to assess the drought impacts. When Pima County adopted the Drought Response Plan, an emphasis was placed on water use impacts. However, drought has impacts to many sectors and therefore, an assessment of Pima County's vulnerability to drought was conducted.

That assessment reached a number of conclusions; County owned and maintained open space and riparian habitat is the most vulnerable county asset. The County's long term planning programs associated with these lands are also a significant asset. A drought management plan for the county should protect these investments by prioritizing adaptive management strategies and resources for these sectors. Agriculture and ranching are not dominant economic drivers in Pima County however are valued as a distinct regional cultural heritage. Ranching is most beneficial to the county as a land management and habitat maintenance tool. Birding and wildlife watching, combined with other outdoor recreation and tourism, are dominant economic drivers for the county. Birding offers economic benefits

[25] http://www.azwater.gov/azdwr/WaterManagement/AAWS/documents/documents/List_of_Designated_Providers_5-25-11.pdf

comparable to the region's largest copper mine. The county's habitat programs are of benefit to these economic sectors. Tourism is multi-faceted and duplicative in other sectors and sub-sectors. Of the drought sensitive industries considered in this narrative, it is the most dominant economic driver. Outdoor activities associated with the natural environment are the most popular county attractions. Socio-economic impacts are second and third order impacts easily obscured. Collecting reports on all order of impact is an important function of Pima County's LDIG.

Drought Impacts

The impacts of sustained drought were observed in several sectors throughout Pima County:

- At Cienega Creek, groundwater levels in three wells have dropped as much in the last year as they have in the last 15 years. Stream reaches are also shorter and the surface water volume is lower.
- Despite the warm, wetter summer weather patterns in eastern Pima County, water utilities continue to see a change in the peak high demand day. Usually occurring in mid- to late-June, the peak high water use day occurred in August and the peak was lower than in previous years.
- For ranchers, impacts to stock ponds and grasses continue to indicate drought conditions.

Drought Indicators

In 2010, ADWR began using the U.S Drought Monitor instead of the monthly ADWR Drought Monitor Report (DMR). The U.S Drought Monitor is a web-based reporting system and is now used because:

- It provides more timely information
- In some cases, drought conditions can change rapidly
- The ADWR DMR was reporting conditions that were at least one month old
- The US Drought Monitor has better and more timely input
- The US Drought Monitor is a more sustainable process in light of the ADWR budget cuts

LDIG is now using the US Drought Monitor to monitor drought conditions in Pima County.

Drought-Related Actions

During the year, the City of Tucson and Pima County completed Phase 2 of a water/wastewater infrastructure study. Phase 2 establishes a framework for sustainable water resources planning through the implementation of 19 goals and 56 recommendations. Phase 1 was completed in 2009 and consisted of an infrastructure inventory. With respect to drought, the Phase 2 report recommends the City and County pursue adaptive, flexible, multi-pronged preparedness strategies, including diversification of water supplies and improved demand management, such as increased reliance on water harvesting. To track and measure the plan's progress, an action plan implementing the goals and recommendation of Phase 2 is being completed.

On June 1, 2010, the City of Tucson began implementing a rainwater-harvesting ordinance that requires new commercial properties to provide a minimum 50 percent of their landscaping water budget from harvested rainwater.

Also on June 1, the City of Tucson began requiring all new one- and two-family dwellings to have gray water stub-outs for laundry drains. New single-family dwellings will be required to have separate drain lines for lavatories, showers and bathtubs to allow for future installation of distributed gray water systems.

Should drought conditions persist and curtailments of CAP water be declared, water providers have several response strategies in place. The first and second CAP curtailment levels will not affect deliveries to municipal water providers. However, drought response plans are in place and more restrictive drought response measures can be taken if a shortage is declared. The Arizona Water Bank Authority has stored unused CAP allocations at recharge facilities in the Tucson Active Management Area on behalf of Tucson Water and other CAP subcontractors in the region. This water can be recovered during

shortage periods. Potential climate change impacts on water resources are also being assessed in a 26-member climate change committee being led by the City of Tucson.

Central Arizona Project (CAP) Colorado River Supply

The Central Arizona Project (CAP) is a 336-mile canal that delivers water from the Colorado River near Lake Havasu to Phoenix and on to Tucson.26 Completed in 1993, it can deliver an average of 1.5 million acre-feet of water annually to municipal and agricultural users, as well as Indian communities. The CAP canal delivers water to regional recharge facilities, major water providers and Indian communities that have CAP entitlements.

Underground Storage Facilities store renewable water, either CAP water or reclaimed water, in an underground aquifer.27 ADWR permits two types of underground storage facilities; constructed and managed. A constructed underground storage facilities uses a constructed device such as an injection well or percolation basin to recharge water underground. In a managed underground storage facility water is recharged in a natural water-transmissive area such as a streambed that allows the water to percolate, or recharge into the aquifer. The entity storing water can either recovery its water the same year it was stored (annual recovery) or can accrue long term storage credits and recover its stored water at a later date. Recovery of the long term storage credits must be consistent with a recovery well permit issued by ADWR and must not damage other land and water users.

The regulation of land and water rights is especially important in Arizona, where access to water is essential for land development due to the desert climate. Arizona policy makers have established a statutory scheme that protects individual rights and governs access to these resources so that one group is not unfairly advantaged over another in accessing these vital resources.

Arizona water law is established in Title 45 of the Arizona state law. The law places the Arizona Department of Water Resources (ADWR) in charge of regulating state water issues and establishes a system that regulates water usage differently depending on if the water is drawn from the surface or brought up from the ground.

Arizona water supply is categorized into four different sources, which are managed separately. These sources are the Colorado River, groundwater, surface water not related to the Colorado River and effluent outflows.

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26 http://www.cap-az.com/AboutUs/FAQ.aspx
27 http://www.azwater.gov/azdwr/WaterManagement/Recharge/TypesofRechargePermits.htm

In order to gain the right to use surface water, potential water rights holders must apply to the department of water resources. The application process involves a public input mechanism where those opposed to the proposed use of the water can have their voices heard. Applicants can apply for rights to draw from surface water in order to create a municipal water supply, irrigate crops, create power, refresh groundwater resources and use for mining purposes.

Effluent, Water Harvesting and Recycling

In April 2008 the City of Tucson and Pima County initiated a joint effort for sustainable water resource planning known as the "City/County Water and Wastewater Infrastructure, Supply and Planning Study" (Water Study). The City/County Water Study is a multi-year effort to identify ways the City and County, which respectively own and operate the region's primary water and wastewater utilities, can work together to advance more cooperative and sustainable water planning.

After two years of intensive study under the guidance of a joint City/County Citizens Advisory Committee, City and County staff prepared the Phase 2 Water Study Report. The Phase 2 Report built upon the Phase 1 Report that preceded it and establishes a framework for sustainable water resources planning including 19 goals and 56 recommendations within four interconnected elements: Water Supply; Demand Management; Comprehensive Integrated Planning; and Respect for Environment. The City of Tucson Mayor and Council and the Pima County Board of Supervisors adopted the Phase 2 Report through City and County resolutions (No. 21478 and 2010-16 respectively), and directed staff to work together to create an Action Plan for implementing the Phase 2 goals and recommendations.

The following Action Plan represents a dramatic shift in business as usual for the City and County. It advances a set of 87 specific actions grouped within 14 City/County programs to implement the Phase 2 goals and recommendations and to achieve the following outcomes within the five-year planning horizon:

- Water, wastewater and stormwater resources are planned in an integrated fashion.
- More renewable water resources including effluent, reclaimed, stormwater and rainwater and graywater are put to use in an efficient manner.
- Water resource policies help further economic goals.
- Collaborative efforts are undertaken to acquire new water, to achieve greater flexibility in use of existing supplies, and to align and enhance standards for water use efficiency.
- Improved water quality resulting from regional wastewater treatment facility upgrades (i.e. the Regional Optimization Master Plan or ROMP) is matched to needs for recharge, environmental restoration and public amenities such as parks, golf courses and ball fields.
- Land use, infrastructure and water resources planning are linked and foster optimum use of renewable water resources in future growth areas and increased water and energy efficiency outcomes in new development.

- Water is dedicated and allocated to environmental needs, sensitive riparian ecosystems are preserved and maintained, and cost-effective and collaborative environmental restoration projects are advanced.
- Public values are considered in water resources planning and public awareness of the human, environmental and economic benefits of improving water use efficiency is increased.

Prior to the delivery of renewable Central Arizona Project (CAP) water, the Tucson region was the largest metropolitan area solely dependent on non-renewable groundwater resources. Beginning in the 1940s, groundwater withdrawals began to exceed replenishment and, like other growing areas of the state, the Tucson area began to experience groundwater overdraft leading to the lowering of groundwater tables and subsequent loss of riparian habitat, subsidence and declines in water quality.

The 1980 Arizona Groundwater Management Act (GMA) gave the state control of groundwater pumping and established a statewide goal known as "Safe Yield" within the Phoenix, Tucson and Prescott Active Management Areas (AMAs). Safe yield means that by 2025 the AMAs must pump groundwater at a rate no greater than the rate of natural and artificial replenishment. To reach safe yield by 2025, water users in the AMAs must offset all the groundwater uses that total more than the net natural recharge with renewable resources, like CAP water and effluent, or with artificial recharge.

The Arizona Department of Water Resources (ADWR) administers the safe yield goal through a series of ten-year management plans for each AMA. The Tucson AMA is currently operating under the Third Management Plan and the Fourth Management Plan is under development. Despite positive progress toward attaining the safe yield goal, ADWR notes in its Third Management Plan: "given current projections, the AMA will not reach safe-yield by 2025."

Although of critical importance, even if the safe yield goal were met, it would not solve all the issues related to groundwater overdraft. Under the 1980 GMA, development may continue to mine groundwater through purchase of paper water recharge credits from the Central Arizona Project. State law allows for withdrawals in one part of the AMA to be offset by recharge in another hydrological disconnected location. As such, safe yield applies strictly on an AMA-wide basis and can result in continued problems related to localized overdraft within sub basins. A Safe Yield Task Force deliberates on the topic of how to address the challenges of meeting safe yield in the Tucson AMA and the Fourth Management Plan, when completed, will provide specific steps to reach safe yield.

Additionally, the City/County Water and Wastewater Study recognized the need to go beyond safe yield when establishing a framework for sustainable water planning. In the Phase I Report the Oversight Committee concluded: "A definition of sustainable water management must consider the regional impacts of water use at the watershed scale and the localized impacts to aquifers and groundwater-dependent ecosystems. It must establish a link between sustainable groundwater use and the provision of renewable water sources to areas impacted by groundwater overdraft."

The primary sources of water addressed in the Action Plan are managed by three utilities: (1) The City of Tucson, Tucson Water Department operates and maintains the potable and reclaimed water systems; (2) Pima County Regional Wastewater Reclamation Department (RWRD) operates and maintains a regional wastewater conveyance and treatment system that generates the effluent used in the City of Tucson's reclaimed system; and (3) The Pima County Regional Flood Control District (RFCD) manages stormwater resources.

This Action Plan focuses on activities that will advance integrated water resource planning for all these sources of water within the combined service areas of Tucson Water and Pima County Regional Wastewater Reclamation Department.

Many of the activities are well suited to being implemented in partnership with other jurisdictions, water and wastewater providers and stakeholders and, where feasible and appropriate, the City and County will include outreach to potential partners as they implement these activities.

Tucson Water serves approximately 800,000 customers and accounts for 72% of municipal demand in Pima County. The City's obligated service area extends outside of its incorporated boundaries. Pima County is the Designated Management Agency for all of Pima County except the Tohono O'odham Nation, the Town of Marana and the Town of Sahuarita. The Pima County RWRD provides 97% of the total treatment capacity for Pima County[28]. Additionally, the Phases 1 and 2 Water Study reports highlighted the importance of rainwater and stormwater as a supplemental source of locally renewable water. Historically, stormwater has been treated as a safety hazard and managed for disposal not for beneficial use. The Phase 2 goals include a heightened emphasis on integrating land use and water resources planning which includes incorporating beneficial use of stormwater as feasible in new development and capital improvement projects.

On June 1, 2010, the City of Tucson began implementing a rainwater-harvesting ordinance that requires new commercial properties to provide a minimum 50 percent of their landscaping water budget from harvested rainwater. Also on June 1, the City of Tucson began requiring all new one- and two-family dwellings to have gray water stub-outs for laundry drains. New single-family dwellings will be required to have separate drain lines for lavatories, showers and bathtubs to allow for future installation of distributed gray water systems. The County currently does not have a rainwater-harvesting ordinance and it will benefit to adopt one. The Town of Oro Valley water harvesting ordinance is a good regional model.

[28] City/County Water & Wastewater Study Phase 1 Report, Executive Summary, page 11, 2008.

Water Resource Management and Reclamation

The Pima County Regional Wastewater Reclamation Department (RWRD) provides design, management and maintenance of the sanitary sewer system, including the conveyance and treatments systems (3,400+ miles of sewer, two metropolitan wastewater treatment plants and seven sub-regional facilities).

The Pima County Regional Flood Control District is responsible for regional flood control needs in Pima County including constructing major flood control facilities, purchasing flood and erosion-prone land, operating the community's flood warning system, and providing floodplain management activities for all unincorporated county areas. This includes activities aimed at enhancing wildlife, recreation and riparian habitats along watercourses and floodplains and constructing and operating groundwater recharge facilities that also have flood control benefits, among other services.

As provided in the Water Action Plan, to achieve water sustainability goals, changes to the existing infrastructure must begin by improving the efficiency and flexibility of the existing built environment, including roads, parks, public services water, wastewater and stormwater systems. In addition to considering the location and form of growth, integrated planning cross-departmental planning also needs to consider the efficient allocation, distribution and use of all available water resources including stormwater, effluent, reclaimed and potable water.

Such integrated planning efforts include updating the County Comprehensive plan in a manner that increases opportunities to influence future growth patterns in the region. Tools that may be used include:

- Analysis of infrastructure and public facilities' needs.
- Designation of suitable growth areas and job centers.
- Exploration of pre-zoning to encourage growth in line with the Plans.
- Identification of opportunities to promote mixed-uses, well-designed densities and infill;
- Establishment of improvement districts to direct growth, infrastructure phasing plan and an implementation component.
- Evaluation of improvement districts as tools to fund open space acquisition;
- Exploration of legislative changes to allow transfer of development rights from the unincorporated area to the City.
- Development of a fiscal sustainability model that understands true costs and funding mechanisms to provide public services and infrastructure based on various land use patterns.

Comprehensive Plan Water Policies for Rezoning Requests

The existing comprehensive plan has policies that propose water conservation measures as conditions of rezoning. Whether a rezoning proposal increases the water demand projections in areas that are less than five miles from a groundwater dependent ecosystem or if the development will have an adverse impact on the groundwater dependent ecosystem is evaluated during review.

Rezoning proposals that increase the water demand above existing zoning are evaluated as to whether they are fully offset in areas of shallow groundwater (less than 50 feet below the land surface). Increases in water demand can be offset by recharge, legal and verifiable water rights, or retirement or purchase of water rights from within the same or up-gradient shallow groundwater area. Per policy, rezoning proposals are not to increase the water demand above existing zoning in areas of Isolated Basins.

Existing plan states that rezoning proposals that rely on use of groundwater withdrawn from a five-mile radius of mapped groundwater-dependent ecosystems to include a hydrologic impact analysis to show how groundwater withdrawn for the development may impact ecological assets. Policy states that rezoning proposals that may adversely impact groundwater-dependent ecosystems are to employ pump tests and monitoring, and use avoidance strategies, including well site selection and screening of wells. Policies states that rezoning proposals located in areas that will not be served by a water provider with physical access to a renewable and potable water supply and are located in subsidence areas required to employ mitigation measures to minimize subsidence in the area. Mitigation measures are proposed to minimize subsidence in groundwater-dependent areas and areas located in high subsidence potential areas.

Per policy, a Final Integrated Water Management Plan (FIWMP) is submitted at the tentative plat or development plan stage of a proposed project for which a rezoning has been approved. The FIWMP includes proposed uses of all legally available water resources and pertinent details of reuse, replenishment, conservation and use of renewable supplies of water, all designed to minimize impacts to the aquifer.

Other Existing Water Conservation Measures/Management Tools

Per comprehensive plan policy, all rezoning applications in the County currently entail a Water Resource Impacts Assessment. Proposed Comprehensive Plan amendments currently entail a Water Supply Impact Review.

4.3 Energy

With more than 100 significant solar energy businesses already established in Arizona, building a robust industry that ranges from rooftop panel makers to major power generators, the state has become a preeminent location for the renewable energy industry. Along with a climate featuring more than 300 days of sunshine annually, a pro-business package, including the Renewable Energy Tax Incentive Program, have made Arizona especially advantageous. But there is more that can and needs to be done to promote this renewable energy source.

In 2014 the Solar Energy Industries Association (SEIA) ranked Arizona #7 nationwide (after CA, MA, NM, NJ, NC, and MO, in that order) in solar employment per capita, with an estimated 316 solar companies and 9,800 jobs. In fact, Arizona accounts for approximately 8.2% of the nation's total employment in the solar industry and consistently ranks as a top state for photovoltaic energy generation.[29]

SEIA also reports that Arizona has the most installed solar electrical watts per capita and the second-highest solar energy capacity in the United States, with enough solar energy installed in the state to power 158,800 homes. The Tucson area enjoys a percent of possible sunshine value of 85 percent annually, second in the state only to Yuma.[30] As of July 2009, 844 solar PV customers were connected to the electrical grid, an increase from 237 customers three years prior, for a total of 2,493 kW of solar photo voltaic distributed generation capacity. For current solar production in the form of residential, non-residential, and utility scale operations, the "Arizona Solar Map" found on the arizonagoessolar.org website shows the increasing use of solar energy.

Power generation requires significant water consumption;[31] water consumption varies greatly by the type of energy, for instance, solar (consumes far less) versus coal. For each kilowatt-hour of electricity not generated, 2/3 of a gallon of water can be saved.[32] Conserving energy through the use of water efficient solar energy systems conserves water that would have been lost during power generation in other forms of fuel such as coal; and, conserving water helps reduce energy demands from pumping, moving and treating water.

Overall Energy Supply and Demand Summary

Quick facts about Arizona's energy system[33]:

- Arizona's Palo Verde, rated at 3,937 net megawatts, is the largest nuclear power plant in the Nation.
- Arizona ranked second in the nation in solar photovoltaic installations as of 2014.

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[29] Arizona Commerce Authority
[30] Tucson Sustainable Design Assessment Team Report, June 11-13 2007, AIA Communities by Design
[31] Ibid
[32] Alternative Energy Options Accepted by Pima Association of Governments Regional Council, November 2006

[33] U.S. Energy Information Administration, State Energy Data System, U.S. Department of Energy, July 2012

- Arizona, the 16th most populous state in 2010, ranked 45th in per capita energy consumption, partly due to the State's small industrial sector.
- Arizona's only operating coal mine, Kayenta, on the Navajo and Hopi reservations, supplies the 7 to 8 million short tons burned annually by the Navajo Generating Station's three 750-megawatt units.
- Arizona's Renewable Environmental Standard requires 15 percent of the State's electricity consumed in 2025 to come from renewable energy resources; in 2013 , approximately 8 percent of Arizona's net electricity generation came from renewable resources, primarily from the Glen Canyon and Hoover Dams.
- Twenty-five percent of the energy consumed in Arizona homes is for air conditioning, which is more than four times the national average of 6 percent according to the U.S. Energy Information Administration's Residential Energy Consumption Survey

Energy Supply

Approximately 73 percent of Arizona's energy production is from coal, natural gas, and petroleum.

TABLE 4.3.a: Arizona Energy Production by Type

Energy Production Type	BTU's (trillion)	Percentage of Total
Coal	459.9	27
Natural Gas	293.7	17
Petroleum	500.9	29
Nuclear Energy	327.3	19
Renewable Energy (includes conventional hydroelectric power, biomass, geothermal, solar thermal and photovoltaic and wind)[34]	136.6	8
Total	1,718.4	100

Source: U.S. Energy Information Administration, Energy Conservation Overview, U.S. Department of Energy, 2011.

As shown in the previous table, Arizona produces 1,718.4 trillion BTUs of energy. [35] The ten largest Arizona plants by generation capacity in 2010 were: [36]

- The Palo Verde (nuclear) run by Arizona Public Service Company

[34] U.S. Energy Information Administration, Energy Consumption Overview, U.S. Department of Energy, 2011
[35] Ibid
[36] U.S. Energy Information Administration, U.S. Department of Energy, 2010.

- Navajo (coal) run by the Salt River Project
- Gila River Power Station (gas) by the Gila River Power Station Lp
- Springerville (coal) by Tucson Electric Power Company
- Glen Canyon dam (hydroelectric) by the US Bureau of Reclamation
- Santan (gas)
- Mesquite Generating Station (gas) by Mesquite Power LLC
- Harquahala Generating Project (gas) by New Harquahala Generating Co., LLC
- Hoover Dam (hydroelectrical) by the US Bureau of Reclamation
- Cholla (coal) by the Arizona Public Service Company.

Arizona's electrical power currently comes primarily from coal, natural gas, and nuclear generation.[37] Electricity used in Pima County comes mainly from coal deposits in the northeast part of the state and western New Mexico.[38] Coal-fired plants provide almost 2/5 of the State's demand for electricity. The remainder is supplied mostly by natural gas fired plants and nuclear power. More than 1/3 of the coal produced goes to Nevada.[39]

Power Utilities in Pima County include:

- Tucson Electric Power Co. (TEP)
- Trico Cooperative (Trico)
- Arizona Public Service (APS)
- Western Area Power Administration (WAPA)
- Tohono O'odham Utility Authority (TOUA)
- Sulphur Springs Valley Electric Cooperative (SSVEC)
- Ajo Improvement Company
- Southwest Natural Gas
- Arizona Electric Power Cooperative[40]

Tucson Electric Power (TEP) is the largest electricity provider in Pima County.[41] TEP relies primarily on coal, supplied from outside the region, representing approximately 93 percent of power production fuel sources.[42] The three TEP generating stations within Tucson providing much of the Tucson area's energy (over 650 MW) needs are:

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37 Power Arizona, ArizonaExperience.org, 2013
38 Ties that Bind: Plans for New Energy Infrastructure in Pima County, Arizona, Julia Fonseca and Neva Connolly, Pima County Office of Sustainability and Conservation, February 2012
39 U.S. Energy Information Administration, Arizona State Energy Profile Analysis, U.S. Department of Energy, October 2009
40 Ties that Bind: Plans for New Energy Infrastructure in Pima County, Arizona, Julia Fonseca and Neva Connolly, Pima County Office of Sustainability and Conservation, February 2012
41 Ibid
42 Tucson Sustainable Design Assessment Team Report, June 11-13 2007, AIA Communities by Design

- Sundt facility which is the largest in Pima County and uses coal, oil, natural and/or landfill gas
- DeMoss-Petrie generator can use gas or oil
- North Loop units fired by natural gas.

All three plants are necessary to meet peak power demands during the summer. TEP also uses landfill gases and solar to produce additional power from smaller facilities. The largest electricity provider in the State is Arizona Public Service (APS) which provides electricity services for Ajo, the Organ Pipe National Monument, and a small portion of the San Pedro River Valley in northeast Pima County. [43]

The Central Arizona Project (CAP) generates power at the Navajo plant to operate pumps that lift CAP water to Tucson, the San Xavier District, and the Mission mine. Tucson is nearly the highest elevation of the CAP canal therefore incurring the greatest accumulated pumping costs, but the City is not charged more than other CAP water customers.[44]

Arizona imports virtually all of its natural gas and petroleum products.[45] Arizona receives its petroleum supply from southern California and from El Paso mainly through the Kinder-Morgan pipeline.[46] In addition, the All-America Crude Oil Pipeline passes through the San Pedro Valley but does not go through Tucson. The petroleum products that move through Pima County include diesel, jet fuel, crude oil, ethanol and gasoline.[47]

El Paso Natural Gas (EPNG) provides wholesale natural gas to Southwest Gas, TEP and other major consumers in Pima County. EPNG has two distribution stations in Pima County, one in Vail and the other in north Tucson. Natural Gas has long been available to Ajo due to the mines where elsewhere connections can be a limiting factor. The main body of the Tohono O'odham Nation, Altar Valley and much of Pima County and a portion of San Pedro Valley lack access to natural gas.[48]

Arizona has one nuclear power plant – Palo Verde which is the largest nuclear plant in the nation.[49] Palo Verde provides about ¼ of the State's total electricity generation.

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43 Ties that Bind: Plans for New Energy Infrastructure in Pima County, Arizona, Julia Fonseca and Neva Connolly, Pima County Office of Sustainability and Conservation, February 2012
44 Ibid
45 Power Arizona, ArizonaExperience.org, 2013
46 Ties that Bind: Plans for New Energy Infrastructure in Pima County, Arizona, Julia Fonseca and Neva Connolly, Pima County Office of Sustainability and Conservation, February 2012
47 Ties that Bind: Plans for New Energy Infrastructure in Pima County, Arizona, Julia Fonseca and Neva Connolly, Pima County Office of Sustainability and Conservation, February 2012 (pg. 7)
48 Ibid
49 U.S. Energy Information Administration, State Energy Data System, U.S. Department of Energy, July 2012

The major renewable energy source remains hydroelectrical power derived from the Colorado River. In 2010, 11.9 percent of the electricity capacity derived from renewable supplies, including 10.1 percent from hydroelectrical power and 1.8 percent from wood/wood waste.[50] In 2007, the U.S. Department of Energy designated Tucson as a "Solar America City". Arizona's large desert areas offer some of the highest solar power potential in the country.[51]

A number of fueling stations in the Tucson area offer alternative fuels, including biodiesel, compressed natural gas (CNG), electric power, ethanol (E85) and propane and the number of distribution and retail sites is expanding rapidly. CNG, propane and electric were among the first alternative fuel sources to be used. Tucson was one of the first five official launch markets for the Nissan LEAF (an all-electric passenger vehicle).[52] All-electric and plug-in hybrid vehicles are now prevalent. Wind energy in Arizona is largely limited to the consistent winds on the Colorado Plateau.[53]

Energy Demand

Arizona uses energy primarily in the forms of electricity and petroleum (for transportation).[54] While Arizona ranks near the middle of states in total energy consumption per capita, energy consumption is low and the State economy is not energy intensive. More than ½ of Arizona households rely on electricity for home heating mainly from coal-fired plants, hydroelectric power, and nuclear power.[55]

Residential consumers account for 394.7 trillion BTUs or 41% of the total energy use in the State, commercial for 345.5 BTUs or 36%, and 221 BTUs at 22% for industrial development.[56] Arizona households use 26% less energy than the U.S. average. Arizona consumers use 17% of their overall consumption for air conditioning whereas the national average is 6% with a greater percentage going toward space heating nationally (41%) than on a state level (15%).[57] Three fourths of the natural gas consumption in Arizona is for electricity. Two-fifths of Arizona households rely on natural gas for home heating. The middle range energy consumption by the state also means that the 8 percent of renewable energy sources accounts for an even smaller impact on the use and type of energy.

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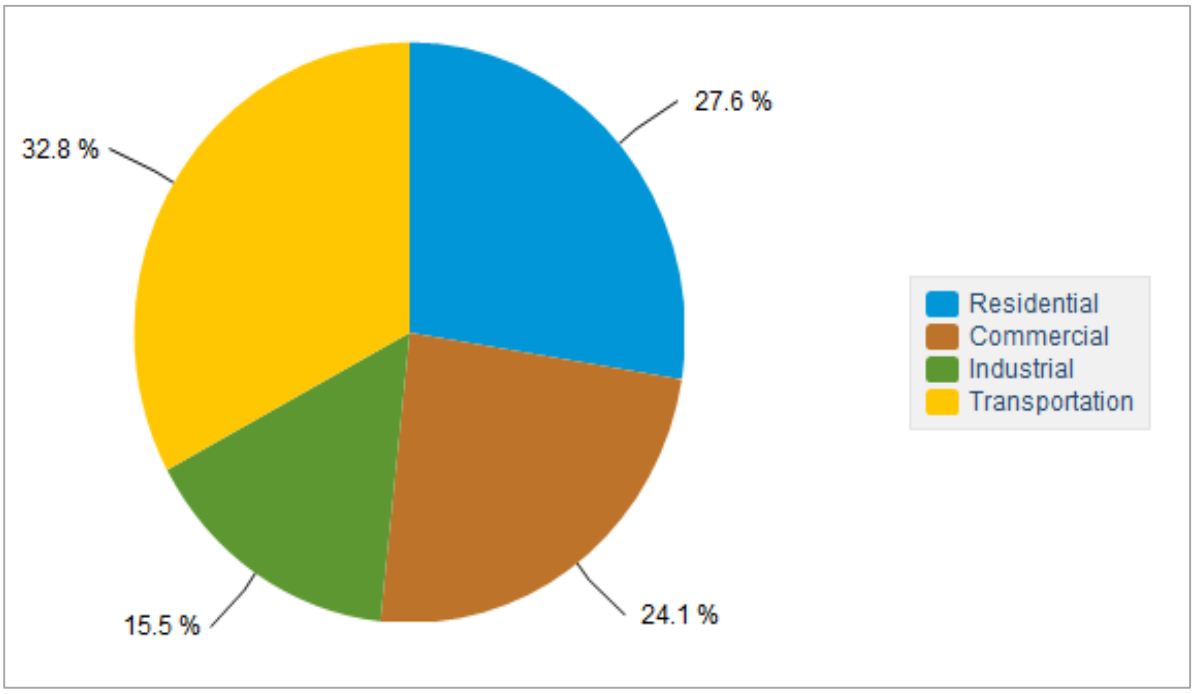
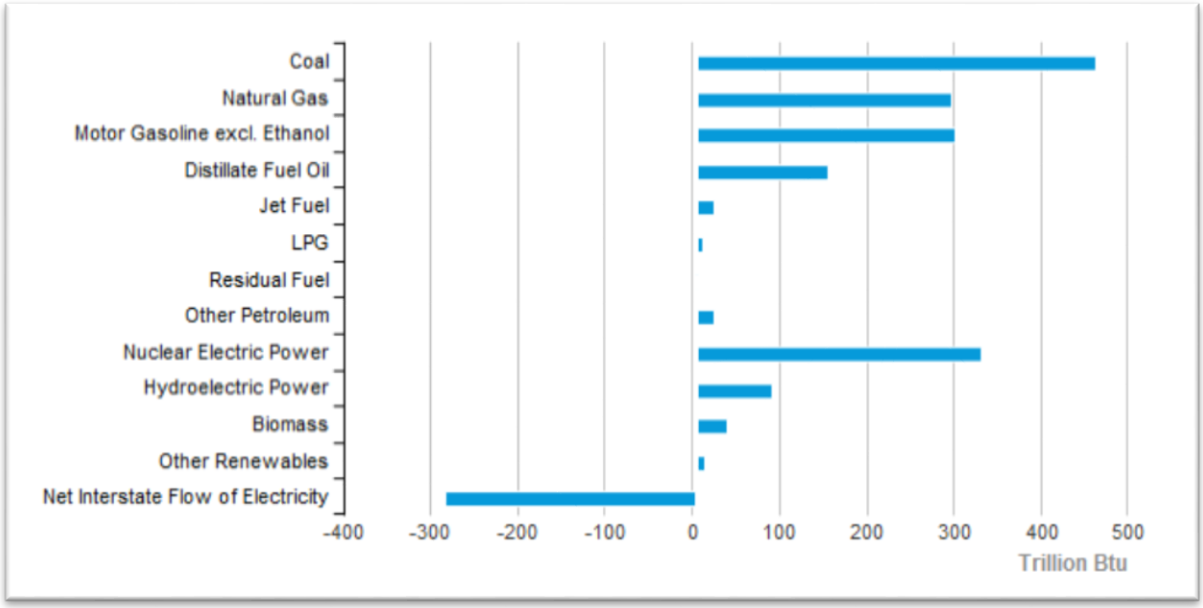
50 U.S. Energy Information Administration, Arizona State Energy Profile Analysis, U.S. Department of Energy, October 2009
51 Ibid
52 Ibid
53 Power Arizona, ArizonaExperience.org, 2013
54 Ibid
55 U.S. Energy Information Administration, Arizona State Energy Profile Analysis, U.S. Department of Energy, October 2009
56 U.S. Energy Information Administration, Energy Consumption Overview 2011
57 U.S. Energy Information Administration, Arizona State Energy Profile Analysis, October 2009



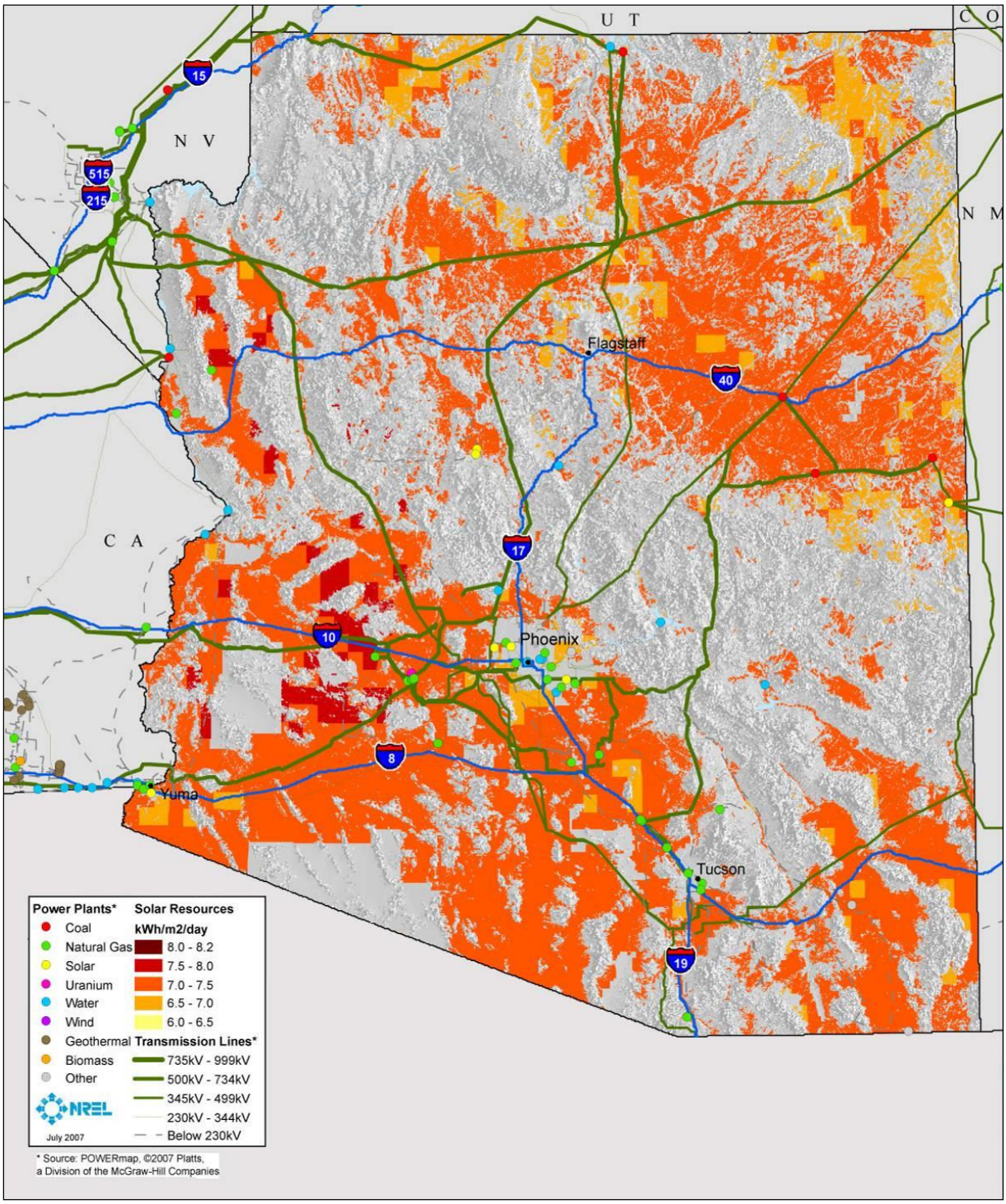
Source: U.S. Energy Information Administration, Arizona State Energy Profile Analysis, October 2009

Figure 3: Arizona Energy Consumption by End-Use Sector, 2011



Source: U.S. Energy Information Administration, Arizona State Energy Profile Analysis, October 2009

Figure 3: Arizona Energy Consumption Estimates, 2011



Source: Arizona Solar Power Map, National Renewable Energy Laboratory, July 2007

Figure 4: Arizona Solar Power map

Renewable Energy Incentive District (REID)

The Renewable Energy Incentive District (REID) ordinance was adopted by the Pima County Board of Supervisors to entice large-scale renewable energy facilities to develop on specifically selected sites. Given Pima County's abundant solar energy resources, the County wants to encourage its use to off-set the need for fossil fuels if the photovoltaic solar facilities, particularly on REID sites which are lands that do not compromise other County interests such as protecting unique desert resources. Establishing the REID sites minimizes potential adverse impacts and provides the development community more certainty in where to locate. REID solar facilities are limited to photovoltaic systems or "other technology that does not use any more water than would be used by a photo-voltaic system" as photovoltaic systems use little to no water. Incentives to develop on REID sites are offered by the various county development review departments and offices such as waived or reduced regulations and fees and expedited review processes. Promoting renewable energy sources also provides clean jobs and adds to the variety of industries upon which southern Arizona's economy is based. And, as solar development increases, it is likely that solar energy costs will decrease and photovoltaic production will become more and more cost-effective.

Other Forms of Clean Energy

In addition to solar and wind, the Arizona Corporation Commission's Renewable Energy Standards also encourage utility companies to use biomass, biogas, geothermal and other similar technologies to generate "clean" energy to power Arizona's future. Pima County's Regional Wastewater Reclamation Department (RWRD) is embarking on using biogas byproduct of wastewater treatment from its Tres Rios Wastewater Reclamation Facility. The Tres Rios WRF produces digester gas mostly of methane and carbon dioxide, a byproduct of the anaerobic digestion process.

Net Zero Energy

Local government energy policy commonly focuses on the supply of the necessary energy for the community. Energy efficiency is rarely considered a "source" of energy. However energy efficiency is the largest untapped "source" of cost effective energy. The baseline for building energy efficiency is the International Energy Conservation Code (IECC). Pima County adopted the 2012 IECC which is 30% more efficient compared with the 2006 IECC. A study by the U.S. Department of Energy found that the cost of the energy efficiency improvements in a typical 2012 code home are approximately $3,256 more than a 2006 code home with home owner savings per year of $293 for a return on investment of 7%.

In addition to solar and wind, the Arizona Corporation Commission's Renewable Energy Standards also encourage utility companies to use biomass, biogas, geothermal and other similar technologies to generate "clean" energy to power Arizona's future. Pima County's Regional Wastewater Reclamation Department (RWRD) is embarking on using biogas byproduct of wastewater treatment from its Tres Rios Wastewater Reclamation Facility. The Tres Rios WRF produces digester gas mostly of methane and carbon dioxide, a byproduct of the anaerobic digestion process.

With its proximity to major markets coupled with large expanses of flat rooftops and relatively flat, open landscape, Pima County is well positioned for developing a thriving renewable energy industry that is prepared to satisfy the demands of the low carbon economy of the future. Per dollar invested, renewable energy and efficiency generate more jobs than any other energy-related industry sector and they rely primarily on the local workforce, insuring the jobs stay local. With the potential to host more than 8,000 gigawatts of solar statewide, wide scale deployment over the next 10-15 years would generate tens of thousands of construction-phase jobs, $10 billion in earnings and economic activity, and more than 4000 permanent jobs and $750 million annually in earnings and additional economic activity. Robust investment in a the development of a clean, renewable energy supply, will build a foundation for economic stability and growth, generating thousands of new high-paying jobs, boosting economic activity, conserving scarce water supplies, improving public health and enhancing energy security.

4.4 Wastewater Treatment

The Pima County Regional Wastewater Reclamation Department (RWRD) provides design, management and maintenance of the sanitary sewer system, including the conveyance and treatments systems (3,400+ miles of sewer, two metropolitan wastewater treatment plants and seven sub-regional facilities).

Exhibits 4.4.a and 4.4.b, Sewer Service Areas, included at the end of this chapter, show Designated Management Area Wastewater Treatment Facilities, Non-Designated Management Area Treatment Facilities, Marana Wastewater Reclamation Facility Service Area, and Pima County Regional Wastewater Reclamation Department Service Area by planning area.

Table 4.4.a shows Sewer Service Areas total acreage.

TABLE 4.4.a: Sewer Service Areas Total Acreage by Planning Area

Planning Area	Pima County Regional Wastewater Reclamation Department Service Area (Acres)	Marana Wastewater Reclamation Facility Service Area (Acres)
1) Avra Valley	194.73	52,827.66
2) Tucson Mountains	11,518.77	2,147.50
3) Southwest	11,980.28	0.00
4) Altar Valley	0.00	0.00
5) Upper Santa Cruz	8,751.56	0.00
6) Mountain View	0.00	0.00
7) Southeast	13,161.86	0.00
8) Central	70,596.04	0.00
9) Catalina Foothills	50,233.24	0.00
10) Rincon Valley	6,141.16	0.00
11) Tortolita	26,025.54	20,139.47
12) San Pedro	6.58	0.00
Total All Planning Areas:	**198,609.76**	**75,114.62**
Total County:	**198,609.76**	**75,116.46**

Source: Pima County Geographic Information Systems, 2013

Wastewater Assessment

Avra Valley Planning Area (1)

Inventory and Service Baseline

This planning area is served by one wastewater treatment facility, the Marana Wastewater Reclamation Facility (WRF). Only the Marana facility is physically located in the planning area serving the residents in the northwestern portion of the town.

The Marana WRF, located in the northern portion of the town, is currently operated by the Town of Marana and has a Designated Management Agency (DMA) status. The DMA status gives the town the authority to construct and operate new reclamation facilities in Marana. The Marana facility serves several master planned communities, including the Gladden Farms, Rancho Marana, and San Lucas, as well as the Marana Main Street and the Town's Municipal Complex. The facility is permitted to treat a design flow of 0.70 million gallons per day (mgd). The town currently operates and maintains the sanitary sewer conveyance system tributary to the facility.

Two privately owned package plants are also located in this planning area, one serving the Marana High School and the other one serving the Marana Community Correctional Facility. The plants have capacity of 0.07 mgd and 0.13 mgd and are permitted to treat onsite sewage only.

Existing Deficiencies

Expansion of the treatment and conveyance systems is predicated upon growth; its expansion primarily driven by the development community. Current development and growth patterns suggest that the Tres Rios facility service area is being adequately served by RWRD. Due to topographic constraints, the service connection to the Tres Rios facility for future developments downstream the facility may not be feasible without the addition of substantial infrastructure such as lift stations and lengthy conveyance lines. Future capacity allotments would require assessment by RWRD on a project-by-project basis. The Department has not identified and is not aware of any major service deficiencies within this area.

Potential Remedies and Projects

Necessary system augmentation is anticipated as new and infill developments occur in the planning area. The Department currently requires that any expansion of sanitary system resulting from new development shall be paid for by the developer or development.

Tucson Mountains Planning Area (2)

Inventory and Service Baseline

RWRD and the Town of Marana are the wastewater service providers in this planning area. There are three wastewater reclamation facilities in this planning area: the Tres Rios Water Reclamation Facility (TRWRF), the Agua Nueva (WRF), and the Rillito Vista WRF.

The service area includes a mixture of sewer service users, including residential, commercial and industrial, of which the dense residential developments of portion of the Town of Marana (e.g. Continental Ranch) and the City of Tucson comprise the majority. A well-served widespread sewer system exists for the Tres Rios and Agua Nueva wastewater facilities. Unincorporated areas of less dense suburban population are served by private individual septic systems. Such are the medium and large sized residential lots and single-family subdivisions located in the central portion of the planning area.

The Tres Rios WRF, located on N. Casa Grande Highway, collects and treats wastewater from the City of Tucson and surrounding areas. The facility is permitted to treat a design flow of 50 million gallons per day (mgd) of wastewater. The majority of the effluent produced is discharged into the Santa Cruz River.

The Roger Road WRF, located on W. Sweetwater Drive, along the east side of the Santa Cruz River, began operating in the 1950's is no longer in service and has been replaced by the Agua Nueva WRF. The plant had a maximum capacity of 41.0 mgd and collected and treated wastewater from within the City of Tucson and surrounding areas to the south as far as the state prison on Wilmot Rd., and east as far as the unincorporated community of Vail. The plant's effluent was discharged into the Santa Cruz River, or

reused for turf irrigation and other purposes, primarily through the City of Tucson's reclaimed water system. Sludge produced at the facility was transferred to the Regional Biosolids Facility for further treatment.

The Roger Road WRF was replaced by a new 32 mgd water reclamation facility, Agua Nueva WRF. The Roger Road plant was decommissioned after the new water reclamation facility was built.

Lastly, the Rillito Vista WRF is operated by the Town of Marana and comprised of a pond percolation wastewater treatment system, currently serves the Rillito Vista subdivision of approximately 67 lots.

One private septic facility in Area 2 is owned and operated by the Milagro Subdivision and Homeowner's Association. Disposal is via wetlands and subsurface drip irrigation. The system serves 28 homes.

Existing Deficiencies

The Department has not identified and is not aware of any existing service deficiencies within this planning area. The Department implemented the Regional Optimization Master Plan (ROMP) to ensure adequate treatment and conveyance capacity is available within Area 2 and the greater metropolitan area.

Potential Remedies and Projects

Expansion of the treatment and conveyance systems is predicted upon growth; its expansion primarily driven by the development community. Currently, RWRD adequately serves existing development in the planning area. The ways in which this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area. Developer driven expansion of conveyance system will be required as infill development occurs. The Department currently requires that any necessary expansion of sanitary systems resulting from new development shall be paid for by the developer or development.

Increased treatment capacity at the Tres Rios WRF, will meet the long-term treatment capacity needs for the area and the majority of tributary metropolitan area.

Growth and development, and particularly in the western portion of this area, is limited due to topographical and environmental constraints, therefore the system infrastructure expansion in this direction is unlikely.

Phase two of the previously mentioned ROMP included an upgrade and capacity expansion of the Tres Rios WRF from 37.5 mgd to 50 mgd. The majority of flows from the Roger Road WRF service area is now being treated at the Tres Rios WRF after the facility expansion was completed in 2014.

Concurrently phase three of the ROMP implementation was completed, including the construction of the Water Campus just north of the existing Roger Road WRF. The Water Campus replaced the old Roger Road plant and followed by the decommissioning of the Roger Road facility.

The new 32 million gallon-a-day Water Campus reduced the levels of ammonia and nitrogen in the effluent discharged into the Santa Cruz River, and was equipped with state-of-the art odor control features. The facility is highly automated and uses an innovative treatment technology that saves significant electrical power. No solids are handled at Water Campus; instead solids are conveyed to and treated at the upgraded Tres Rios WRF.

Southwest Planning Area (3)

The purpose of the wastewater management portion of the Southwest Infrastructure Plan (SWIP) is to quantify the impending consequences of proposed land uses in this planning area by developing a proposed interceptor sewer sizing and conceptual alignment plan. This servicing strategy considered serviceability and conversion issues for areas currently using septic systems. The infrastructure sizes, alignments, and locations provided in the SWIP are for planning purposes. Final details must be determined in follow-on preliminary and detailed design stages.

In addition, the study has included Pima County's ongoing and future planned upgrades at the Avra Valley WWTF and quantified the existing and committed capacity at the plant in light of the demand forecasts posed by the envisioned land uses in its upstream tributary area. Key wastewater treatment issues addressed by this study include effluent discharge issues posed by the receiving water bodies, regulatory constraints and treatment processes, biosolids handling, and opportunities for effluent water re-use. Probable capital and operations and maintenance (O&M) costs are included in the SWIP.

Analysis and Assumptions

Standard Pima County assumptions were used to estimate the sewer flows, including the following conservative assumptions. The average wastewater generation for residential development is 85 gallons per capita per day. The average wastewater generation for commercial and industrial developments is 1,000 gallons per acre per day. The average persons per dwelling unit is 2.7. Wastewater generation at existing school sites was calculated as Number of students x 20 gallons per student per day. Additional assumptions and design criteria are provided in the SWIP.

For planning purposes, those areas with densities below an assumed cost-effective threshold of 1.33 residences per acre (RAC) were not serviced via traditional gravity sewers. It was assumed that these areas would be served by septic systems should they be developed. Triggering flows for any proposed treatment plant expansion were set at 85% of the plant design inflow.

Basis of Existing and Future Sewage Generation Estimates

The volume of wastewater generated by existing developments was roughly estimated using Transportation Analysis Zone (TAZ) data from the Pima Association of Government (PAG). This TAZ data provided population data for both the year 2000 and projected populations at 2030. Current year (2007) population estimates were extrapolated from this 2000/2030 dataset assuming a constant linear growth rate.

Because TAZ data only extends out to the year 2030, the anticipated SWIP build-out will occur beyond the range of the current TAZ time frame. Future build-out flows were estimated based on the projected land use and population data provided by Pima County Planning Department.

Delineation of Sewer Sub-basins and Sub-areas

The study area within the Avra Valley sewer basin was divided into eight sub-basins numbered 1 through 8. These sub-basins were defined based on their natural drainage patterns and existing infrastructure. Given topographic conditions at the SWIP boundary, it may be possible to service additional adjacent areas in the future. One potential servicing expansion to the southwest towards Three Points was considered, however land uses in this area would quickly become constrained by the Conservation Land System (CLS), which forms the backbone of the Sonoran Desert Conservation Plan (SDCP).

Within the study area (but outside the delineated Avra Valley sewer service sub-basins) are three distinct sub-areas that are notable based upon their drainage condition. The 6,801 acre area located in the northwest corner of the study area cannot naturally drain to the Avra Valley WWTF via gravity flow. Given that the proposed growth density in this area is relatively low, on-site septic systems may prove to be the most feasible means of disposing of wastewater generated within this area.

The 5,219 acre area located in the eastern portions of the study area is part of the Agua Nueva WWTP sewer basin. In addition, on the ridge line between this area and the delineated Avra Valley WWTF sewer basin there is an indeterminate treatment destination area where future wastewater could potentially be directed to either the Avra Valley WWTF or the Agua Nueva WWTP. As directed by Pima County, areas outside the specifically delineated Avra Valley WWTF sewer basin were not examined in this Infrastructure Plan. Optimal means of servicing these subareas may be studied in subsequent planning projects.

Projected Population and Flow Statistics

The projected populations provided by Pima County planners at the time the SWIP was prepared were used to generate future wastewater flow estimates. Three growth scenarios were developed in Phase 1, describing higher density, medium density, and lower density scenarios. The Phase 2 population was closest to the Phase 1 medium density scenario.

In general, it does not make economic sense to provide public sewer service to subdivisions in locations where houses are located far away from each other. For the purposes of this planning level effort, only areas where the proposed RAC is higher than 1.33 (e.g. one unit on a lot equal to or larger than 0.75 acres) was considered for public sewer servicing. Based on this assumption, low density areas with a proposed RAC less than 1.33 will be on septic systems and will not contribute wastewater to the public sewer facilities.

TABLE 4.4.b: Acreage of Sub-basins and Sub-areas

Sub-basins and Sub-areas	Total Acreage
1	5,500
2	4,851
3	2,691
4	2,241
5	1,895
6	4,264
7	3,853
8	2,771
Non-Serviceable Area (by Gravity to Avra Valley WWTF)	6,801
Area in Roger Road WWTP Sewer Service Basin	5,219
Indeterminate Treatment Destination Area	3,519

Source: Pima County Southwest Infrastructure Study, 2007.

TABLE 4.4.c: Projected Total and Effective Population

Sub-basins and Sub-areas	Total Acreage
1	5,500
2	4,851
3	2,691
4	2,241
5	1,895
6	4,264
7	3,853
8	2,771
Non-Serviceable Area (by Gravity to Avra Valley WWTF)	6,801
Area in Roger Road WWTP Sewer Service Basin	5,219
Indeterminate Treatment Destination Area	3,519

Source: Pima County Southwest Infrastructure Study, 2007.

TABLE 4.2.d: Projected Total and Effective Population (Phase II Density Scenario)

Sub-basins and Sub-areas	Total Population	Effective Population	Percent of Public Sewer
1	36,904	29,654	80.4
2	23,512	21,244	90.4
3	20,623	19,688	95.5
4	5,743	3,424	59.6
5	8,073	6,288	77.9
6	17,240	13,338	77.4
7	6,229	1,231	19.8
8	5,500	4,010	72.9
Sub-Totals	**123,822**	**98,877**	**79.9**
Non-Serviceable Area (by Gravity to Avra Valley WWTF)	4,126	0	0.0
Area in Roger Road WWTP Sewer Service Basin	20,785	16,926	81.4
Indeterminate Treatment Destination Area	5,584	2,079	37.2

Source: Pima County Southwest Infrastructure Study, 2007.

As expected, denser developments lead to higher percentages of the population being serviced by public sewers. The total predicted Phase 1 influent ADWF flows at the Avra Valley WWTF ranged from 6.3 MGD for the lower density scenario up to 11.7 MGD for the higher density scenario. Inflows under the medium density scenario and the higher density scenario are higher than previously anticipated inflows to this facility. The addition of industrial and commercial lands to the development concept in Phase 2 resulted in a total predicted influent ADWF flow at the Avra Valley WWTF of 11.3 MGD.

Residual Capacity of Existing Sewers

For current conditions the great majority of the wastewater collection and conveyance system has sufficient capacity to convey the existing flow during peak wet weather flow periods. However, the residual capacity in the existing system is not sufficient to accommodate the proposed future flows at all locations.

Proposed Expansion of Conveyance Systems

Proposed expansion of conveyance systems is discussed in detailed and mapped in the SWIP study for this planning area.

Sub-basin/Sub-area Phase II Density Scenario

A revised wastewater servicing plan was developed during Phase II to accommodate the residential, industrial, and commercial lands in the altered development concept. The service areas include Ryan

Airfield to support industrial employment possibilities. During both Phase 1 and Phase 2 it was determined that the existing system is not sufficient to accommodate the entirety of the anticipated future flows. It was assumed that in many cases the conveyance capacity of existing sewers would be augmented by the addition of sewers installed in parallel with existing sewers. The existing pipes requiring augmentation are highlighted in red.

For Phase 1, in order to service the proposed development in the southwest corner of the SWIP area, a new trunk sewer will be necessary. The proposed trunk, which extends along the West Ajo Highway, is schematically shown on the maps for the purposes of this study. The eventual constructed alignment must be determined through a formal route study. This trunk has been sized to handle wastewater generated in the adjacent yellow-colored areas within the SWIP boundary.

For Phase 2, the concepts evolved. In Basin 6 the flow from the northeast was split. One segment flows to the south in an 8-inch line and then west in a 12-inch line. The other segment flows west and then south in a 12-inch line. It was assumed that the flow split could be accomplished so that the two segments would not exceed capacity. If this assumption is incorrect and the flow cannot be split to avoid exceeding capacity in either segment, portions of these sewers would have to be augmented. In order to service the proposed development in the southwest corner of the SWIP area, new trunk sewers will be necessary.

The proposed trunk sewers, which extend along West Ajo Highway and skirt the west edge of Ryan Airfield are schematically shown in the SWIP study. The eventual constructed alignment should be determined through a formal route study. The route study should consider at least the following factors: the routing of the sewer or sewers to serve this area, the size of the sewers, and how much of the area, if any, could be served by a sewer west of Ryan Airfield.

Wastewater Treatment Capacity and Currently Proposed Expansion

Existing Treatment Capacity

The Avra Valley WWTF is a biological nutrient removal oxidation ditch with an ADWF design capacity of 4 MGD.

Expansion Acheived in CIP

Due to the ongoing and rapid growth in the Avra Valley WWTF service area, Pima County authorized a plant expansion of 4.0 MGD additional capacity. The new expansion constructed two new parallel 2.0 MGD process trains. The original oxidation ditch was designed and built as a temporary facility. After the 4.0 MGD expansion, the original oxidation ditch was taken out of service. The County then replaced the existing system with the new 4.0 MGD ditch system to the Modified Ludzak-Ettinger (MLE) process to create additional capacity.

The improvements provided an additional 4.0 MGD capacity include a new inlet gravity sewer and influent lift station, modifications to the headworks, two biological nutrient removal oxidation ditches,

clarifiers, continuous backwashing deep bed filters, ultraviolet (UV) disinfection, sludge holding basins, sludge thickening equipment, dewatering equipment, means of additional effluent discharge to percolation basins and/or the Black Wash spray fields, and upgrades to the process water, odor control, and electrical systems. Initially, solids were stored on-site, dewatered to 5% to 6% solids content, and trucked to the Ina Road WPCF for further digestion. Future on-site aerobic digestion may be considered at some point.

The influent lift station and headworks were designed for an ultimate ADWF flow of 6.2 MGD and a peak flow of 12.0 MGD. Solids handling from both new treatment trains and the existing system are combined and thickened in an aerated and mixed holding tank prior to aerobic digestion. The sludge is dewatered and trucked to land application sites. A tertiary filtration area was planned and basin capacity constructed for ultimate 6.2 MGD. The filtration and ultraviolet disinfection equipment was sized to treat 4.0 MGD.

This 4.0 MGD expansion was programmed within the CIP and is completed. The total combined cost for the Avra Valley WWTF 4.0 MGD Biological Nutrient Removal Oxidation Ditch (BNROD) Expansion project delivery is $44,900,000. Included in these costs is the purchase of heavy equipment to operate and maintain the effluent disposal ponds in a proactive manner to maximize their disposal capacity. This amount is being financed through a combination of 2004 Bonds under an amended bond authorization and System Development Funds.

Additional Required Treatment Capacity Expansion

In Phase 1 Pima County planners developed three SWIP scenarios with varying levels of development intensity. From a wastewater treatment design point of view, the total required treatment capacity at the Avra Valley WWTF for the higher, medium, and lower density scenarios were considered.

Lower Density Scenario

An expansion adding 4.0 MGD capacity has been programmed into the CIP and is in the process of being delivered. With this 4.0 MGD addition, the Avra Valley WWTF could theoretically treat an ADWF of up to 6.2 MGD, however the original oxidation ditch was designed and constructed as a temporary facility and has already been in operation for an extended period of time. Once the 4.0 MGD addition is finished, it is recommended that this temporary facility be taken out of service. A new facility expansion would then be pursued to provide sufficient treatment capacity to support the lower density scenario ADWF of 6.5 MGD.

Avra Valley WWTF requirements related to this scenario will include maintaining the proposed 4.0 MGD and replacing the existing 2.2 MGD capacity oxidation ditch with an equivalent means of treating 2.5 MGD capacity. Through these additions the Avra Valley WWTF would continue to be capable of producing Class A+ effluent.

Medium Density Scenario

An ADWF capacity of 9.5 MGD will be required to support the population represented by the medium density scenario. Avra Valley WWTF requirements related to this scenario will include the maintenance of a total capacity of 4.0 MGD from the ongoing expansion, and the construction of an additional 5.5 MGD of ADWF treatment processes capable of producing Class A+ effluent.

Higher Density Scenario

An ADWF capacity of 12.0 MGD will be required should the higher density development scenario transpire. Avra Valley WWTF requirements related to this scenario will include the maintenance of a total capacity of 4.0 MGD from the ongoing expansion, and the construction of an additional 8.0 MGD of ADWF treatment processes capable of producing Class A+ effluent.

In Phase 2, Pima County planners transitioned to a single most probable SWIP development scenario with projected levels of development intensity. An ADWF capacity of 12.0 MGD will be required for the Phase 2 development scenario. Avra Valley WWTF requirements related to this scenario include the maintenance of a total capacity of 4.0 MGD from the ongoing expansion, and the construction of an additional 8.0 MGD of ADWF treatment processes capable of producing Class A+ effluent.

Probable Costs for Effluent Disposal

As part of the SWIP, the probable costs for effluent utilization were developed based on three options. The first option assumed 100% of the treated effluent is recharged using on-site percolation ponds. The second option used a combination of percolation ponds and riparian restoration. The third option maximized urban re-use in combination with either percolation or both percolation and habitat restoration. Under option three, three major regional parks were included.

Summary of Wastewater Capital Costs

SWIP-related wastewater capital projects to be funded by Pima County (developer-borne conveyance costs have been omitted) depended upon the density scenario during Phase 1 but was simplified in Phase 2 to represent total approximate cost ranging from $127,652,000 to $165,067,000 in 2007.

Altar Valley Planning Area (4)

According to the 2000 and 2010 US Bureau of the Census, Altar Valley planning area as one of the lowest population densities in Pima County with 7 persons per square mile. The area includes portion of the Tohono O'odham Nation, the Buenos Aires National Wildlife refuge, the Baboquivari Peak Wilderness Area, the Coyote Mountain Wilderness Area, the Ironwood Forest National Monument and slivers of the Tohono O'odham Nation San Xavier District. Privately owned lands constitute approximately 16.8 percent of the planning area.

Most of the land in this planning area are under the Conservation Land System. Most of the planning area is undeveloped. Therefore, most of the wastewater systems is serviced by septic tanks. Commercial development is limited to Three Points and Arivaca. Given the low population density, the low 2 percent increase in population between 2000 and 2010, the presence of a variety of wilderness areas and the current land use trends, it is anticipated that this area will remain serviced by private septic tanks or small treatment plants.

Upper Santa Cruz Planning Area (5)

Inventory and Service Baseline

There are two wastewater service providers in Area 5; the Town of Sahuarita and Pima County Regional Wastewater Reclamation Department (RWRD). There are two facilities physically located in this area, the Green Valley Wastewater Reclamation Facility (WRF), being the primary wastewater service provider for the Area, and the Arivaca Junction WRF, serving two residential subdivisions. Both facilities are managed and operated by RWRD.

The Green Valley WRF, located at 19600 S. Old Nogales Highway, along the east side of the Santa Cruz River, is comprised of two independent treatment trains that are permitted to treat a design flow of 4.1 million gallons per day (mgd). Additional service areas for the Green Valley WRF will be determined by growth in the PAG Plan Joint Management Areas.

The Arivaca Junction WRF, located at 28601 S. Nogales Highway at the Pima/Santa Cruz County line, consists of a 3.2 acre pond and is permitted to treat 100,000 gallons per day (gpd). The plant is scheduled to close upon the completion of developer driven connection between the service area and Green Valley WRF.

Subsequent to the plant closure, the conveyance flows from the Arivaca Junction WRF service area will be diverted to the Green Valley WRF. The timing of the sewer extension is mainly driven by the Canoa Ranch Development, as the two most downstream phases of the sewer extension are to be built by the developer. The final phase, which consists of the construction of approximately one mile of gravity sewer tying into the existing line at Elephant Head Road, will be completed by the County.

Along with the future sewer extension, a scalping plant that would treat the combined effluent from the Arivaca Junction facility is being evaluated for the Old Canoa Ranch. This reclaimed water will be used for the park irrigation and habitat restoration at the Old Canoa Ranch.

Existing Deficiencies

The Department does not have any existing service deficiencies within area five. Expansion of the treatment and conveyance systems is driven by growth; its expansion is primarily driven by the development community. The facility is permitted to treat 4.1 million gallons a day (MGD), and currently sees flows that average 1.8 MGD to 2.2 MGD depending on the time of year.

The Green Valley WRF serves a population that is unique when compared the service areas of other treatment facilities within Pima County. The population served by the Green Valley WRF is predominately made up of retired, senior citizens, with a portion of them listing residences outside of southern Arizona as their primary residence. The make up of this population accounts for the fluctuation of flows over the course of the year.

Potential Remedies and Projects

The Department also desires to provide additional wastewater service to the areas surrounding the Green Valley WRF service area, as these areas develop and additional conveyance capacity is required.

Conveyance of the Arivaca Junction wastewater flows to the Green Valley WRF for treatment is a long range goal for this planning area. A couple of milestones must be reached before this takes place. First, the Canoa Ranch Development, on the west side of I-10, must construct two phases of sewer to serve the additional 3,917 dwelling units. Then, the County must build a new sewer to complete the connection.

Mountain View Planning Area (6)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the designated sewer service provider for this area. However, currently there is no public sewer infrastructure to serve this area. The nearest public sewer is several miles away in the adjacent Planning Areas 7 and 10.

The sparsely populated areas of this planning area are all served by private septic systems. RWRD currently does not have plans for sewer system extension in this area. Densities requiring public sanitary sewer service in this region are unexpected.

Most of the land within this planning area is owned by the Arizona State Land Department, the Bureau of Land Management and the Coronado National Forest. Only 14 percent of the area are privately owned lands. The sparsely populated are contains very little economic activity with just five Tucson business licenses. The area is sparsely develop and where developed is by large lot single-family. According to the US Bureau of the Census, the area had a population density of 4 people per square mile in 2000 and 5 people per square mile in 2010 respectively.

Southwest Planning Area (7)

Inventory and Service Baseline

There are two wastewater service providers in this planning area, the Town of Sahuarita and Pima County Regional Wastewater Reclamation Department. There are two facilities physically located in this planning area: the Corona de Tucson Wastewater Reclamation Facility (WRF); and the Pima County

Fairgrounds WRF. Unincorporated areas of less dense rural population are served by septic systems. The Corona de Tucson WRF, located at 1100 W. Sahuarita Road, is permitted to treat 1.3 million gallons per day (MGD) of wastewater. The facility is topographically constrained to areas south of West Sahuarita Road. Land ownership surrounding the facility is primarily large lot private residential, Bureau of Land Management, and State Trust Lands. The Pima County Fairgrounds WRF, located at 11300 S. Houghton Road, is permitted to treat an annual average of 20,000 gallons per day (GPD) of wastewater.

Existing Deficiencies

The RWRD does not have any existing service deficiencies. Expansion of the treatment and conveyance systems is driven by growth; its expansion is primarily driven by the development community.

There are landownership patterns that will markedly affect the current and future distribution of land uses in this planning area. On balance, there is a comparatively small percentage of land that is held in private ownership. The Arizona State Land Department, the U.S. Forest Service, and to a lesser degree, the Bureau of Land Management owns the majority of land in this planning area. With the location and speed of growth largely driven by the actions of the Arizona State Land Department, it is important that the growth occur in a radial manner, growing out from the existing system instead of leapfrogging. The RWRD continuously evaluates the capital costs associated with potential service deficiencies; however, current development and growth patterns suggest that this planning area is being adequately served.

While RWRD adequately serves existing development in the planning area, the possibility of an additional 350,000 people would require the expansion of services within this area. How this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area. RWRD does not foresee the need, nor are there plans, to rehabilitate or augment any of their treatment or conveyance systems within the Southlands Service Area within the next six years. Both the treatment and conveyance systems within this area are relatively new, and in compliance with all permits that apply to the respective system.

The Town of Sahuarita Southeast Conceptual Area Plan

The Town of Sahuarita is currently working with the Arizona State land Department in the preparation of the Town of Sahuarita Southeast Conceptual Area Plan (SECAP) within this planning area. The SECAP encompasses approximately 38,170 acres or 59.6 square miles. It is anticipated that these area will be annexed to the Town's corporate boundary.

Potential Remedies and Projects

RWRD does recognize that future growth in this area will necessitate the expansion of these systems, but at a cost of the developer. It is RWRD's current requirement that any expansion needs that arise from new development shall be paid for by the developer or development.

Specific service considerations related to the potential for growth are:

- *Verano - Projected 1.72 million gallons per day.* If developed according to existing planned residential and non-residential uses, this 3,200-acre development, at build-out, would generate approximately 1.72 million gallons per day (mgd) which would be treated at the proposed Southlands WRF. The timing for construction of this facility will be determined by growth in the area. The RWRD is sufficiently able to handle the current level of service required of the system's users. The RWRD is continuously evaluating the needs for future treatment and conveyance capacities relative to future growth to ensure continued level of service demands are met.
- *Southlands WRF.* This WRF is to be designed to accommodate the 1.72 mgd to be generated from Verano as well as the additional 9.7 mgd projected to be generated by the balance of the Southlands Service Area. However, the Southlands WRF would likely be designed initially to accommodate flows yielded by the first phases of development in Verano with allowances for additional expansion capacity to treat flows generated from the rest of the Southlands Service Area. When and where flows from future development in the Southlands Service Area exceed the availability of treatment capacity at the Southlands WRF, some developments may be required to convey wastewater flows to other adjoining service areas. The proposed Hook M development near Kolb and Sahuarita Roads also falls within the Southlands Service Area, but flows could be conveyed via force main to the Corona de Tucson WRF if the Southlands WRF is not constructed.
- *Fairgrounds WRF*. This facility has operational capacity for approximately 20,000 gpd, however, this has been allocated for development within the Southlands Service Area that are coming online currently and in the immediate future. Once sufficient base flows have been established, the flows may be conveyed to either the Agua Nueva basin, via the Southeast Interceptor, or the proposed Southlands WRF.
- *Corona de Tucson WRF*. This WRF and its associated service basin is constrained due to surrounding topography and little land available for future development within the service basin. Any additional development, beyond what is entitled and platted, will likely require expansion of the treatment facility. Unless the potential for future development increases due to the release of tracts of State Trust land, the need to consider providing increased treatment capacity would likely come from developments located in the Southlands Service basin that must convey flows to the Corona de Tucson WRF.

Central Planning Area (8)

While RWRD adequately serves existing development in the planning area, how this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area. RWRD does not foresee the need, nor are there plans, to rehabilitate or augment any of their treatment or conveyance systems in this planning area within the next six years. Both the treatment and

conveyance systems within this area are relatively new and in compliance with all permits that apply to the respective system.

RWRD does recognize that future growth in this area will necessitate the expansion of these systems, but at a cost of the developer. It is RWRD's current requirement that any expansion needs that arise from new development, shall be paid for by the developer or development.

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the wastewater service provider for this area. Three facilities serve Area 8, the Agua Nueva Wastewater Reclamation Facility (WRF), the Tres Rios Water Reclamation Facility TRWRF, and the Randolph Road WRF. Only the Randolph Road WRF is physically located in this planning area.

The Randolph Park WRF is a scalping plant located at 3805 E. 22nd Street. The facility treats wastewater en route to the Agua Nueva WRF and has a maximum average monthly flow of 3.5 MGD diverted from an interceptor two miles to the west. The treatment process consists of anoxic tanks, aeration tanks, membrane bioreactors and ultraviolet (UV) disinfection. Class A quality reclaimed water is pumped into the City of Tucson's Reclaimed Water System. A limited amount of water is used for onsite landscape irrigation. Generated sludge is further processed at the Tres Rios Water Reclamation Facility TRWRF. There are no current plans to expand the capacity of the Randolph Park WRF.

Conveyance of wastewater flow from this planning area tributary areas to the Agua Nueva WRF is accomplished by multiple interceptors: the Southeast Interceptor (SEI), Aviation Corridor to Santa Cruz (ACSC), Aviation Corridor to Southeast (ACSE), Santa Cruz Interceptor (SCI), South Rillito (SRI), and Pantano Interceptor (PTI). Conveyance of flow to the Tres Rios Water Reclamation Facility TRWRF is by the North Rillito Interceptor (NRI).

Existing Deficiencies, Future Concerns, and Potential Remedies

The Department has not identified and is not aware of any existing service deficiencies within this planning area. The Department has completed the Regional Optimization Master Plan (ROMP) to ensure adequate treatment and conveyance capacity is available within the metropolitan area.

Expansion of the treatment and conveyance systems is predicated upon growth; its expansion primarily driven by the development community. The majority of land in Area 8 is privately owned and developed as this area includes the densely populated central region of Tucson. However, significant growth has occurred in the last several years in the southeast section of Area 8 where the majority of private land is still available for development.

Augmentation of the SEI segment along Euclid Avenue between 36th Street and 18th Street, primarily conveying flow from the southeast area, has been identified by the Department as a short term priority to mitigate this concern. The Department is currently calibrating the hydraulic model it uses to determine the potential impacts of various proposed hydraulic planning scenarios. These scenarios can be further developed to determine if additional expansion of the SEI is necessary. Further augmentation of other segments of the conveyance system is also anticipated as new development and infill occurs in this area.

Currently, the relatively slow pace of development does not create immediate demand for additional treatment capacity. Increased treatment capacity at the Ina Road WRF, which is currently undergoing upgrade and expansion, will meet the long-term treatment capacity needs for this area and the majority of metropolitan area.

The need for a new sub-regional facility and/or a new scalping plant to serve the far southeast area has been identified in the 2006 Metropolitan Area Facility Plan Update. Three potential locations in Area 8 have been evaluated by the Department. A major factor in assessing the timeframe (year 2010 or 2015) for facility construction was the rate of development of the Houghton Area Master Plan (HAMP), which to date remains largely undeveloped. ROMP implementation process, of which the first phase of the plant interconnect was completed in 2010, and the two subsequent phases were completed in 2014. The plant interconnect consists of the construction of the Santa Cruz Interceptor that allows a portion of the wastewater tributary to the Agua Nueva WRF to now be conveyed to the Tres Rios WRF for treatment. The new interceptor was primarily constructed to increase flow and capacity management opportunities between the two plants. It consists of five mile pipes varying in size from 60 to 72 inches in diameter, and is designed to handle an average flow of 36 MGD with 81 MGD peak flow.

Phase two included an upgrade and capacity expansion of the Tres Rios Water Reclamation Facility WRF from 37.5 MGD to 50 MGD. The majority of flows from the Agua Nueva WRF service area are treated at the Tres Rios Water Reclamation Facility WRF. The third phase of the ROMP implementation process was the construction of a new water reclamation campus north of the Roger Road WRF. The new facility is designed to reduce the levels of ammonia and nitrogen in the effluent discharged into the Santa Cruz River. The facility does not handle solids, which will be conveyed to and treated at the Tres Rios Water Reclamation Facility WRF. Class A+ quality effluent will be produced.

Functional Area-specific Considerations

Wastewater Reclamation

Currently, RWRD adequately serves existing development in the planning area. The ways in which this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area. Developer driven expansion of conveyance system will be required as infill development occurs, particularly in the southeast area. The RWRD has identified two primary goals for

this area; (1) augmentation of the SEI, a short-term priority aimed at mitigating flow concerns associated with growth in the southeastern section, and (2) construction of a new regional reclamation facility and/or a scalping plant, a long-term planning goal for this planning area.

RWRD recognizes future growth in this area will necessitate the expansion of treatment and conveyance systems. The Department currently requires that any necessary expansion of sanitation systems resulting from new development shall be paid for by the developer or development.

Catalina Foothills Planning Area (9)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the wastewater service provider for this planning area. The area is served by three wastewater treatment facilities, of which only the sub-regional Mt. Lemmon Wastewater Reclamation Facility (WRF) is located in this planning area. The other two facilities are the Agua Nueva WRF and the Tres Rios Water Reclamation Facility WRF , located in Planning Area 2.

The Mt. Lemmon WRF service area is comprised of the Catalina Mountains of unincorporated Pima County, including the community of Summerhaven in Mt. Lemmon, as well as the far-east side of the Tucson metropolitan area. These are at the same time the northernmost and easternmost points of the RWRD service area. All population in the service area is well served by existing facilities. Low-density suburban and rural populations in this planning area are served by private septic systems.

Two gravity interceptors are responsible for collecting wastewater flow from the south-central portion of this area to the receiving treatment plants on the west side of the Tucson metropolitan area. They are: the North Rillito Interceptor (NRI) and the Tanque Verde Interceptor (TVI). In addition, the Summerhaven community in the Mt. Lemmon is served by isolated conveyance system that covers a small service area of less than a square mile in size.

The Mt. Lemmon WRF, located on N. Sabino Canyon Park Road, in the town of Summerhaven, is permitted to treat domestic sewage from a maximum of 77 properties. Currently the system has only 49 connections of which only forty-five percent is active. The maximum treatment capacity requirement is established by an agreement between Pima County and the United States Forest Services (USFS). The Mt. Lemmon WRF service area is primarily residential with a few commercial establishments, including restaurants and gift shops.

The current treatment capacity of the Mt. Lemmon WRF is 20,000 gallons per day (gpd). The facility uses an oxidation ditch with chlorination and dechlorination providing secondary treatment of domestic sewage. Produced sludge is hauled of the mountain to the nearest sewer line, from where it is further conveyed to the Tres Rios WRF and the Regional Biosolids Facility for processing and conditioning.

Since the Mt. Lemmon sewer system is entirely within the boundaries of the Coronado National Forest, the USFS has significant input into future plans for growth, water use, and effluent disposal for the sewer system. This requires continuous collaborative efforts between the RWRD and USFC in preparing long-range plans for the future of the Mt. Lemmon sewer system.

Also, in this planning area, specifically in the Santa Catalina Mountains, USFC operates a small treatment system, an anaerobic lagoon type of system that treats sewage from a local ranger station. Treated effluent is seasonally reused for irrigation.

Existing Deficiencies

Expansion of the treatment and conveyance systems in predicted upon growth; its expansion primarily driven by the development community. Currently, RWRD adequately serves existing development in the planning area. The ways in which this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area.

The department is constructing an augmentation project to increase capacity of the NRI.

The Department has not identified and is not aware of any other major service deficiencies within Area 9. Augmentation of other segments of the conveyance system is anticipated as new development and infill occur in the planning area. The Department currently requires that any necessary expansion of sanitation systems resulting from new development shall be paid for by the developer or development.

Due to current economic trends that have greatly slowed growth taking place on the mountain, the sub-regional wastewater treatment facility of the Mt. Lemmon is anticipated to remain the same in regards to current treatment capacity, serving limited service area with steady service demand. In addition, development in Summerhaven is rather limited due to topographical and environmental constraints. Future connections to the collection system are currently allowed at the expense of developers and new home construction. RWRD remains the service provider retaining the sole system ownership.

Potential Remedies and Projects

Increased treatment capacity at the Tres Rios WRF will meet the long-term treatment capacity needs for this area.

Rincon Valley Planning Area (10)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the wastewater service provider for this planning area. There are currently no RWRD wastewater facilities in this planning area. The sewer infrastructure is limited to serving residential subdivisions in the western portion of the planning area.

This area is situated within the group of sewer basins tributary to the Agua Nueva Wastewater Reclamation Facility (WRF). Wastewater is collected via gravity sewer and conveyed to the Agua Nueva WRF for treatment. Two major interceptors serve this area, the Pantano Interceptor (PTI) and the Southeast Interceptor (SEI). The PTI collects sewage from the northern portion while the SEI generally collects sewage from the southern portion of the planning area. The interceptors are located outside this area.

The service area is comprised of mostly single family residential subdivisions in the Vail Valley Ranch Specific Plan area. The service area boundary extends to the edge of the existing subdivisions. A number of low to medium density subdivisions, including individual lots of less dense population are served by private septic systems.

Existing Deficiencies

Expansion of the treatment and conveyance systems is predicted upon growth; its expansion primarily driven by the development community. Current development and growth patterns suggest that this area is being adequately served by RWRD. Future capacity allotments would require assessment by RWRD on a project-by-project basis. The Department has not identified and is not aware of any major service deficiencies within this area.

Potential Remedies and Projects

Necessary system augmentation is anticipated as new and infill developments occur in the planning area. The Department currently requires that any expansion of sanitation system resulting from new development shall be paid for by the developer or development.

Service expansion is anticipated as new growth materializes particularly in the proposed master-planned communities of Rocking K. Augmentation of the PTI would be necessary in order for this development and other planned developments in the northern portion of this area to be adequately served by public sewer. Similarly, planned expansion of the SEI capacity would benefit the southern portion of the planning area, as well as the adjacent Planning Areas 7 and 8.

Tortolita Planning Area (11)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the primary wastewater service provider for this planning area. The service area includes the Towns of Marana (east of I-10) and Oro Valley, unincorporated areas between the Towns of Marana and Oro Valley, including the village of Catalina, as well as several subdivisions in Pinal County. A small portion of Area 11 on the east side of I-10 is served by the Marana Wastewater Reclamation Facility (WRF), currently maintained and operated by the Town of Marana.

The developed parts of the service area consist primarily of low to medium density residential and rural residential transitioning to suburban/urban land uses. Additional land uses in the area include commercial and industrial. A potential for extensive development and additional sewer service demand in this area exists.

Currently there are no existing RWRD wastewater facilities in Area 11. The primary wastewater service facility is the Tres Rios WRF, located in Planning Area 2. Combined flows from this planning area tributary areas are conveyed via the Canada del Oro Interceptor (CDO). Unincorporated areas of less dense population are served by septic systems.

Two small privately-owned wastewater facilities are located in this planning area, the Adonis Sanitary Sewerage Facility and the Saguaro Ranch Guest Ranch package plant. Both are limited by permits to only treat flow from the Homeowner's Association (approximately 150 mobile homes) and the Guest Ranch.

Existing Deficiencies

The Department has not identified and is not aware of any existing service deficiencies within this area. The Department has implemented the Regional Optimization Master Plan (ROMP) to ensure adequate treatment and conveyance capacity is available within this area.

Potential Remedies and Projects

Expansion of the treatment and conveyance systems is predicted upon growth; its expansion primary driven by the development community. Currently, RWRD adequately serves existing development in the planning area. The ways in which this area develops will dictate the type of infrastructure expansion needed for RWRD to continue to effectively serve the area. Developer driven expansion of conveyance system will be required as infill development occurs. The Department currently requires that any necessary expansion of sanitation systems from new development shall be paid for by the developer or development.

The relatively slow pace of development currently does not create immediate demand for additional conveyance capacity. Increased treatment capacity at the Tres Rios Water Reclamation Facility WRF, which has undergone an upgrade and expansion, will meet the long-term treatment capacity needs for this area and the majority of metropolitan area. Future development in Area 11 will be served to either the Tres Rios WRF or Marana WRF. A new public wastewater facility is planned by the Town of Marana to serve the town's projected planning area. One of alternative locations for the new WRF is in this area.

Phase two of the previously mentioned ROMP implementation included an upgrade and capacity expansion of the Tres Rios WRF from 37.5 million gallons per day (MGD) to 50 MGD. The majority of flows from the Agua Nueva WRF service area are treated at the Tres Rios WRF since the expansion completion in 2014.

San Pedro Planning Area (12)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) is the designated sewer service provider for this planning area. The planning area is outside the reach of public conveyance system. No RWRD facilities exist in this area. The primarily rural population is served by private septic systems. The nearest public sewer is in the adjacent Planning Area 9, serving the Mt. Lemmon area.

Current development and growth patterns suggest that this planning area will continue to be served by on-site septic systems. RWRD currently does not have plans for sewer extension in this area. Densities requiring public sanitary sewer service in this region are unexpected.

Ajo-Why Planning Area (13)

Inventory and Service Baseline

Pima County Regional Wastewater Reclamation Department (RWRD) does not provide wastewater services to this planning area.

The Ajo Improvement Company owns the sewer treatment facility which treats over 46 million gallons of wastewater per year, however, there is interest in finding a new methods of processing th wastewater, especial its disposal which is currently pumped to the top of the New Cornelia mine trailings dam.

TABLE 4.4.e: Existing Capacity for Wastewater Facilities with a Design Capacity of 100,000 Gallons or More per Day by Sub-region

Facility Name	Facility Location	Design Capacity (Gallons)	Estimated Current Demand (Gallons)
Agua Nueva WRF		Agua Nueva WRF: 32.0 mgd	N/A
Arivaca Junction WRF	28601 Old Nogales Highway, Amado, AZ	100,000 gpd	48000 gpd
Avra Valley WRF		4.0 mgd	1.3 mgd
Corona de Tucson WRF	1100 W Sahuarita Road	1.3 mgd	0.27 mgd
Green Valley WRF	19600 S. Old Nogales Hwy, Green Valley	4.1 mgd	1.77 mgd
Tres Rios WRF	7101 N. Casa Grande Hwy	50 mgd	22.45 mgd
Randolph Park WRF	3805 E. 22nd Street	3.5 mgd	2.2 mgd
Roger Road WRF	2600 W. Sweetwater Drive	decommissioned	N/A

Source: Pima County Infrastructure Study 2013

Notes:

1. Regulatory Agency – Arizona Department of Environmental Quality (ADEQ)
2. Operational Responsibility – Pima County Regional Wastewater Reclamation Department
3. Type of Facility - The department operates numerous types of treatment processes including: evaporation ponds, aerated lagoons, oxidation ditches, closes loop reactors, biological nutrient removal, and bardenpho among others.
4. Estimated population served – data non provided
5. Estimated surplus capacity in gallons – Dynamic. It changes every day.
6. The estimated demand per capita (gallons per person per day - 80 gallons per capita per day (gpcd), 2.7 people per home, 216 gallons per dwelling unit
7. Percent of residential connections – unknown.

4.5 Environmental: Air Quality and Solid Waste

Air Quality Trends and Projections

Pima County Department of Environmental Quality (PDEQ) monitors ambient (outdoor) air pollutants throughout eastern Pima County. There are six criteria pollutants that are monitored in accordance with the National Ambient Air Quality Standards (NAAQS) set by the Environmental Protection Agency (EPA) to comply with the Federal Clean Air Act. The NAAQS were established to protect public health and the environment. The six criteria pollutants are: carbon monoxide (CO), ozone (O3), particulate matter (PM10 and PM2.5), nitrogen dioxide (NO2), sulfur dioxide (SO2) and lead (Pb).

Carbon monoxide concentrations have declined in the past three decades mostly due to the use of cleaner burning fuels and cleaner cars. The levels of CO remain around 20% of the standard.

Pima County's ground level ozone concentrations have remained relatively steady at 95% of the standard. Ground level ozone concentrations are highest in the summer months due to the intense sunlight and heat. Oxides of nitrogen and volatile organic compounds react in the presence of sunlight to form ozone.

PM10 is particulate matter with an aerodynamic diameter of 10 microns or less and PM2.5 is particulate matter with an aerodynamic diameter of 2.5 microns or less. Pima County violated the PM10 standard in 1999 with four recorded exceedances of the standard. The County developed a plan that included measures to minimize contributing controllable sources, increased enforcement and education. The County is in attainment of the current standards.

PDEQ also measures nitrogen dioxide and sulfur dioxide. No significant changes in the levels of these two pollutants have been seen in the past 20 years. Concentrations of nitrogen dioxide average about 30% of the standard. Sulfur levels continue to be extremely low with averages around 7% of the standard.

The other criteria pollutant measured by PDEQ is lead. Most urban areas have seen a dramatic decrease in ambient lead levels since the phase out and ban of lead in gasoline. On October 15, 2008, EPA strengthened the lead standard which required Pima County to perform area monitoring at one location. The EPA has initiated an evaluation of the current ozone standard to determine if it sufficiently protective of public health and the environment. If the standard is lowered in the future, Pima County may be in nonattainment of the revised standard. Were that to happen, the County would need to develop an air quality control plan to reduce emissions to return the area to compliance. The chart below shows the data for ozone.

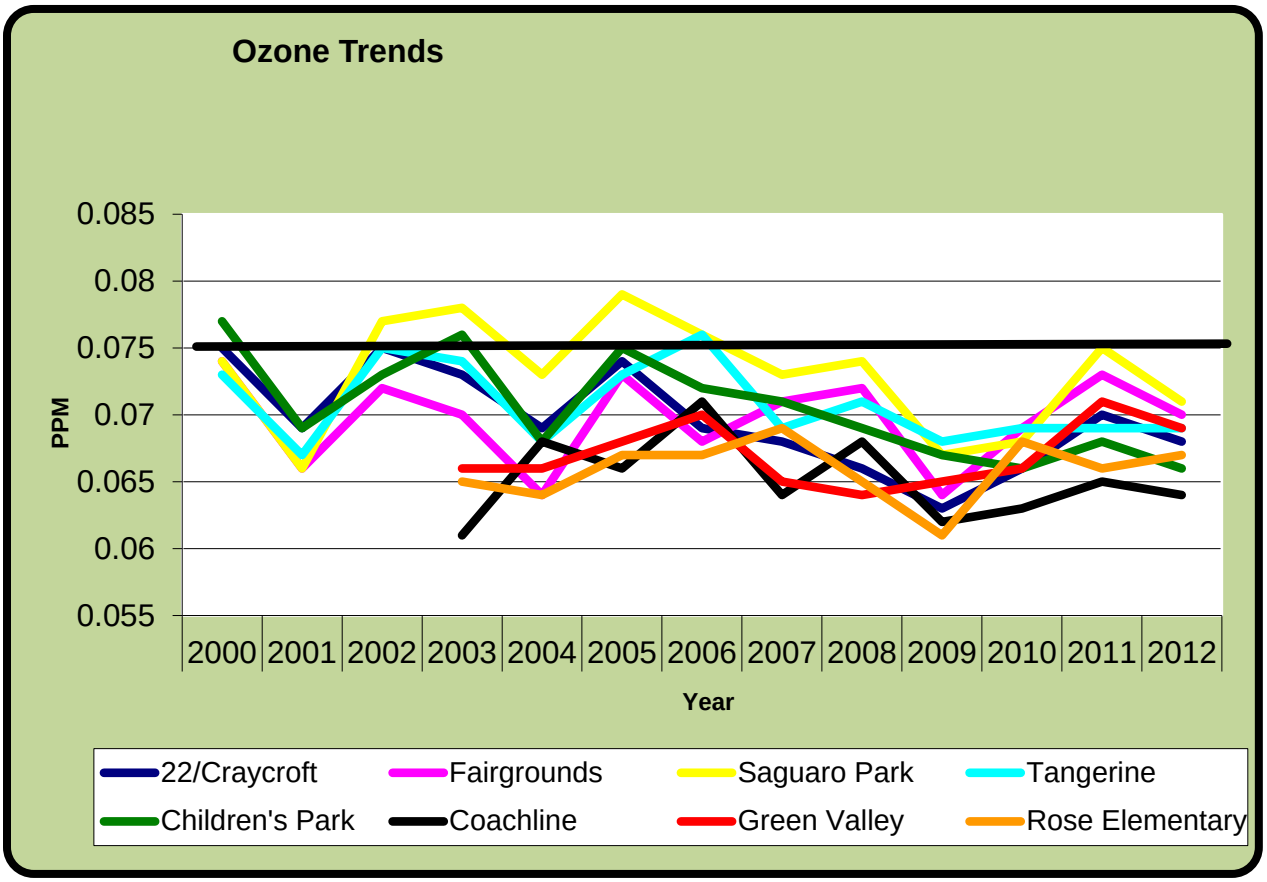


Figure 16: Pima County Ozone Trends

Waste Removal, Recycling and Solid Waste

The City of Tucson maintains a curbside garbage and recycling collection program within city limits. The rest of the County is either served by private waste haulers or residents self-haul waste and recycling to approved disposal locations. There are several landfills, transfer stations, recycling centers, and waste haulers throughout the county allowing for environmentally appropriate disposal options.

The overall goal of urban solid waste management is to collect, treat, recycle (when possible) and dispose of solid wastes generated by all urban population groups in an environmentally and socially satisfactory manner using the most economical means available.

As of June 1, 2013 Pima County entered into a contract with Tucson Recycling and Waste Services to operate the County's landfills and transfer stations. The county will continue to own the facilities.

TABLE 4.5.a: County Landfills and Transfer Stations

Facility Name	Facility Location
Tangerine Landfill	10220 W. Tangerine Road
Sahuarita Landfill	16605 S. La Canada (Sahuarita
Ajo Landfill	2000 N. Ajo Well #1 Road (Ajo)
Catalina Transfer Station	14425 N. Oracle Road
Ryan Airfield Transfer Station	6455 S. Continental

Source: Pima County Development Services Department 2013

Neither the Tangerine Landfill nor the Ina Road Landfill are currently accepting waste. The Sahuarita Landfill and the Ajo Landfill are operated by Tucson Recycling and Waste Services (TRWS). TRWS also manages two rural collection centers and the county's waste-tire collection program. The two rural collection centers are in Arivaca and Arivaca/Sasabe Junction.[58][59] Pima County offers single stream recycling at all the operating landfills and transfer stations. The City of Tucson offers curbside collection of both trash and recycling, while also operating 13 neighborhood recycling centers throughout the city. The City of Tucson also operates a Household Hazardous Waste Program. Pima County manages an illegal dumping program that provides a website and phone number for reporting illegal dumping, as well as an inspector who investigates illegal dumping and conducts enforcement actions. Picking up pet waste is required by Pima County and the Pima County Department of Environmental Quality (PDEQ) has regulatory authority over the proper storage and disposal of manure.

Avra Valley Planning Area (1)

The County does not have any active landfills in this planning area. Residents either self-haul their waste or contract with a private hauler. Waste Management Inc. operates the nearby Marana Regional Landfill.

Tucson Mountains Planning Area (2)

The County does not have any active landfills in this planning area; however, an historical landfill El Camino del Cerro Landfill is located in the area. The El Camino del Cerro Landfill was a former gravel pit that was operated as a municipal solid waste landfill from 1973 through 1977. The former landfill is part of an Arizona Department of Environmental Quality Water Quality Assurance Revolving Fund (WQARF a.k.a. State Superfund) remediation site. The City of Tucson also operated a number of historical landfills in this planning area. They include the Mission Landfill, A Mountain Landfill, Tumamoc Landfill, Rio Nuevo South Landfill (Nearmont), Rio Nuevo North Landfill, St. Mary's Landfill, Dragoon Landfill,

[58] Memorandum from the County Administrator to the Board of Supervisors dated April,9, 2013.
[59] Arizona Daily Star, Joe Ferguson, May 25, 2013

State Pit Landfill, and the Silverbell Landfill. The City of Tucson's Silverbell Landfill is also a WQARF site. There is a small area of groundwater contamination associated with the City of Tucson's Tumamoc Landfill.

Southwest Planning Area (3)

The County does not have any active landfills in this planning area, however, the county does operate the Ryan Field Transfer Station through a contractor, Tucson Recycling and Waste Services. Residents can either dispose of their waste at the transfer station or contract with a private waste collection company for disposal.

Altar Valley Planning Area (4)

The County does not have any active landfills in this planning area, however, the county does operate two rural collection centers, one in Arivaca and another at the Arivaca-Sasabe Junction. These two sites are now operated by a contractor, Tucson Recycling and Waste Services.

Upper Santa Cruz Planning Area (5)

The County's Sahuarita Landfill is the only municipal landfill located in this planning area and is operated through Tucson Recycling and Waste Services. The landfill has only about one year of capacity remaining and will then be closed to the public. Tucson Recycling and Waste Services will construct and operate a transfer station at the site.

In June 2006, the Arizona Department of Environmental Quality (ADEQ) issued a Mitigation Order on Consent to Freeport McMoran (at the time Phelps Dodge Sierrita, Inc.) for the sulfate plume contamination. Freeport submitted a Mitigation Plan including completing purchase of 9,000 acres of state lands and obtaining the permits needed for the construction of a new tailings impoundment in this area. Currently, Freeport continues to implement their deferred Mitigation Plan in the interim through continued well monitoring, obtaining easements and right-of-ways, and submittal of purchase application to State land.

Mountain View Planning Area (6)

The County does not have any active landfills in this planning area. Residents in the area can dispose of their household garbage at a nearby landfill or contract with a private waste hauler for disposal.

Southeast Planning Area (7)

The City of Tucson's Los Reales Landfill is the only municipal landfill located in this planning area. The landfill has a minimum of 60 years of remaining capacity. For residents within its jurisdictional limit, the City of Tucson provides weekly trash collection services for municipal waste and recycling materials. Residents in unincorporated areas must make their own arrangements for the disposal of household waste and recycling either through a commercial hauler or by hauling their own trash and recycling to an approved facility (including the Los Reales Landfill).

Within this planning area, there is one WQARF site and one federal Superfund (Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)) site. The WQARF site is the Los Reales landfill. It is located at 5300 E. Los Reales Road, south of Interstate-10 and in the vicinity of the intersection of Swan Road and East Los Reales Road. The City of Tucson is the owner and operator of this active municipal sanitary landfill and is monitoring and performing cleanup of groundwater impacted with tetrachloroethene (PCE) and trichloroethene (TCE) from the unlined portion of the landfill. The Superfund Site is at the Tucson International Airport Area (TIAA) located south of Ajo Way, north of Hughes Access Road, west of Alvernon Way, and east of Interstate-19. Groundwater and soil contamination are under investigation and remediation.

Central Planning Area (8)

Land in the Central Planning area within the City of Tucson is served by City Environmental Services which provides weekly pickup of waste and recycling. Areas outside of City limits are responsible for hiring a private municipal waste collection service or self-hauling to an approved waste disposal site.

Catalina Foothills Planning Area (9)

Residents in the area who live within the City of Tucson have garbage collection provided by the City. Residents who live outside of the City contract for private haulers or dispose of their household waste at an approved area disposal location. There are two landfills in this planning area, the closed Vincent Mullins operated by the City of Tucson and right next to it is the private Speedway Recycling and Landfill Facility owned by The Fairfax Companies.

Rincon Valley Planning Area (10)

Residents who live in this planning area contract for waste disposal with private haulers or dispose of their household waste at an approved area disposal location. There are no landfills in the planning area; the nearest landfill is the Tucson City Los Reales landfill located at 5300 E. Los Reales Road.

Tortolita Planning Area (11)

The County does not have any active landfills in this planning area but does have the Catalina Transfer Station. The Catalina Transfer Station is also the location of the closed Catalina Landfill. The landfill was operated by Pima County but was closed when the transfer station was opened. Residents currently make their own arrangements for the disposal of household waste and recycling either through a commercial hauler or by hauling their own trash and recycling to an approved facility (including the Catalina Transfer Station).

San Pedro Planning Area (12)

The County does not have any active landfills in this planning area. Residents in the area can dispose of their household garbage at a nearby landfill or contract with a private waste hauler for disposal.

Ajo/Why Planning Area (13)

The landfill is currently operating under the direction of Tucson Recycling and Waste Services.

4.6 Communications

Communication Networks

In 2008, a 25-year-old man led police and sheriff's deputies on a zig-zag car chase that began on the northwest side of Tucson and ended near the base of Mount Lemmon, with one Tucson Police officer fatally wounded and two Pima County Sheriff's deputies injured. Throughout that deadly chase, police and deputies weren't able to talk to each other on the same radio frequency. The incident highlighted a serious flaw in emergency communications that has been corrected. The radio communications systems throughout much of Pima County were on different radio frequency bands and use different proprietary technologies. They didn't provide for live, simultaneous communication among law enforcement, fire agencies and medical first responders.

In April,2014, the county's new public safety voice radio network, funded by bonds approved by voters in 2004 began operation. The new Pima County Wireless Integrated Network (PCWIN) system includes over 7,000 radios, serving over 50 fire, law enforcement, and emergency management and public service agencies from Tucson to Ajo, from Sahuarita to Mount Lemmon, and from the Rincon Valley to Avra Valley, enabling all of these agencies to talk to each other by radio in real time on a single system, regardless of their jurisdictional boundaries.

The County completed the construction and implementation of the PCWIN project with the guidance of a cross jurisdictional Executive Management Committee chaired by the Pima County Sheriff. Now that the system is fully functional, operations are governed by a cross jurisdictional Board of Directors. The PCWIN Board of Directors is the overarching governing body responsible for setting strategic direction, policy formation, financial oversight, and the ongoing viability of the PCWIN Cooperative. Each Member organization of the PCWIN Cooperative will have a voting Representative on the Board of Directors. The tactical operations and direction are handled by the PCWIN Executive Director with guidance from a seven member Executive Committee that is appointed by the Board of Directors and serves in advisory capacity to the Board and the Executive Director. Members of the Executive Committee are executive level members of police, fire, information technology, maintenance organizations, and an Indian Community or at-large member.

Another critical component of public safety communication and coordination is the Pima County Office of Emergency Management and Homeland Security (PCOEMHS). When major incidents occur, whether they involve public safety organizations or infrastructure and emergency management personnel, it is important that everyone work together to address the issue at hand in a coordinated manner. The Pima County Office of Emergency Management and Homeland Security has the lead role in coordination of all assets needed to address regional emergency situations, whether they are weather-related or pose a risk to the community in other ways. PCOEMHS utilizes a standardized suite of web accessible communications systems and follows a nationally defined structure and process for incident management. These standardized systems and processes are critical to timely and effective support to an incident commander. The Pima County Office of Emergency Management and Homeland Security also coordinates regular classroom and operational training exercises to insure procedures and communication systems work in times of major emergencies. The new Emergency Operations Center is an integral part of the Pima County Emergency Communications and Operations Center (PECOC) that was constructed as a part of the Bond project approved in 2004. This state of the art facility is the communications hub, not only for regional radio communications but also is capable of capturing and analyzing input from a wide range of resources to insure decision makers and first responders have the maximum amount of useful and coordinated information available to them to address the issue at hand.

Data Communication

To address the growing demand for cross-jurisdictional information across Pima County, the infrastructure for data communication among various government agencies becomes a key factor in overall regional coordination. While each of the various agencies, and utilities have developed their own information highway infrastructure, a collaborative process to interconnect the various jurisdictional networks has been under way for several years. Not only do these agreements allow for data sharing, but they also minimize capital and operating costs where current technology allows various jurisdictions to utilize the same infrastructure in a secure, segregated manner. If an agency needs a network presence at a site that is nearby a network managed by another agency,

intergovernmental agreements allow for the extension of the closest network as opposed to expensive extensions of other agency networks with appropriate cost allocation, but at significant cost savings.

Site selection priorities by potential employers looking to locate in the region include the availability of robust data communication networks. Regional collaboration to maximize the value of every jurisdiction's communications infrastructure not only benefits the jurisdictions, but also sends a clear message to employment prospects that there is a collaborative solution that raises the data communications level for all in the region. This kind of collaboration is also critical to attracting regional infrastructure grants and commercial networks such as Google Fiber. The Google Fiber Community Checklist is one that Pima County, City of Tucson and other jurisdictions, the University of Arizona, and some of the utilities are following to insure maximum opportunity to attract such a commercial network presence. All of these infrastructure planning efforts are aimed at creating more jobs in the community while lowering operating costs of the cooperating agencies.

Pima County Office of Emergency Management & Homeland Security

The Office of Emergency Management & Homeland Security is a project participant. The County Emergency Operations Center and support staff offices will be a tenant in the planned Pima County Regional Emergency Communications and Operations Center. OEM staff is expected to participate in planning and implementation of the communications and emergency operations center(s).

Pima County Real Property

Pima County Real Property is responsible for acquiring any new property required by the project. The Office may also be involved in preparing and negotiating tenant leases as requested by the Sheriff's Department.

Voice & Data Radio Project Participants

Multiple jurisdictions will benefit from the PCWIN project. The degree of participation expected during implementation is directly related to the degree of benefit, risk, contribution and stake that each jurisdiction has in the project. All jurisdictions will have an interest in planning future systems that will meet their end-user communications requirements and will therefore be expected to participate in User Committee activities.

Some jurisdictions will have a more significant role; some will be direct participants in the communications facility aspects of the project and/or may provide other assets that contribute to the success of the projects. Each jurisdiction will have some degree of responsibility for assisting with planning, training, cutover activities, and intergovernmental agreements.

The following jurisdictions will have additional specific responsibilities:

City of Tucson

Pima County and the City of Tucson are the two largest jurisdictions participating in the project. City of Tucson communications assets and facilities figure prominently in the PCWIN Conceptual Architecture Plan. These assets are expected to be important to the project. The city is the largest single participant in the communications facility component of the project. As a result, the City of Tucson has a larger stake in the project and it is expected that their level of participation will be significant. The City will be responsible for approving agreements with the County to make use of the City assets, reviewing and approving design plans for City facilities, assisting with configuration of City communications assets to support PCWIN systems, assisting with organization of a radio maintenance shop, assisting with development and implementation of cut-over plans, and contribution of technical advice. The City will retain control and ownership of their facilities and will be responsible for maintaining and operating their facilities.

Town of Marana

The Town of Marana has deployed a Motorola Astro25 voice radio system. This system and its associated communications equipment assets also figure prominently in the PCWIN Conceptual Architecture Plan. The Town will be responsible for approving agreements with the County to make use of Town assets if proposed by the selected radio vendor, assisting with configuration of Town communications assets to support PCWIN systems, assisting with organization of a radio maintenance shop, and contribution of technical advice.

Tohono O'odham Nation

The Tohono O'odham Nation has jurisdiction over two communications sites required to provide countywide radio coverage that will primarily benefit the Nation's end-users. The Nation has also utilized grant funds to purchase microwave equipment and an equipment shelter that are intended to contribute to the PCWIN project. The Nation will be responsible for approving agreements with the County to permit use of the Nation's land, facilities and equipment to support the PCWIN systems.

Communications & Emergency Operations Center(s) Project Participants

Tucson Police Department Communications Section

The Tucson Police Department Communications Section call-taker and dispatch operations will be located in the Pima County Regional Emergency Communications and Operations Center. TPD representatives will participate in the design planning effort and coordinate integration of agency specific technology into the new facility.

Tucson General Services Department – 9-1-1 PSAP & Fire Dispatch

The Tucson General Services Department - 9-1-1 PSAP & Fire Dispatch functions will be located in renovated facilities at the City of Tucson Thomas Price Service Center. Department representatives will participate in the design planning effort and coordinate integration of agency specific technology into the new facility.

County Fire District Dispatch Organization

The Northwest and Drexel Heights Fire Districts are leading an organizing effort to develop a dispatch organization that will provide services to the various County Fire Districts. The fire districts are responsible for their organizational development activities outside of the PCWIN project. Because the new organization will operate from facilities to be renovated by the PCWIN project, representatives of this organization will need to participate in the design planning effort for the dispatch facilities, and coordinate integration of agency specific technology into the new facilities.

Pima County Sheriff's Department Communications Section

The Pima County Sheriff's Department Communications Section will be located in the Pima County Regional Emergency Communications and Operations Center. PCSD representatives will participate in the design planning effort and coordinate integration of agency specific technology into the new facility.

Pima County Office of Emergency Management & Homeland Security

The County Emergency Operations Center and support staff offices will be a tenant in the planned Pima County Regional Emergency Communications and Operations Center. OEM staff is expected to participate in planning and implementation of the communications and emergency operations center(s).

4.7 Public Buildings and Facilities

Like all local governments, Pima County owns or in some instances, leases, a vast inventory of both special use public facilities, and general office buildings, as well as physical plant, surface and subsurface infrastructure all of which must be maintained and periodically improved. County facilities include: libraries, food banks, health clinics, service centers, race track, schools, fuel stations, sports stadium, performing arts center, fairgrounds, rodeo grounds, parking garages, community centers, landfills, wastewater treement facilities, animal care center, wastewater lift stations, pump stations, jail, parks, vocational school, archery range, campgrounds, shooting range and a multitude of administration buildings.

The Board of Supervisors adopted the Sustainable Action Plan for County Operations (SAPCO) in August 2008 to implement the Sustainability Initiatives and in April 2012, the Board expanded the SAPCO by adopting the Health and Wellness Chapter. Many initiatives to increase energy efficiency, reduce waste, promote green building have been applied to County facilities.

A variety of strategies can incorporate the mission of public facilities with healthy community principles. These may include incorporation of arts and culture, grouping of public facilities that provide compatible functions, the integration of government facilities into mixed use projects, and the provisions of services to rural areas through existing or new multipurpose community centers. Public facilities and buildings can serve as canvases for portraying the local history and celebrating the County identity, character, heritage and sense of place. Murals, fountains, gathering plazas, promenades articulate the unique meaning, value, and character of the physical and social form of the community creating space for social intimacy, enhancing the community's character or sense of place and promoting health and enhancing well-being.

Figure 1: Soundwall Along I-10 at Barrio Anita – Mural and pocket park.

Mixed Use and Grouping Public Buildings that Provide Complementary Functions

The grouping of complementary public functions is a way to establish the placemaking necessary to create a destination. Government centers where multiple governmental uses and activities are clustered in fairly close proximity contribute to sense of place, improve walkability, decrease reliance to automobile, strengthen the economic vitality of an area by becoming a focus of activity, and can reduce facility costs and increase operational efficiency. Examples of this type of activity node or activity center are the Pima County Health Center Complex at Kino and the new Pima County Court System Complex in Downtown Tucson, a short walk away from the Tucson Modern Streetcar line.

Locating public and government buildings with complementary functions in areas with the infrastructure required to support larger-scale, higher density development promotes healthy community principles and can decrease development costs. Incorporating green features in such development such as green roofs and complete green streets will contribute to the identity and sense of place, increase revenues, spur economic development and create healthy activity centers where people can live, work, shop, play, learn, and improve their health.

The Role of Multipurpose Community Centers in Exurban Areas

Multipurpose community centers are vital activity centers in exurban areas. Such public facilities can offer a central venue for social, food, health care, recreation, and educational services to the more remote areas of the County such as Ajo/Why, Amado, Arivaca, Three Points and Picture Rocks. With an large aging population, aging in place in remote areas of the County will require access to health services, community facilities, transportation, recreation, work training programs, emergency services and a variety of services and programs. A more cost efficient way of providing the array of County services to exurban areas is to cluster those services in community centers. Many of the existing community centers already provide a variety of services such as library, youth and senior programs, meal services, exercise classes, and other community functions.

Figure 2: Flowing Wells Community Center.

4.8 Trails

Pima County Regional Trail System Master Plan

Recent changes in river park and greenway standards convinced staff of the need to update the Eastern Pima County Trail System Master Plan, which was last updated in 1996. The overall goal of the 2011 Pima Regional Trail System Master Plan was to expand the trail system both internally to the urban zone of the area's jurisdictions and to explore new opportunities in outlying areas.

The plan builds on the efforts of the previous Master Plan, taking another careful look at both the areas surrounding the cities in the county, and the urban context of downtown and suburban Tucson and the towns that are located on its periphery. The updated system consists of 853 miles of existing and proposed trails, paths, greenways, river parks, bicycle boulevards and enhanced corridors that connect regional destinations, parks, schools, and preserve areas. In addition, there are 1,422 miles of single track trails that connect the urban core to the large natural preserves in Eastern Pima County, for a total of 2,275 miles of trail. The trails system includes trails parks, trailheads and boundary access points to increase user access to the system, as well as detailed design standards for the first time—including the Divided Urban Pathway (DUP) standard for river parks and greenways--to guide the future development of the system.

The goals of the plan are to:

1) provide a regional trails network;
2) improve/expand the trail system within the urban core;
3) update trails plan to reflect regional growth;
4) integrate the trails plan with regional land-use plans;
5) provide improved access to natural resource areas; and
6) integrate trails across jurisdictional boundaries.

Collaborating jurisdictions include the City of Tucson, Pima County, City of South Tucson, Town of Marana, Town of Sahuarita and Town of Oro Valley. The Master Plan includes background data, system features, trail system element, standards, inventory of facilities, implementation and funding. The trail system encompasses trails, single-track trails, paths, river parks, greenways, enhanced bicycle/pedestrian corridors, bicycle boulevards, trailheads and entry nodes, boundary access points, crossings, interpretive and regulatory signs, pedestrian districts, and pedestrian activity areas.

It is anticipated that policy in the Pima Prospers Policy Volume will support the implementation of the existing plan rather than duplicating this effort. For a complete inventory of trails facilities, the Pima Regional Trail System Master Plan is available under a separate cover from Pima County Natural Resources Parks and Recreation Department.

Figure 1: Pima County Regional Trail System

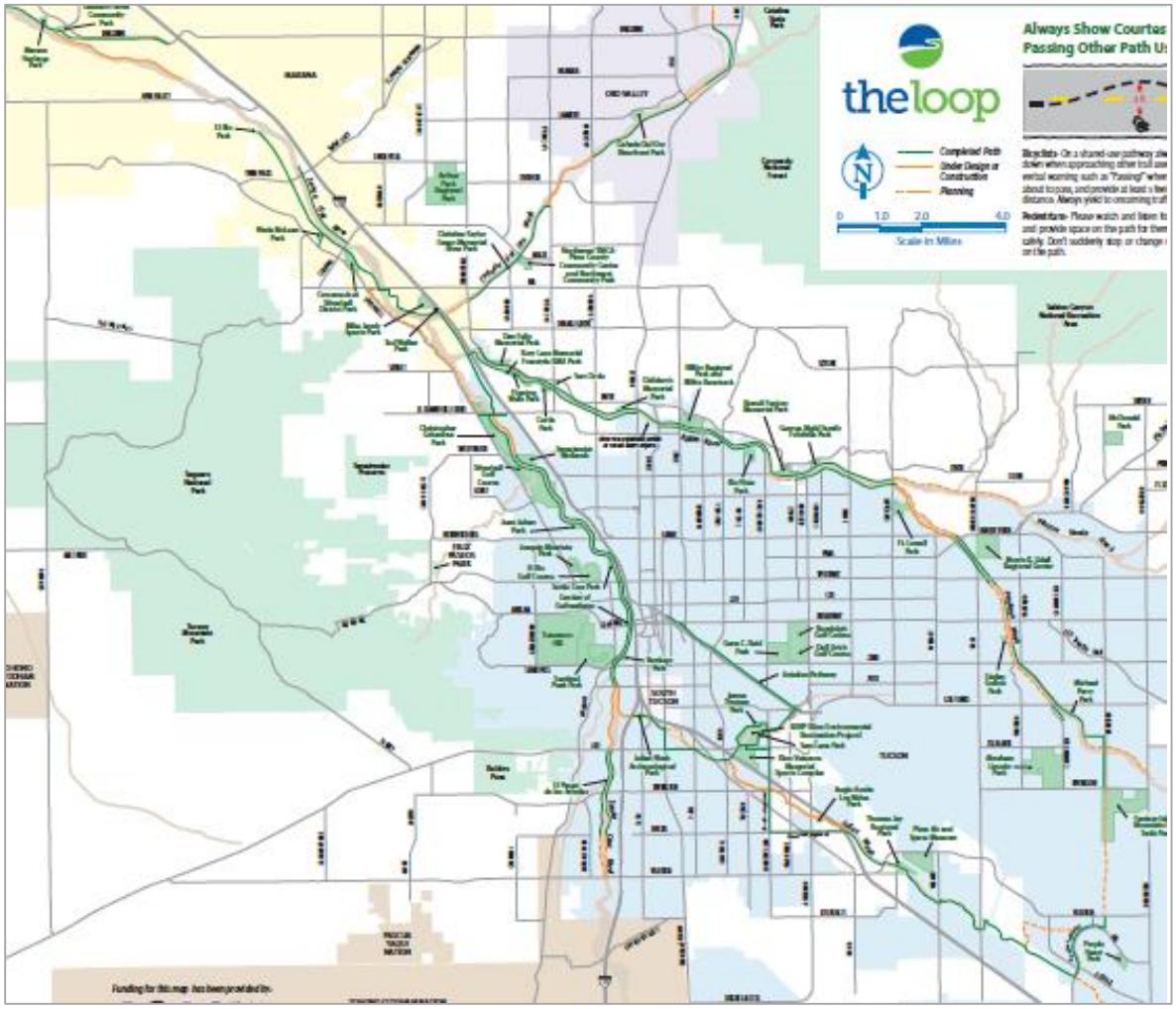


Figure 2: The Loop

Trail System, Transportation Modes, Healthy Communities & Economic Development

Pima Prospers recognizes the connection between physical activity and healthy bodies and minds. They contribute to healthy lifestyles, provide access and serve as alternate transportation modes. Trails provide connectivity from neighborhoods to diverse land uses, recreation areas and open space. They also provide an opportunity to exercise, breathe clean air, and reduce mental stress. Trails also provide opportunities for residents and visitors to learn about the lush Sonoran desert. When appropriately branded, such trails attract visitors to the area.

The Loop

When completed, The Loop will include 55 miles of paths connecting the Rillito, Santa Cruz, and Pantano River Parks with the Julian Wash and Harrison Road Greenways. Loop links will extend the network of multi-use paths to Marana, Oro Valley, Tucson, and South Tucson. These exciting connections are the result of Pima County's cooperative partnerships with these jurisdictions.

The Loop will connect parks, trailheads, bus and bike routes, works places, schools, restaurants, hotels and motels, shopping areas, and entertainment venues. Visitors and Pima County residents will enjoy The Loop on foot, bikes, skates, and horses. If it does not have a motor, it's good to go on The Loop.

This type of effort ties trails system, transportation mode, healthy communities and economic development. The comprehensive plan policy volume should include policies that continue to support and maintain a trail system that integrates the four spheres of healthy community, healthy people, healthy environment and healthy economy.

Figure 3: The Loop provides alternate transportation modes.

4.9 Flood Control/Drainage

The Pima County Regional Flood Control District strives to use forward-looking floodplain management practices to minimize flood and erosion damage to property and infrastructure, both public and private. Regionally, the District is involved in a variety of flood monitoring, flood control and natural resource management activities. It also performs floodplain management activities within unincorporated portions of Pima County. While the District is a regional authority, undertaking flood mitigation efforts throughout Pima County, it does not regulate floodplains within incorporated areas or on Tribal Nations.

Regional Flood Control District (RFCD)

Current and Proposed RFCD Efforts

The Regional Flood Control District impacts land use in three basic ways: providing flood hazard mapping information, building flood control infrastructure and protecting the natural functions of floodplains. The District updates Federal Emergency Management Agency (FEMA) Special Flood Hazard Maps and makes these and studies of flood prone areas not mapped by FEMA available to the public. Capital Improvements Programs continue to reduce flood damage risk and provide amenity in developed areas while the protection of natural floodplains as a successful non-structural floodplain management tool has also received increasing attention.

The most significant flood hazard in this region is flash flooding and erosion including channel migration. Development within these hazard areas is prevalent due to historical development patterns, lack of floodplain mapping and understanding risks associated with flooding in an arid region. Following the floods of the latter part of 1983 and 1993, efforts focused on bank stabilization for major watercourses including the Santa Cruz River, Rillito and Pantano. In addition to these capital improvements, sediment management, floodplain map updates, and land acquisitions have also been extensive.

The hidden costs of not conducting these activities include increased risk of flood damages including loss of property and life, ongoing excessive maintenance costs, increased liability and development of the perception of overly burdensome and unnecessary public expenditures. Furthermore, failure to pursue these activities results in increased flood insurance rates and reduced availability of post-disaster federal assistance.

Looking ahead, regional detention facilities will be considered due to downstream flow constraints including transportation infrastructure. Protection of natural flow corridors and habitat in the overbanks will also help attenuate flood flows and reduce the need for increasing downstream channel, bridge and culvert sizes. The District's encroachment criteria, detention and habitat protection requirements all contribute to this approach.

As a result of these capital improvements and land acquisitions, the District is responsible for maintenance of 23,818 acres of land. Of this, 14,812 acres are owned in fee title, with 9006 acres via easements, IGA and Special Conditions. The District also owns the flood control improvements placed thereon including levees, bank protection, detention basins, channels, and multi-use facilities.

Traditional floodplain activities such as agriculture, aggregate mining, and waste disposal have been on the decline. This trend has been bolstered by adoption of the Important Riparian Area component of the Maeveen Marie Behan Conservation Lands System and incorporation of this component into the Floodplain Management Ordinance. Not only has this resulted in the identification and protection of major flow corridors, it has forged the basis for The Loop, an urban, non-vehicular circulation route.

The Pima County Emergency Planning

The Pima County Multi-Hazard Mitigation Plan was prepared according to The Disaster Mitigation Act of 2000 (DMA2K). The DMA2K requires all local, county, tribal and state governments to have a FEMA approved hazard mitigation plan in order to be eligible for certain federal disaster mitigation funds and is considered in the National Flood Insurance Program Community Rating System which determine insurance rates within the County. This plan focuses on the area's most threatening hazards and provides a strategy to reduce or eliminate the risk from those hazards to the people and property of Pima County. These include dam failure, disease, drought, earthquake, extreme heat, flood, hail, Hazardous Material Events, lightning, severe winds, subsidence, thunderstorm, tornado, tropical cyclone and wildfire. While vulnerability is assessed for each of these hazards specifically, the plan also provides a basis for responding to any declared emergency event.

Planning makes it possible to manage the entire life cycle of a potential crisis. Strategic and operational planning establishes priorities, identifies expected levels of performance and capability requirements,

provides the standard for assessing capabilities, and helps stakeholders learn their roles. The planning elements identify what an organization's Standard Operating Procedures (SOP) or Emergency Operations Plans (EOP) should include for ensuring that contingencies are in place for delivering the appability during a large-scale disaster.

All-hazards planning is built upon scalable, flexible, and adaptable coordinating structures that allow for planning documents to be useful for both the expected and unexpected incidents, as they arise, no matter the size, scope or complexity. Encouraged from within Federal doctrine, such as the National Response Framework, all-hazards planning has become the preferred method and is in use across all Pima County planning documents.

The hazards and vulnerability assessments contained in the Multi-Hazard Plan are incorporated by reference in this Background and Current Conditions volume. The Multi-Hazard Plan assesses the vulnerability of Critical Facilities as defined by FEMA and the PCC and is intended to coordinate their integration into responses both as a providers and potential victims.

Critical facilities include hospitals, police and fire stations, public works machinery yards, libraries and schools which are involved in emergency response as well as electrical, water and sewer facilities which must remain functional during emergencies. Hazardous waste storage facilities are considered critical as they may exacerbate an event if unprotected or damaged, as in the case of nuclear power plants and fuel storage. Lastly facilities such as nursing homes and jails which house people who may not be sufficiently mobile to evacuate on their own are considered critical. Critical facilities are regulated under the Floodplain Management Ordinance per FEMA guidelines however these provisions were adopted in 2013. And therefore many grandfathered facilities exist in vulnerable areas. Secondly, the 2005 plan used assumptions rather than inventories so the value of this information is limited.

Storm Water Runoff

Pima County manages storm water to ensure public safety through three regulatory mechanisms. First, the Pima County Regional Flood Control District, through the Floodplain Management Ordinance, addresses the impact of development on flooding, erosion and riparian habitat. The purpose of the Ordinance is to protect lives and property from flood risk and ensure no adverse impact to adjacent or downstream properties. These are accomplished by establishing encroachment thresholds, flood peak and flood volume reduction requirements, and incentives for avoiding the disturbance of riparian habitat. Flood Control policy recognizes beneficial functions of floodplains and riparian areas including flood attenuation, recharge, pollution control, and habitat. In recent years, as part of drought response and resiliency the County has been cooperating with other local and regional entities to develop guidelines for the benficial use of stormwater including green infrastructure ad low impact development techniques such as water harvesting.

Second, the Department of Environmental Quality administers programs to address storm water quality. In 1972, the U.S. Congress passed the Clean Water Act (CWA) to protect and improve the quality of the water of the United States. The State of Arizona gained the primacy, or authority, to implement this federal program at the state level in 2002. The Arizona Pollutant Discharge Elimination System (AZPDES) is the state program that protects surface water quality.

Pima County holds a Municipal Separate Storm Sewer System (MS4) Permit which authorizes the county to discharge storm water from its MS4 to receiving waters. The county's MS4 consists of 2,087 miles of roadways, 39 miles of storm drains, and infrastructure collecting runoff into stream channels. The program includes control measures to minimize the discharge of pollutants carried by runoff. In order to control the pollutants that enter and exit the MS4, the County performs inspections of construction and industrial sites that are permitted via the AZPDES Construction General Permit and Multi-Sector General Permit, respectively.

Lastly, the building code and zoning codes contain provision establishing minimum standards for site grading, site drainage and design. The largest area for improvement is in coordination and integration as already reflected in our infrastructure and land management programs.

Drainage Integration

While landowners and investors desire coordinated regulation, integration also offers opportunity to achieve community quality of life goals including safety, accessibility, amenity and habitat preservation. While the building code and Floodplain Management Ordinance provide design guidance to minimize flood risk and off-site impacts, the riparian habitat, water quality, comprehensive plan water policy, Native Plant Preservation Ordinances and zoning code all contain integrative provisions which have been underutilized.

For example, while the Floodplain Management Ordinance encourages avoidance of riparian habitat it does not require it and design and performance criteria are provided. On the other hand, the Native Plant Preservation Ordinance requires mapped riparian habitat to be set-aside as open space.. The consistent application of the of the NPPO provision would strengthen the protection of riparian habitat as intended by the Floodplain Management Ordinance.

The District has developed criteria which would apply at rezoning that define when floodplains and mapped riparian habitat are to be set-aside as open space.. In addition, the Zoning Code provides for modification of development standards in riparian areas. The existing Comprehensive Plan land use designation, Resource Transition (RT) was meant to ensure low density development within floodplains and habitat. Plan policies regarding the definition, treatment and distribution of RT have been re-

evaluated. Pima Prospers proposes updating these maps to reflect updated floodplain and habitat distribution and to strengthen avoidance provisions.

By weaving together watercourses, riparian and upland habitat, and recreation better urban development can be achieved. This includes increases in property value and services availability. New guidelines under development address water harvesting and habitat mitigation and offer further opportunity for integration, particularly for drought response. Both regulation and infrastructure programs offer these opportunities and will continue to be utilized.

4.10 Infrastructure Concurrency

Land use actions heard by the Board of Supervisors, particularly rezoning requests, undergo staff review for concurrency for transportation, flood control, wastewater/environmental quality, and parks and recreation. Staff verify whether the request has adequate infrastructure capacity to serve the proposed development.

It is a policy of the current comprehensive plan to "Establish a formal Concurrency Management System". Staff reports on the adequacy of infrastructure and service delivery capability for transportation, flood control, wastewater, air quality, parks and recreation, water, and school services. The comprehensive plan also proposes to "Establish a formal permit review procedure to allow the County to determine and coordinate the individual and cumulative impacts each proposed development request will have on each of the minimum level-of-service standards identified for the urban service/expansion area where the development request is located." This level of service monitoring is most appropriate for wastewater treatment infrastructure is under strict federal guidelines to monitor capacity allocations in both the conveyance and treatment facilities. This is achieved through a monitoring of sewer infrastructure capacity allocations and sewer service agreements typically completed at time of development approvals.

And finally, the plan suggests to "Establish a scale of development assessment fees to finance necessary public infrastructure and facilities. Once the built-out projection of a given Urban Service Area or Urban Expansion Area has been used to calculate its total public infrastructure requirement, a total cost estimate for the area's public infrastructure can be completed. This total infrastructure cost estimate can then be used to establish equitable developer-assessment fees for each area.

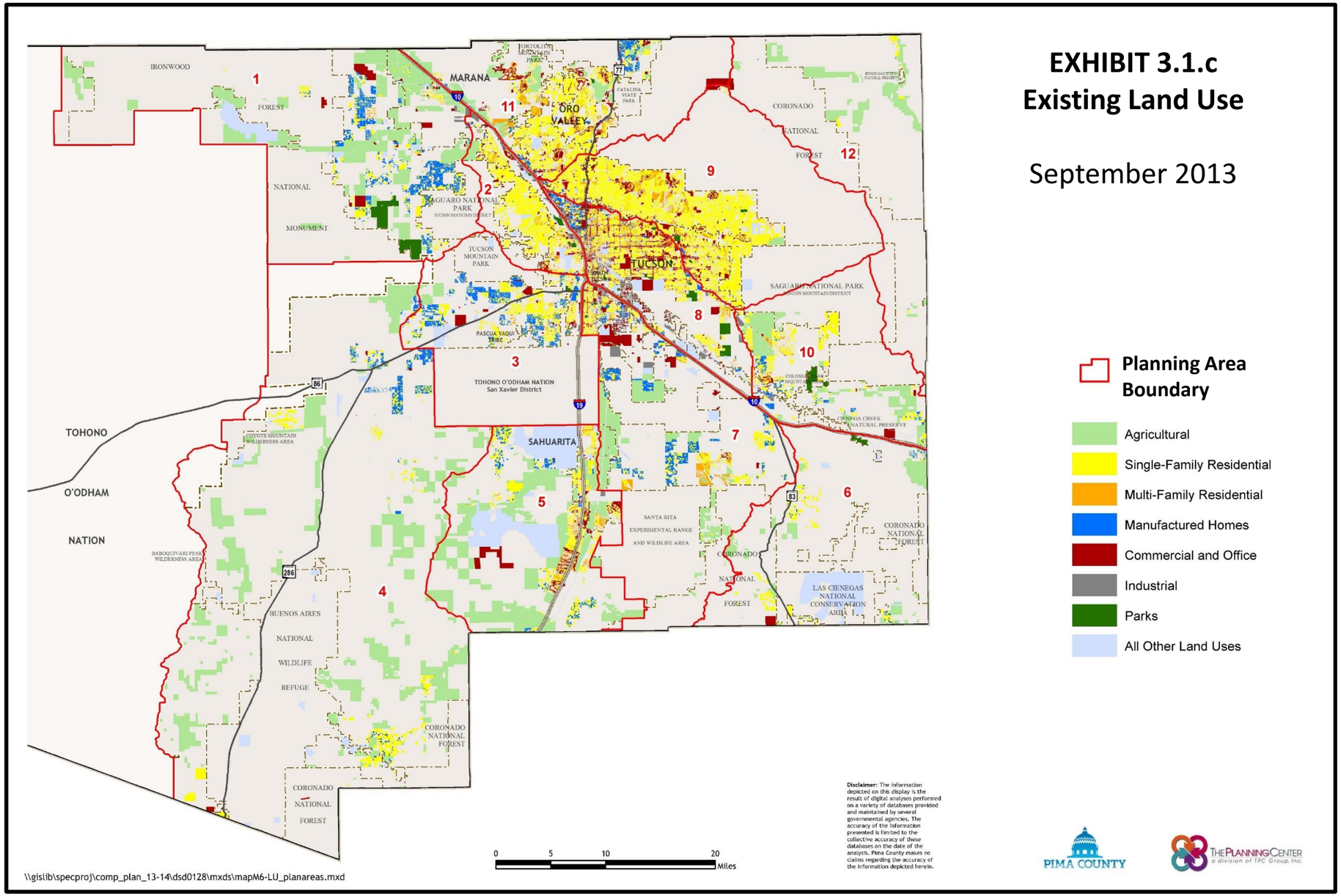


EXHIBIT 3.1.c
Existing Land Use
September 2013
Planning Area Boundary
Agricultural
Single-Family Residential
Multi-Family Residential
Manufactured Homes
Commercial and Office
Industrial
Parks
All Other Land Uses
IRONWOOD
FOREST
NATIONAL
MONUMENT
MARANA
ORO VALLEY
TUCSON
SAHUARITA
CORONADO
NATIONAL
FOREST
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES
NATIONAL
WILDLIFE
REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
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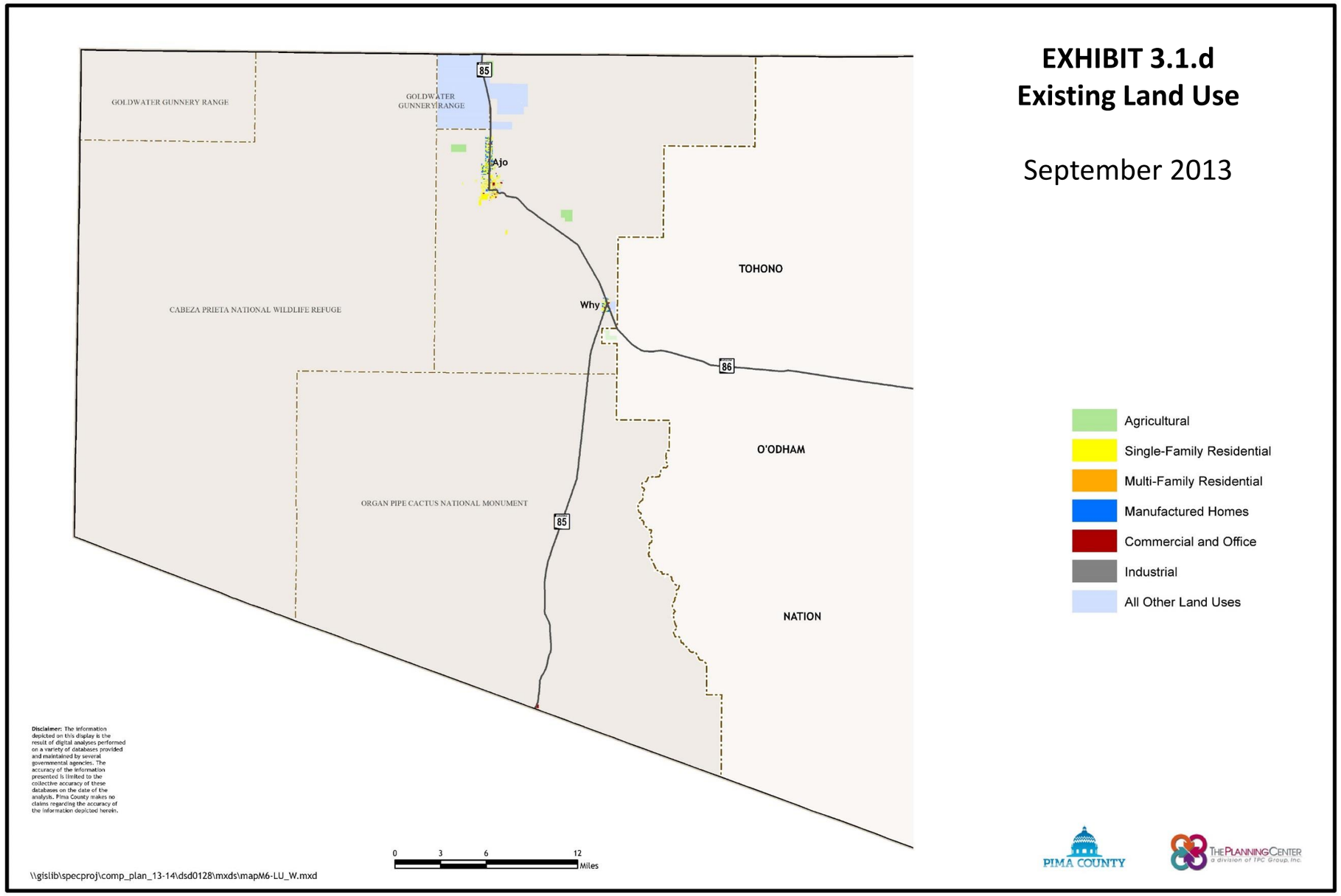
EXHIBIT 3.1.d
Existing Land Use
September 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
TOHONO
O'ODHAM
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Agricultural
Single-Family Residential
Multi-Family Residential
Manufactured Homes
Commercial and Office
Industrial
All Other Land Uses
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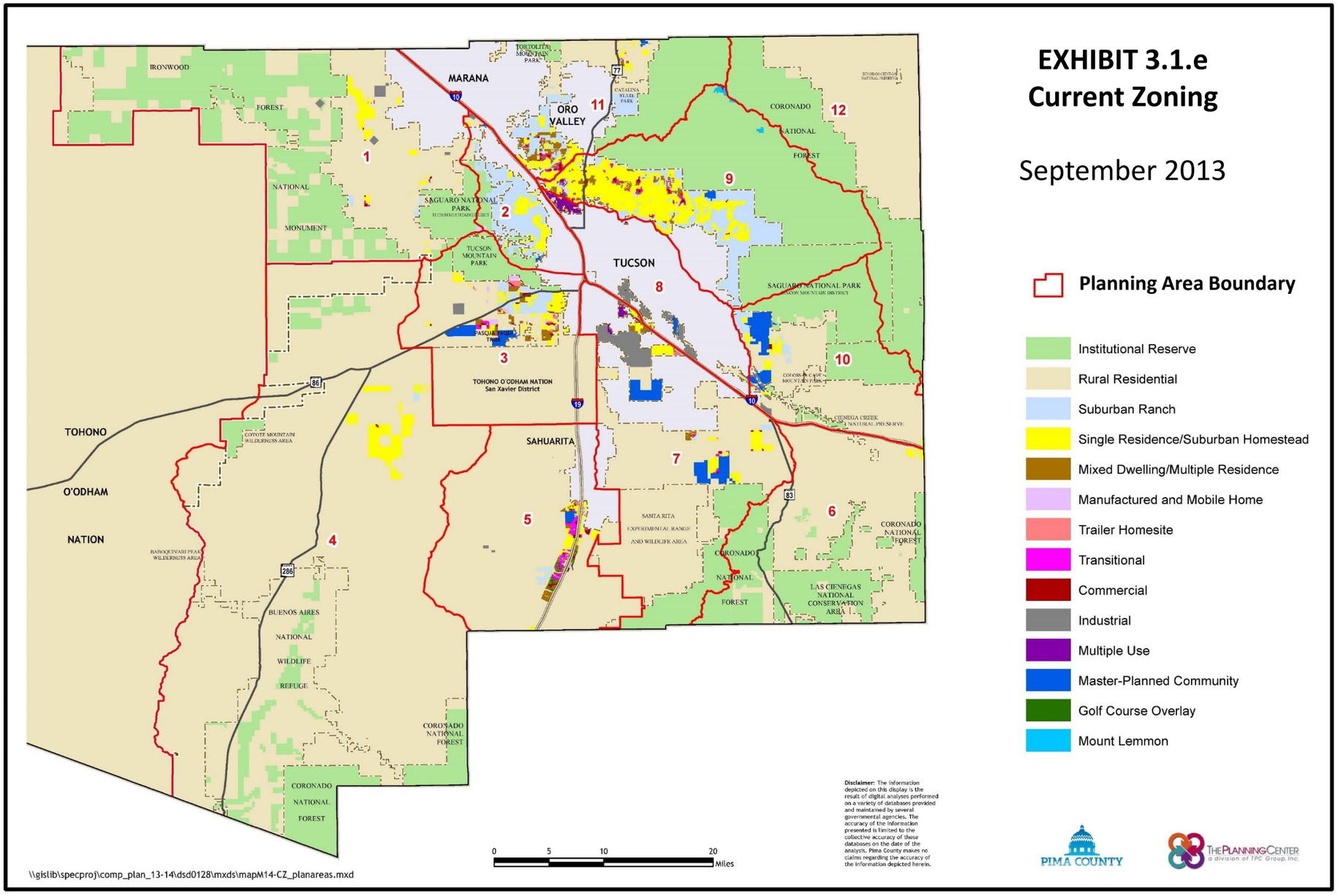
EXHIBIT 3.1.e
Current Zoning
September 2013
Planning Area Boundary
Institutional Reserve
Rural Residential
Suburban Ranch
Single Residence/Suburban Homestead
Mixed Dwelling/Multiple Residence
Manufactured and Mobile Home
Trailer Homesite
Transitional
Commercial
Industrial
Multiple Use
Master-Planned Community
Golf Course Overlay
Mount Lemmon
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
San Xavier District
TOHONO O'ODHAM NATION
IRONWOOD FOREST NATIONAL MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO NATIONAL FOREST
SAGUARO NATIONAL PARK
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
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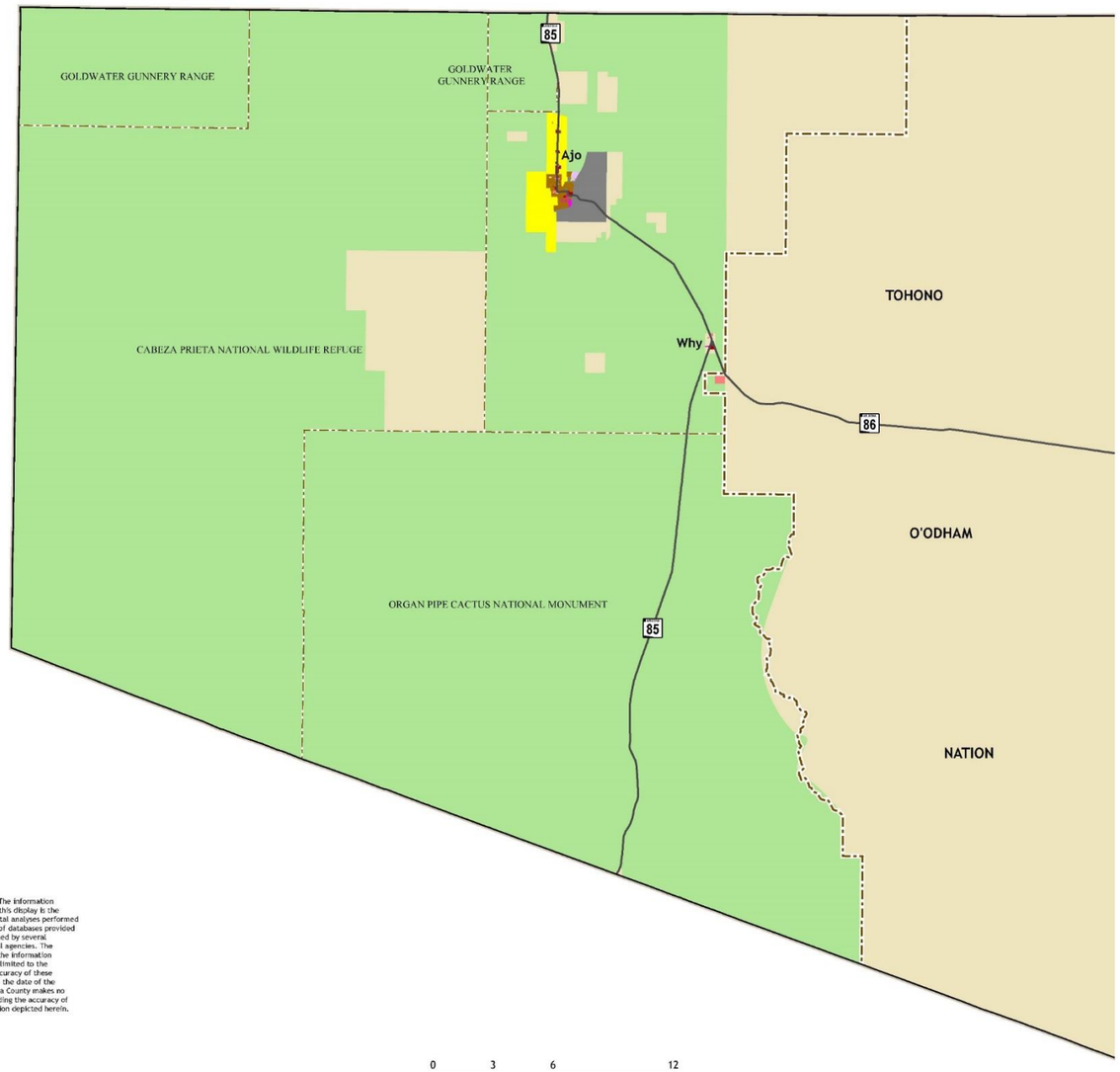

EXHIBIT 3.1.f
Current Zoning

September 2013

- Institutional Reserve
- Rural Residential
- Single Residence/Suburban Homestead
- Mixed Dwelling/Multiple Residence
- Manufactured and Mobile Home
- Trailer Homesite
- Transitional
- Commercial
- Industrial

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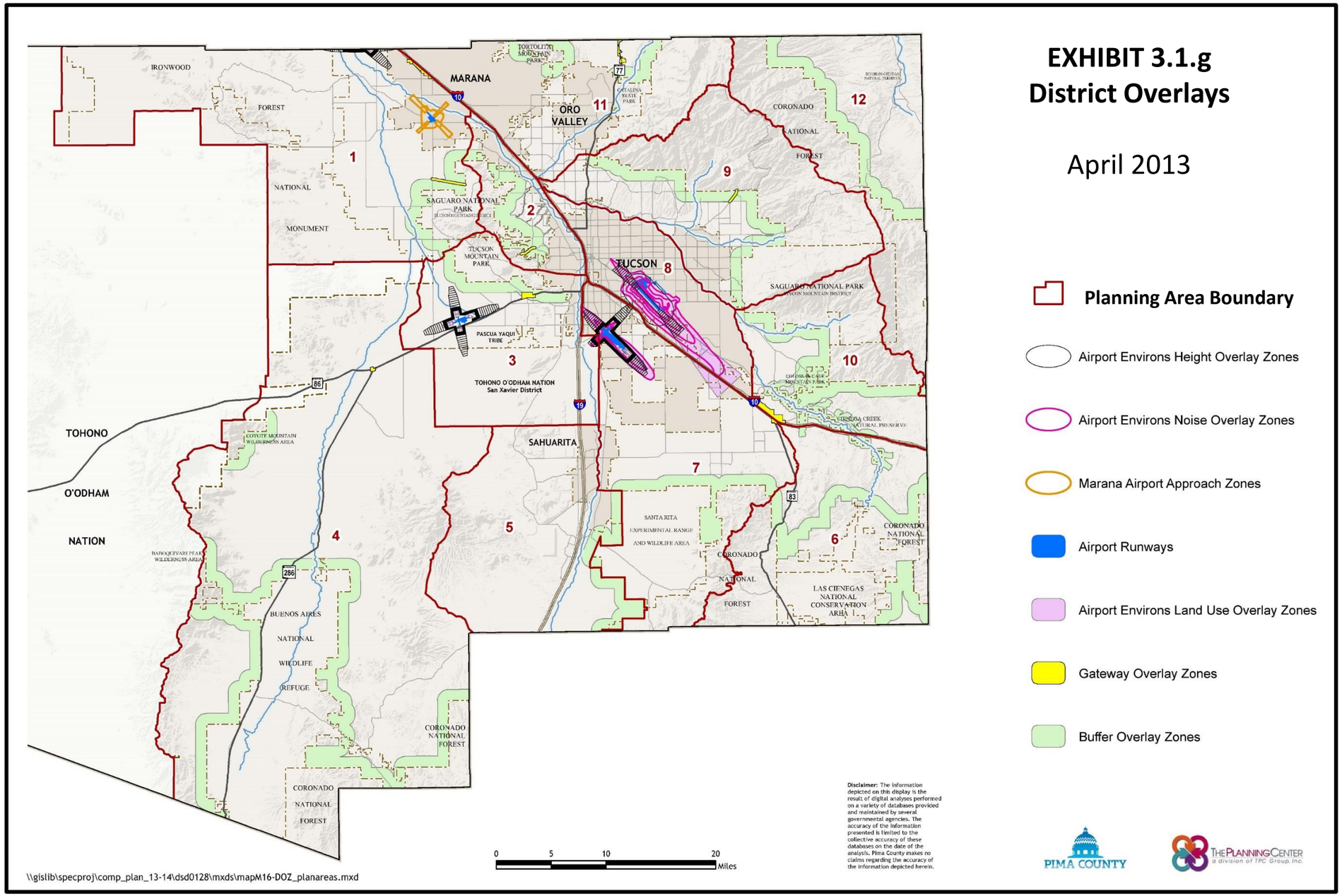
EXHIBIT 3.1.g
District Overlays
April 2013
Planning Area Boundary
Airport Environs Height Overlay Zones
Airport Environs Noise Overlay Zones
Marana Airport Approach Zones
Airport Runways
Airport Environs Land Use Overlay Zones
Gateway Overlay Zones
Buffer Overlay Zones
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION San Xavier District
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
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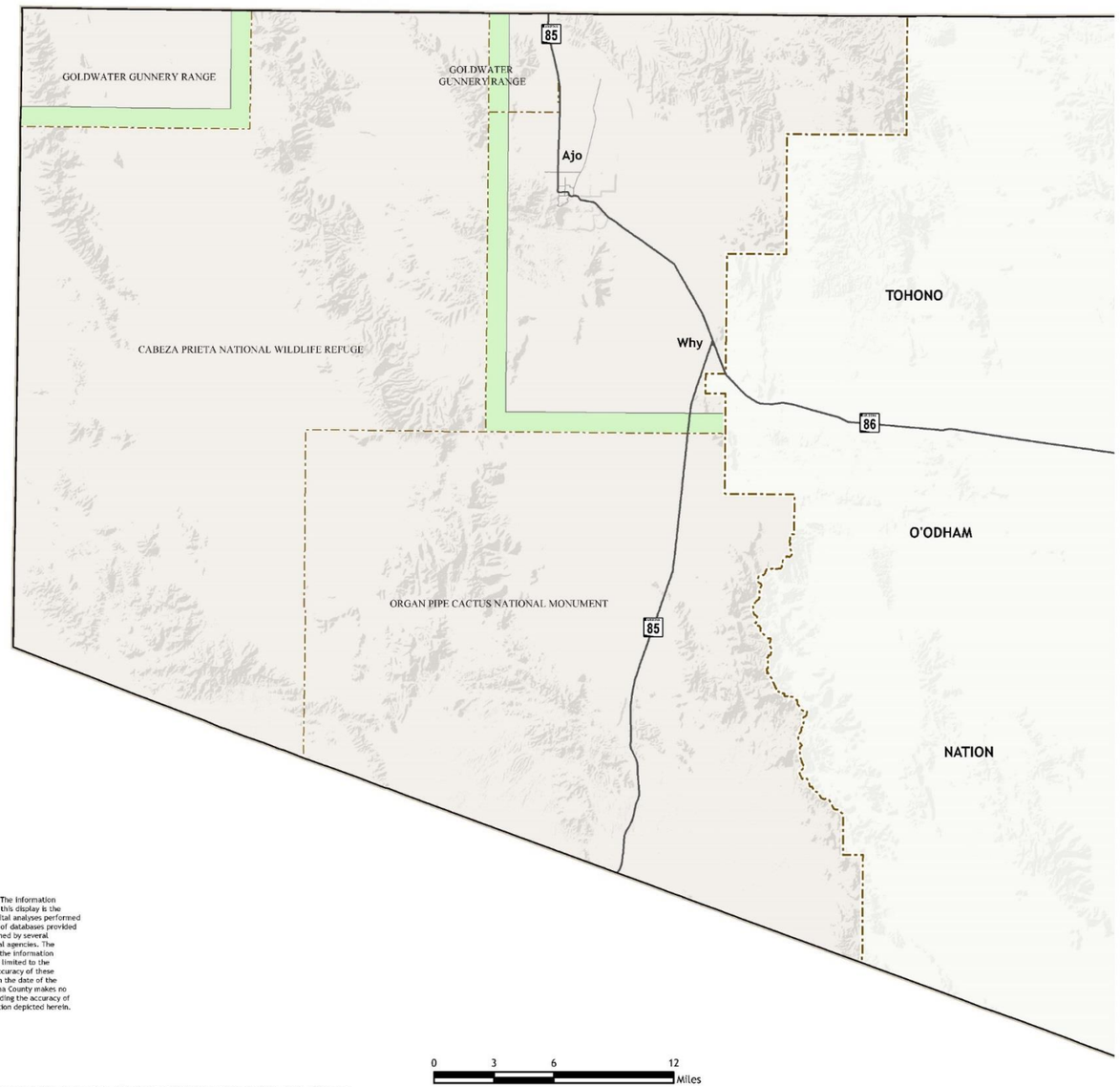

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EXHIBIT 3.1.h
District Overlays

April 2013

Buffer Overlay Zones

PIMA COUNTY

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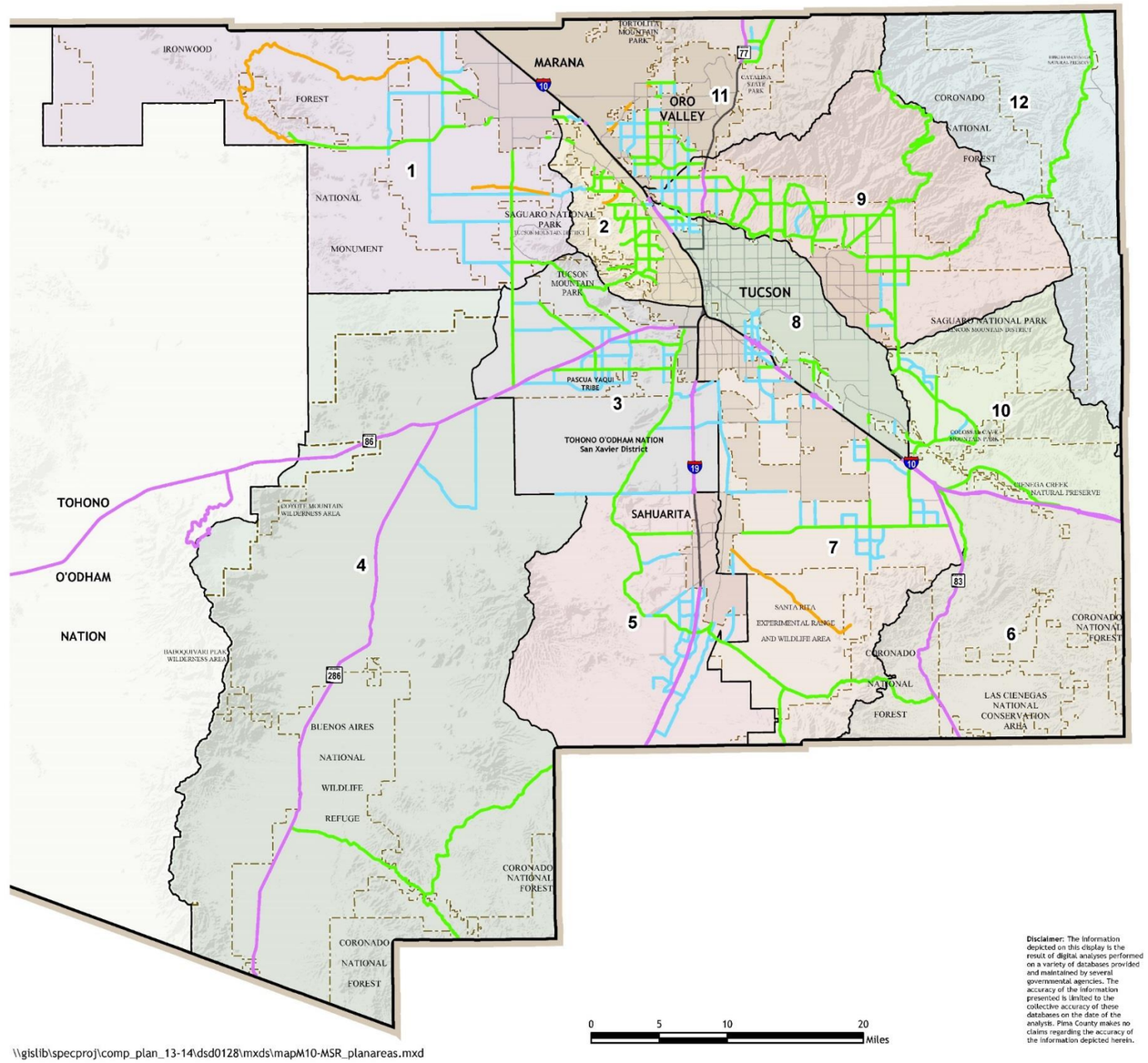

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EXHIBIT 4.1.a Major Streets & Scenic Routes

September 2013

- Major Route
- Scenic, Major Route
- Scenic, Not Major Route
- Scenic, Planning Areas

Subregions

1) Avra Valley
2) Tucson Mountains
3) Southwest
4) Altar Valley
5) Upper Santa Cruz
6) Mountain View
7) Southeast
8) Central
9) Catalina Foothills
10) Rincon Valley
11) Tortolita
12) San Pedro

PIMA COUNTY

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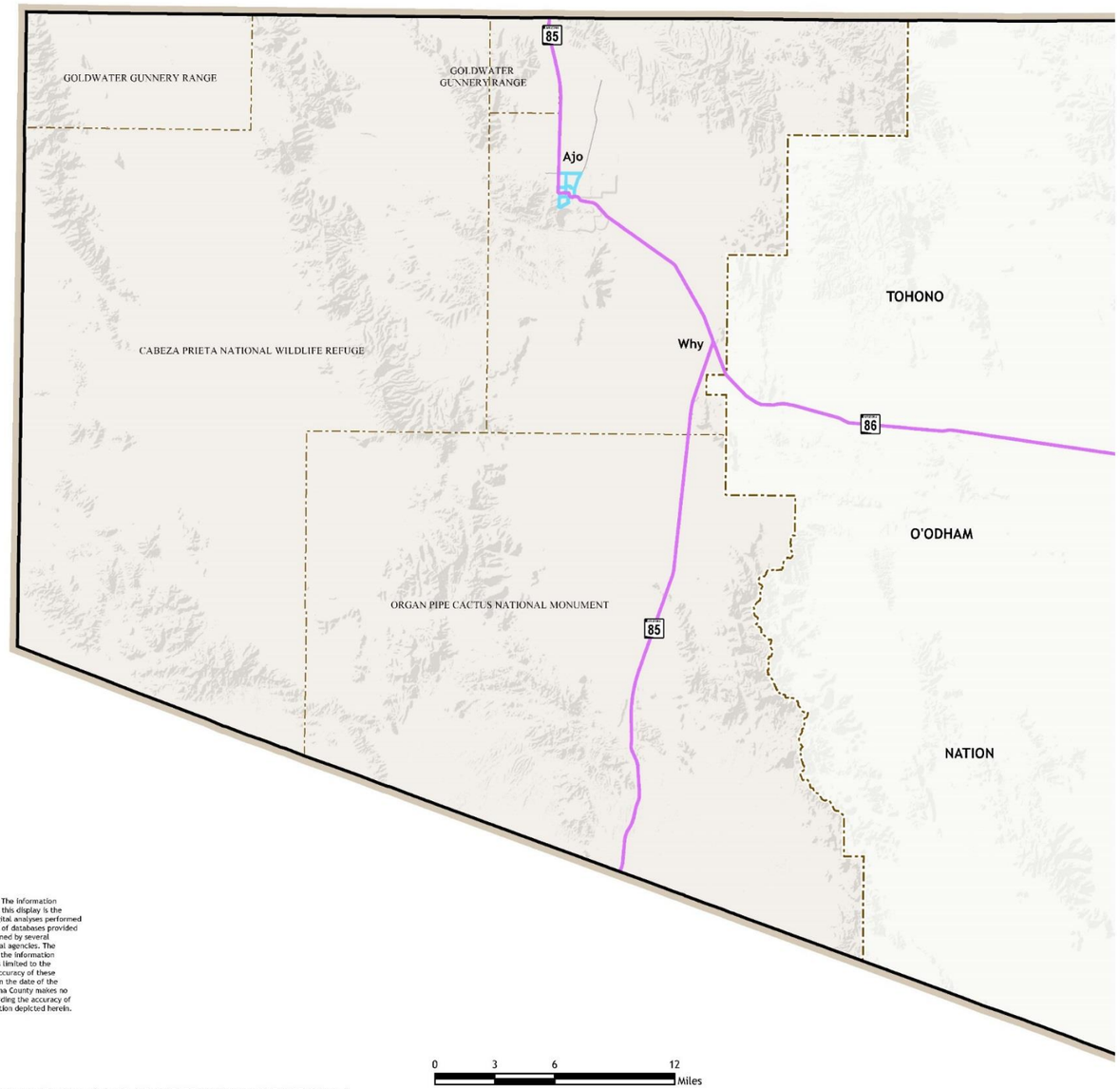

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EXHIBIT 4.1.b
Major Streets & Scenic Routes

September 2013

Major Route

Scenic, State or Interstate Highway

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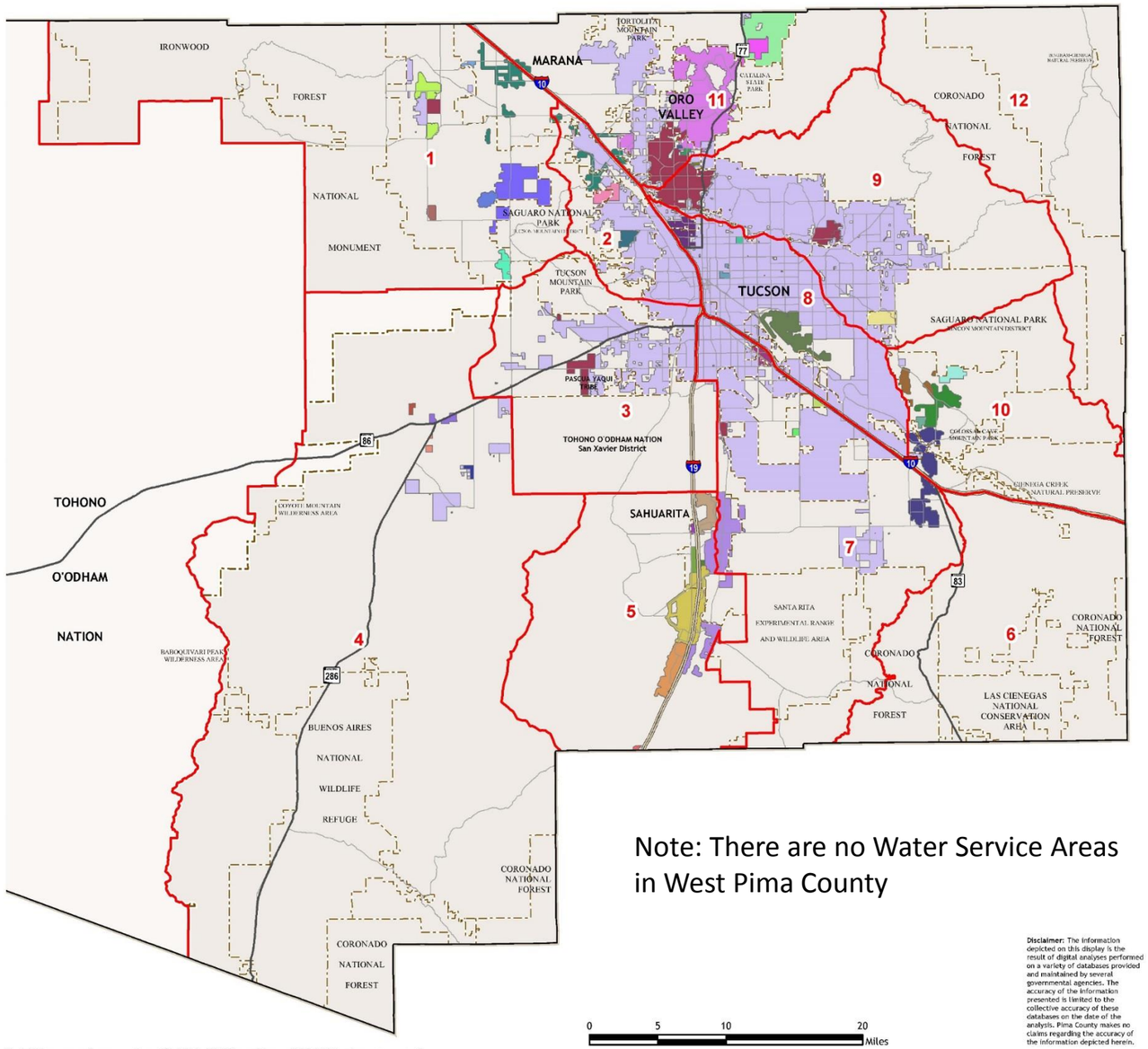
EXHIBIT 4.2
Water Service Areas

September 2013



Subregion Boundaries
Tucson Water Company
Anway - Manville LLC
Arizona State Prison
Avra
Comm Water Co Of Green Valley
Despoblado Water Co
Diablo Water Company
DMAFB Water System
Farmers Water Co
Flowing Wells ID
Green Valley Water Co
Lago Del Oro Water Co
Lakewood Water Company
Las Quintas Serenas W.C.
Lazy C Water Service
Logan Hills Water Co
Los Cerros Water Co
Lynn Lee
Marana Domestic Water Imp Dist
Mesaland Water Co
Metropolitan
Mirabell Water Co
Orchid Valley MWP
Pantano Properties HOA
Rancho Del Conejo
Rancho Resort
Rancho Sahuarita Water Company
Ray Water Company
Rincon Creek Water Co.
Rincon Ranch Estates
Saguaro Water Company
Samayayuca IA
Sandario
Spanish Trail Water Company
Thim Utility
Thim Utility/E and T Division
Thim Water Corp.
Town Of Marana
Town Of Oro Valley
U of A
Vail Water Company
Valle Verde Del Norte WC
Voyager Water Company
Winterhaven Water and Co
Worden

Note: There are no Water Service Areas in West Pima County

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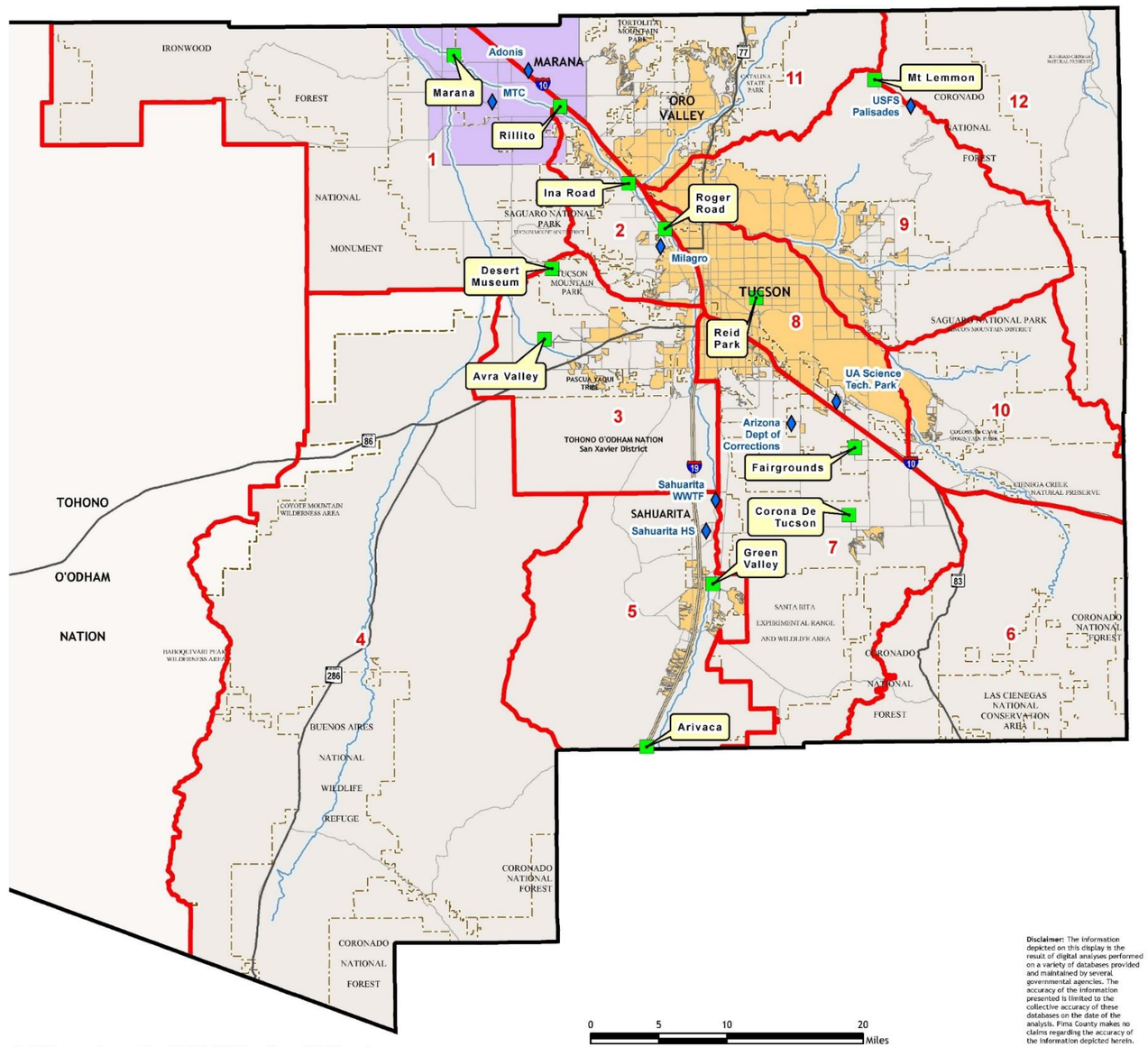

EXHIBIT 4.4.a
Sewer Service Areas

September 2013

Planning Area Boundary

Designated Management Area Wastewater Treatment Facilities

Non-Designated Management Area Treatment Facilities

Marana Wastewater Reclamation Facility Service Area

Pima County Regional Wastewater Reclamation Department Service Area

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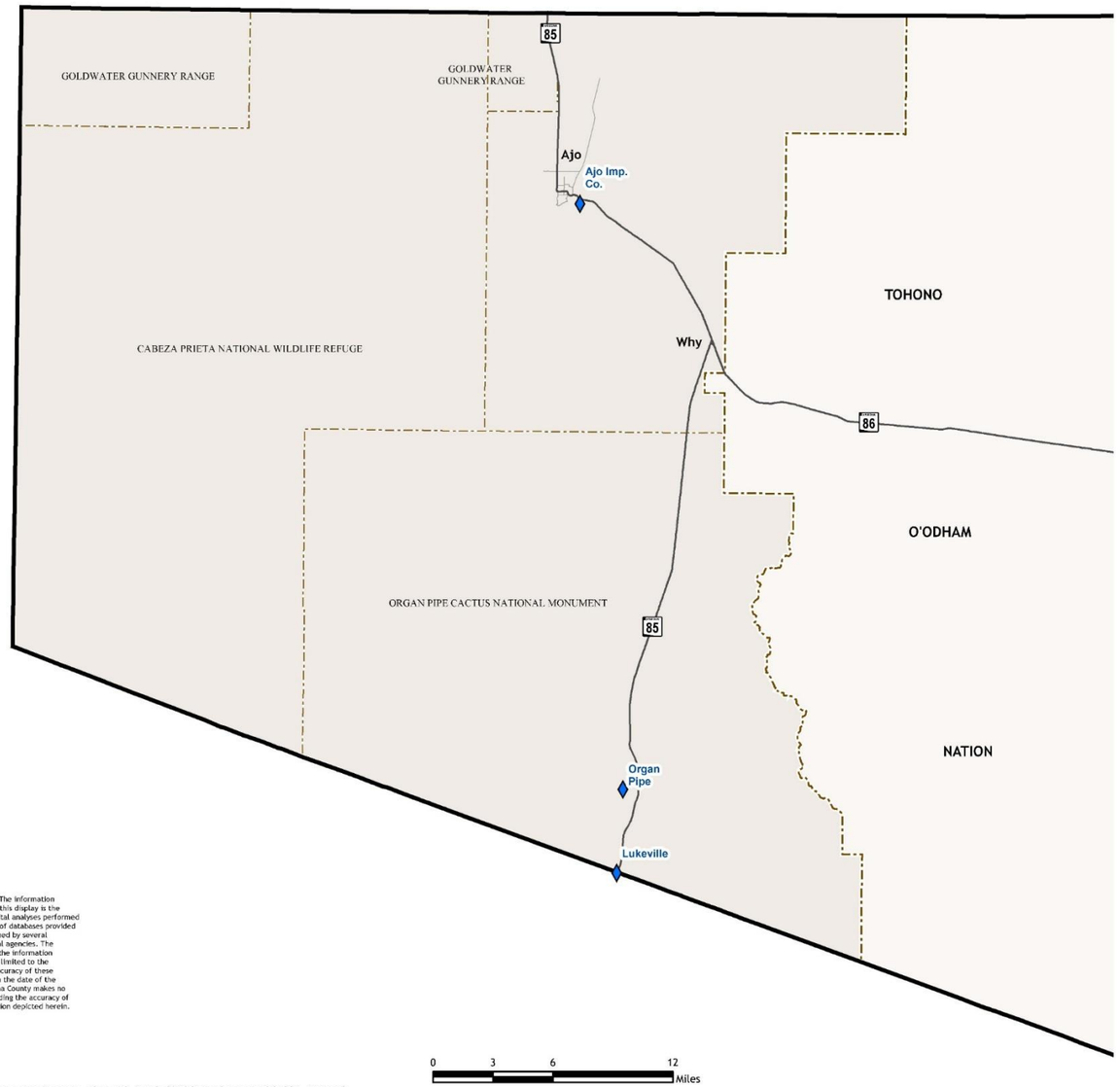

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EXHIBIT 4.4.b
Sewer Service Areas

September 2013

Non-Designated Management Area Treatment Facilities

PIMA COUNTY

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Human Infrastructure Connectivity

Chapter 5: Human Infrastructure Connectivity Background

Key Subjects

- ✓ Health Care Services Delivery
- ✓ Public Safety and Emergency Services
- ✓ Parks and Recreation
- ✓ Workforce Training/Education
- ✓ Arts and Entertainment
- ✓ Library Services
- ✓ Animal Care
- ✓ Food Access

5.1 Health Care Services Delivery

Pima County is a key player in making the community healthy and safe. The County has the ability to influence many of the social, cultural and environmental factors that affect people's health and lifestyle choices. Infrastructure and policy development, community collaboration, and service delivery by the County all have the potential to impact health outcomes. This section defines a healthy community, and summarizes the state of heath and challenges currently facing Pima County.

Health Services and Healthy Communities

Pima County has taken the stance that a healthy community is more than the absence of disease. A holistic healthy community approach involves housing, the environment, the economy, transportation and much more.

Historically, the County operated certain programs to ensure efficient health service delivery to Pima County residents. Over the past decade, the County's focus has shifted from direct service delivery to its support of a healthy and safe community through leadership, collaboration with community stakeholders, education and prevention efforts, and community design. **The County continues to provide some health services**, primarily through the Pima County Health Department (PCHD). PCHD provides public health services mandated by Arizona Revised Statutes, Arizona Administrative Code or Pima County Ordinance; delegated from the State; as well as other services to strategically address critical community health issues. PCHD also ensures health care services are delivered to adults and youth detained in the custody of the Pima County Sheriff's Department or Juvenile Court.

Healthy Communities Defined

A Healthy Community promotes healthy individuals, a healthy economy and a healthy environment. In other words, it benefits all and it contributes significantly to livability and long term economic resiliency of the community.

One of the most critical issues confronting communities in Arizona today is the impact that the physical environment has on public health. Research studies have consistently shown that the design of the physical environment contributes to chronic diseases such as obesity, type II diabetes and heart related disease. Designing healthy communities that facilitate an active lifestyle and that support air and water quality is critical to the long term health of Arizona communities as well as to Pima County.

In 2012, the American Planning Association Arizona Chapter, the Arizona Department of Health Services, the Livable Communities Coalition, Maricopa County Department of Public Health, St. Luke's Health Initiative, and the Sonoran Institute combined their efforts to create a Healthy Community Design Coalition for Arizona. This collaboration resulted in the preparation of the Healthy Community Design Toolkit 2012. The toolkit is a guide for residents, planners and urban designers in the preparation of comprehensive and general plans. Rather than being a step-by-step guide, it provides an overview of the process, explains how to assess existing conditions and provides examples of policies that may be considered for incorporation.

The Toolkit provides that a comprehensive plan should serve as community vision for the future. That vision must address the issues of community health – healthy eating/active living – and put in place goals and policies – that respond to the need of residents to have opportunities for a healthy lifestyle. Pima Prospers expands the vision of healthy community to also include healthy workforce, healthy economy, and healthy environment. These need to be weaved in the policy framework to produce an implementable plan that carries our region into a prosperous future.

The This Healthy Communities approach involves four major interdependent spheres: health care access, environment, community design, and lifestyle choice.

Figure 1: Healthy Community Approach

Existing Population-based Health Services

The Pima County Health Department serves as the community's voice for public health, and assures that high quality services are available and accessible to all persons.

The Pima County Health Department works to uphold public health and safety by assuring it provides the Ten Essential Public Health Services as defined by the Centers for Disease Control and Prevention (CDC).

Ten Essential Public Health Services

1. Monitor health status to identify and solve community health problems;
2. Diagnose and investigate health problems and health hazards in the community;
3. Inform, educate, empower people about health issues;
4. Mobilize community partnerships and action to identify and solve health problems;
5. Develop policies and plans that support individual and community health efforts;
6. Enforce laws and regulations that protect health and ensure safety;
7. Link to/provide care of needed personal health services and assure the provision of health care when otherwise unavailable;
8. Assure competent workforce for public and personal healthcare workforce;
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services; and
10. Research for new insights and innovative solutions to health problems.

PCHD responds to these services by providing the following functions to the public at PCHD locations and various community sites:

- Administration of immunizations to children and adults;
- Screening and treatment for tuberculosis (latent and active) and community education;
- Screening, diagnosis and treatment for sexually transmitted diseases (STDs), HIV and STD education and counseling, and referral to care for those infected with HIV;
- Communicable disease investigation and surveillance for diseases such as tuberculosis, syphilis, gonorrhea, West Nile virus, rabies and many others as directed by the state;
- Certification of births and deaths and provider education on proper vital record procedures;
- Assurance of community compliance with food service, swimming pool, and housing, and smoke-free statutes and code.
- Chronic disease education, particularly related to tobacco use prevention and cardiovascular health, for all ages;
- Screening and preventive dental services to young school-age children;
- Breast and cervical cancer screening to low-income women, and referrals to diagnostic and treatment services when appropriate;
- Family planning and contraceptive services, particularly to low-income women and youth;
- Nutritional vouchers, health education, and support to low-income women and children;
- Public health nursing for individuals, families and groups to include services related to fall prevention, child safety seats, prevention of low-birth weight or premature infants, and complications related to pregnancy;
- Nurse consulting services to child care providers and schools; and
- Coordination of community preparedness for public health emergencies.

State of Health in Pima County

Identifying the primary health issues facing Pima County allows for a comprehensive approach to planning that illuminates how the environment we live in is shaping the health of our communities. This section examines the health status and outcomes of people living in Pima County and their ability to access infrastructure, resources and services that improve health and prevent premature deaths.

Health Indicators and Risk Factors

Mortality rates are an important factor in evaluating the County's health services and in determining how to move forward in the future.

From 2005 to 2010, Pima County saw the death rate decline for cardiovascular disease (though it ranks 10th out of 15 counties in Arizona). Overall death rates also declined in the same time period for malignant neoplasms, accidental injury, cerebrovascular disease, Alzheimer's disease, influenza and pneumonia.

During that same period, Pima County saw an overall increase in death rates for injury by firearms, suicide, diabetes and drug-induced deaths. In fact, Pima County has one of the state's highest rates of drug-induced deaths, ranking 3rd among all Arizona counties.

Leading Causes of Death[1]

Another indicator for a population's health is the leading cause of death. In 2011, the leading cause of death in Pima County was cardiovascular disease, followed by cancer. More Pima County residents died from lung cancer than any other type of cancer at a rate of 38.8/100,000 population. The following table shows Pima County age-adjusted mortality rate (deaths per 100,000 residents) compared to the State rate.

[1] Bishop, Torres & Gupta, S. (May 2013). *Arizona Health Status and Vital Statistics*. Arizona Department of Health Services, Public Health Services, Bureau of Public Health Statistics.

Table 5.1.a: Leading Cause of Death - 2011

	Cause of Death	Pima County	Arizona	% Compared to AZ
1	Cardiovascular Disease (includes heart disease)	208.0	201.0	3.5%
2	Cancer	156.8	151.3	3.6%
3	Accident (unintentional injury)	43.2	45.5	-5.1%
4	Chronic lower respiratory disease	40.7	45.9	-11.3%
5	Cerebrovascular disease (stroke)	34.4	30.6	12.4%
6	Diabetes	21.6	24.8	-12.9%
7	Drug-induced death	20.3	16.8	20.8%
8	Injury by fire arms	17.5	14.7	19.0%
9	Alzheimer's disease	17.4	35.2	-50.6%

Source: Arizona Department of Health Services, 2011

When comparing males and females in Pima County, females were more likely to die from Alzheimer's, influenza and pneumonia, and chronic liver disease and cirrhosis, than males. Males were more likely to die from fire-arm injury, alcohol use, and suicide, than females.

Table 5.1.b: Leading Cause of Death for Males and Females- 2011

Source: Arizona Department of Health Services, 2011

Health Risk

The behaviors and risk factors of Pima County residents illustrate opportunities for community planning that influence the social and built environments contributing to premature and preventable deaths. Of particular note is that over twenty percent of adults in Pima County report that they did not participate in physical activity of any kind in the past month. The following table provides a comparison of the performance of Pima County and Arizona on key health risk indicators.

Table 5.1.c.: Health Risk Factors

Indicators	Cause of Death RIsk Factor	Pima County	Arizona	Compared to Arizona
Physical Activity	Adults reporting they did not participate in physical activity of any kind in the past month[2]	20.3%	20.8%	=
Obesity/ Overweight	Overweight adults	31.8%	39.7%	↑
	Obese adults	26.6%	25.2%	↓
Substance Abuse	Report binge drinking in the last 30 days	16.8%	14.0%	↓
	Heavy drinker	8.0%	5.5%	↓
Tobacco Use	Current smoker	15.5%	15%	=
Preventative Health	Women with Pap Test in Past 3 years[3]	70.1%	67.5%	↑
Sexual Behavior	Rate of Gonorrhea Infection in females 15-44[4]	10.5%	16.7%	↑
	Rate of Syphilis Incidence (primary and secondary)	4.6%	4.3%	=
	Rate of new HIV cases	6.3	8.7	↑

Source: Arizona Department of Health Services, 2011

[2] Behavioral Risk Factor Surveillance System Data for Pima County and Arizona. (2010).
[3] Arizona Department of Health Services Cancer Registry Data (2010).
[4] Mrela, Ck.K & Torres, C. (2011). *Arizona Health Status and Vital Statistics*. Arizona Department of Health Services.

Hospitalizations

Pima County hospitals are seeing the impact of people's choices on their health outcomes as well as clear trends in the health care needs of Pima County's populations. An inpatient discharge occurs when a person who was admitted to a hospital leaves that hospital. In 2011, heart disease was the leading hospital inpatient discharge diagnosis in Pima County (94.1/10,000 population).[5] Psychoses including alcoholic psychoses, drug psychoses, schizophrenic disorders and manic-depressive disorders had the second highest rate for hospital discharge diagnosis at 71.0/10,000 population. Fractures and osteoarthrosis, issues prevalent within Pima County's older populations, are near the top of the list of diagnosis hospitals treat. This information indicates that healthy behaviors, behavioral health and elder care are top health concerns in Pima County.

Table 5.1.d: Leading Causes for Hospitalization

	Leading Hospital Inpatient Discharge in Pima County	Pima County	Arizona	% Compared to AZ
1	Heart Disease	94.1	94	**0.1%**
2	Mental Disorder - Psychoses	71.0	63.9	**31.8%**
3	Injury - fractures, all sites	36.6	34.8	**4.9%**
4	Osteoarthrosis and allied disorders	35.9	30.6	**14.8%**
5	Malignant neoplasms	33.8	30.7	**9.2%**

Source: Arizona Department of Health Services, 2011

Financial Status

While there are a variety of social and physical determinants of health, low-income is strongly associated with poor health status. Higher socio-economic status is associated with a decrease in the prevalence of many chronic diseases which carry a heavy burden of morbidity and premature mortality, including cardiovascular disease, diabetes, arthritis, tuberculosis and other chronic respiratory disease, gastrointestinal disease. This relationship also exists for adverse birth outcomes and accidental and violent deaths. Certain risk factors such as rates of smoking, cholesterol levels, and prevalence of sedentary lifestyle decrease as socio-economic status rises. Finally, overweight and obesity are disproportionately represented in populations of high poverty.

[5] Mrela, Ck.K & Torres, C. (2011). *Arizona Health Status and Vital Statistics*. Arizona Department of Health Services.

Unemployment is also associated with poorer health outcomes including premature mortality, cardiovascular disease, hypertension, depression, and suicide. Because the majority of Americans have health insurance through their employer or family member's employer, unemployment increases the likelihood a person is uninsured. The uninsured are more likely to seek care in emergency rooms, go without screenings and preventive services, and forgo or delay care. As a result, uninsured people tend to pay more for care, be sicker and die younger than those with insurance. Interestingly, people who are insured but unemployed are also more likely than their employed counterparts to forgo or delay care. Three areas of Pima County show the highest rates of low-income - Central/Southeast Tucson, the Tohono O'odham Nation, and the Pascua Yaqui Tribe Primary Care Areas. These same areas are associated with high unemployment and enrollment in AHCCCS, except the Pascua Yaqui Tribe PCA in which there is high poverty and unemployment but a lower rate of AHCCCS enrollment. Similar to the Pascua Yaqui Tribe PCA, Tucson Northeast, East Central, Central and North Central areas all have a lower rate of AHCCCS enrollment given the poverty and low-income rates than other areas in Pima County. This indicates that low-income people in these areas may be particularly at risk for not having sufficient access to health services, particularly those individuals who do not qualify for assistance programs. Finally, Ajo stands out as an area with high poverty and unemployment rates.

County's Health Gap Analysis and Workforce Issues

A considerable portion of the population residing in Pima County does not have adequate access to primary medical, behavioral and dental services. Approximately 23% of Pima County residents live in a medically underserved area (MUAs), indicating that residents lack adequate access to care and are likely to have unmet health needs. Furthermore, it is estimated that nearly a quarter of Pima County's population lives in areas with inadequate access to primary care practitioners and 31% lives in areas with inadequate access to dental professionals.

Health and Human Services designated the entire County as a low-income mental health HPSA (Health Professional Service Area), meaning individuals and families earning less than 200% of the Federal Poverty Level do not have adequate access to mental health professionals. A shortage of practicing professionals and geographic barriers such as a lack of transportation options and distance necessary to reach the professional contribute to this lack of access.

Table 5.1.e: Population Residing in Primary Medical Care and Dental Health Professional Shortage Areas (HPSAs) by Planning Area, 2009

Planning Area	Total Population Residing in Planning Area	Population Residing in a Primary Care HPSA	Population Residing in a Dental HPSA	% Population Residing in Planning Area	% of Population Residing in a Primary Care HPSA	% of Population Residing in a Dental HPSA
Avra Valley	19,191	17,190	17,162	2%	90%	89%
Tucson Mountains	45,993	358	358	6%	1%	1%
Southwest	69,730	3,397	5,564	8%	5%	8%
Altar Valley	13,229	8,314	8,096	2%	63%	61%
Upper Santa Cruz	22,178	11,206	11,207	3%	51%	51%
Mountain View	4,128	4,121	4,122	0%	100%	100%
Southeast	85,342	78,298	19,320	10%	92%	23%
Central	309,259	65,513	117,191	37%	21%	38%
Catalina Foothills	171,352	0	72,626	21%	0%	42%
Rincon Valley	2,215	0	2,215	0%	0%	100%
Tortolita	88,044	0	0	11%	0%	0%
San Pedro	1,955	0	521	0%	0%	27%

Sources: Estimates based on data from the Arizona Department of Health Services (ADHS) 2009 Primary Care Profiles and 2005 TAZ population estimates from Pima Association of Governments

This partial gap analysis identifies some potential health service deficiencies in Pima County. Coordination among multiple community stakeholders is required to identify and remedy the service deficiencies that exist in the community. There are several aspects of County operations that directly impact residents' access to public health services and infrastructure that supports healthy lifestyles. These aspects include environmental quality, transportation, parks and recreation, libraries, developmental services, and community services.

To achieve a reduction in health disparities, improve access to care and encourage healthy lifestyles, Pima County can positively influence the choices its residents make by enacting ordinances and policies that support health, such as those that provide improved access to a healthy environment, recreation, nutritious foods, and health care services. Optimally, this should be done in collaboration with the highly motivated community stakeholders and local governments while carefully tracking and assessing federal and state policy initiatives.

Community Health Improvement

Pima County plays a key role in disease prevention, education, and provision of health services to County residents. The sections below outline the challenges of providing health services to its citizens.

County Role & Challenge in Disease Prevention and Provision of Services

Data also highlight significant health issues in the American Indian populations. Any collaboration with tribal communities and Indian Health Services should recognize the independent status of this population as well as their utilization of the County wide health infrastructure for significant services as evidenced in the hospital admission rates.

Approximately 37% of Pima County's overall population has income less than 200% of the federal poverty level (FPL) with 65% of the population in certain areas within the City of Tucson living at 200% of FPL. The low-income population experiences higher, costly inpatient hospital utilization, poorer maternal and child health status, and the greatest difficulty accessing primary care and preventive services.

Community Health Assessments

Two major health initiatives on which the County can build strategies for the Comprehensive Plan include the community health needs assessment (CHNA) prepared by the three non-profit hospitals in collaboration with a variety of stakeholders and the community health assessment (CHA) prepared by the Pima County Health Department.[6] These assessments looked at a variety of health data sources to identify the health issues that are most critical in Pima County and led to the development of a community health improvement plan.

[6] Pima County Community Health Needs Assessment (CHNA) is available on line at: https://www.tmcaz.com/files/2012%20Pima%20County%20Community%20Health%20Needs%20Assessment.pdf

County's Community Health Improvement Plan

Through a review of the health data and input collected from the Community Health Assessment process, a taskforce of over 60 stakeholder groups produced identified four strategic health improvement priority areas – Healthy Lifestyles, Health Literacy, Access to Care and Health Equity. Within each of these priorities, the Healthy Pima taskforce developed actionable objectives and strategies related to each area to mitigate those health issues. These objectives have been incorporated into the policies of Pima Prospers as seen in section.

Source: Pima County Community Health Improvement Plan 2013

Aging in Pima County

Consideration of the health and well-being of older adults is a clear area of focus as Pima County is home to more adults 65 and older per capita than the state as a whole. Just over 21% of Pima County's population is over 60 years of age and this population will continue to grow as estimates indicate that by 2020, one in four Arizona residents will be over 60 years of age. Within Pima County, the highest concentrations of older adults are found in Green Valley, Ajo and Arivaca.

It is well-established that older adults are higher utilizers of health services due to the prevalence of chronic health conditions[7]. This population has a high demand for home and community-based services that support them in their homes rather than more costly institutional settings such as assisted living or skilled nursing facilities.

To meet this demand there must be a trained workforce, including home care paraprofessionals, and a transportation system that meets the needs of the caregivers as well as elderly.

Communities frequently lack accessible and affordable housing options that allow older adults to safely remain in their communities as housing needs change. Community design that supports mixed use principles works to bring services closer to places of residence. This community design principle further improves the accessibility of services, and increases opportunities for active transportation and social interaction.

Existing Aging in Place Programs

Pima County has partnered with the Pima Council on Aging (PCOA) as the designated Area Agency on Aging serving older adults and their families living in Pima County. PCOA services include:

- Education on the Arizona Long Term Care System which is part of Arizona's version of Medicaid are offered monthly for free.
- Caregiver services such as resource assistance, classes, and some at home services are offered.
- Elder Rights and Benefits: The Elder Rights and Benefits Department advocates for and assists older adults with a wide range of issues.
- Information on healthy living, staying fit, and quality of life.

[7] Bernstein AB, Hing E, Moss AJ, Allen KF, Siller AB, Tiggle RB. 2003. Health care in America: Trends in utilization. Hyattsville, MD: National Center for Health Statistics.

- Help with minor repairs or adaptations may be available to home owners age 60 and over.
- The Community Services System (CSS) provides case management and in-home help to individuals who have difficulty performing basic activities of daily living, such as dressing, bathing, toileting, etc.
- A senior resource and services helpline.
- Long-Term Care Ombudsmen: PCOA's Long-Term Care Ombudsmen visit assisted living and nursing home residents in Pima County to advocate for resident rights.
- Meals and Nutrition: PCOA has two meal programs – Pima County Meals on Wheels for home bound clients and our senior meal program offered at multiple locations.
- Medicare: PCOA is the local Arizona SHIP (State Health Insurance Assistance Program) and a partner of the Centers for Medicare and Medicaid Services (CMS).
- Neighbors Care Alliance: Neighbors Care Alliance (NCA) assists neighborhoods and faith-based communities in helping seniors remain independent and in their homes as long as possible through the support of neighbors helping neighbors.
- Partners in Planning: Partners in Planning assists with difficult end of life planning matters.
- Personal Budgeting Assistance: Trained volunteers assist low income individuals to balance their bank accounts, prepare a budget and organize bills.
- Opportunities to do volunteer work.

Pima County Health Department offers additional services to seniors. Public Health Nurses provide health and wellness education to seniors in nutrition programs. They receive one-on-one education and handouts on a variety of health topics with an emphasis on blood pressure management. Additionally adult vaccination services provided by PCHD are highly sought after by the elderly community.

Land Use, Community Design and Public Health

Community design affects the activity level of area residents. Mindful zoning and development can lead to communities that better support improved health outcomes for residents. Communities that are spread out have limited connectivity to other communities and services and require motor vehicle transit. Auto-oriented communities are directly linked to a low ratio of physical activity and poorer air quality. Furthermore, the proximity to public open spaces to residences and work places promotes physical activity. Parks and Recreation's decision of where to utilize resources is integral to establishing infrastructure that supports healthy lifestyles and it is even more important in low-income neighborhoods and areas where resident mobility is diminished.

Environmental quality and built environments directly affect community health. The Centers for Disease Control, recognizing that the way communities are designed and built can affect people's physical and mental health, launched the Healthy Community Design Initiative. This initiative supports a greater influence of public health surveillance and research on community design decisions. The initiative highlights that healthy community design can improve people's health by:

- Increasing physical activity;
- Reducing injury;
- Increasing access to healthy food;
- Improving air and water quality;
- Minimizing the effects of climate change;
- Decreasing mental health stresses;
- Strengthening the social fabric of a community; and
- Providing fair access to livelihood, education, and resources.

The community health assessments recently completed and the demographic and statistical data highlighted in this report identify four major themes – healthy lifestyles, health literacy, access to care and health equity, and two critical areas of focus – obesity and behavioral health. These health issues require attention, not only due to their impact, but also because they are tied to the leading causes of death among Pima County residents i.e., cardiovascular disease, accidents, strokes, drug-induced deaths, diabetes and suicide.

While health is in part a personal responsibility, the County can positively influence the choices its residents make by enacting ordinances and policies that support a healthy community, such as those that provide improved access to healthy and safe environments, recreation, nutritious foods, and health care. Pima County can serve as a critical catalyst for change and collaboration aimed at protecting health and promoting wellness in Southern Arizona.

5.2 Public Safety and Emergency Services

Public Safety and Emergency Services

The Pima County Office of Emergency Management (PCOEM) recognizes the need for coordinated emergency response to any emergency or disaster by public safety, emergency services, emergency management, private sector, and community and volunteer agencies. PCOEM continues to develop and maintain a close working relationship with its partners and stakeholders in the emergency community. Events, meetings, training and exercises are held continuously to develop relationships and networking. The Pima County Multi-Year Training and Exercise Program (MYTEP) calendars these events for three years increasing participation through awareness. PCOEM maintains an open and inclusive approach to those organizations and agencies who wish to participate in regional emergency preparedness.

The Pima County Office of Emergency Management (PCOEM) manages emergency/disaster planning and emergency operations and resource coordination during disasters or emergencies. A major part of that role involves coordinating, planning and exercising with local public health, public safety and emergency services providers and agencies. PCOEM operates the Pima County Emergency Operations Center (PCEOC) which is the regional coordination center for county departments, first responders, local jurisdictions/agencies, utilities, private sector, community organizations, faith-based organizations, and non-profits. The PCEOC supports local emergency response efforts by coordinating mutual aid requests, logistics/resource support, emergency communications, and is the regional point of contact to request state resources and support. The PCEOC also coordinates with local, state and federal agencies to provide support to local jurisdictions and on-scene incident command objectives.

Emergency preparedness planning is a crucial emergency services element of the PCOEM function. PCOEM has developed and maintained many all-hazards emergency plans for disasters and emergencies which may occur. The following is a partial list:

Pima County Emergency Operations Plan 2012

This plan is the comprehensive emergency operations plan for Pima County and includes federal emergency management doctrine and guidelines that keep Pima County well integrated and consistent with all tiers of government nationally. Compliance with standardized FEMA plan design, procedures and documentation during emergencies ensures a more streamlined emergency management process and expedites reimbursement of disaster expenses from the federal government should that become necessary.

Pima County Building Evacuation Plans (PCOEM)

PCOEM has developed building evacuation plans and has conducted drills to practice and refine the plans.

Local Emergency Planning Committee (LEPC)

LEPC is a function of PCOEM and is statutorily mandated to support emergency planning for those who use, store, and/or manufacture hazardous materials in Pima County. Pima County boasts one of the most highly regarded LEPCs in the state and region.

Pima County Fatalities Management Plan

This is a joint venture with the Pima County Health Department and the Medical Examiner's Office to effectively deal with a mass fatalities event such as an airline crash, pandemic, weapon of mass destructions (WMD), or any event resulting in a large number of deaths. This plan provides guidance and direction in the collection, documentation, transport, storage, identification, decontamination, and interment of human remains.

Pima County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2012

The Pima County Office of Emergency Management coordinated with the Arizona Division of Emergency Management (ADEM) Mitigation Office to facilitate and develop this plan. This plan is required by FEMA in order to qualify Pima County for federal mitigation grants.

Pima County Community Wildfire Protection Plan

The Pima County Health Department's Office of Public Health Preparedness is engaged in collaborative, community focused emergency public health planning to address biological, chemical, radiological, or natural disaster events that result in public health threats or emergencies. Also see Wildfire on page 5.21.

Below is a summarized version of the plans the Pima County Health Department has developed and maintains in order to keep Pima County prepared for any public health emergency:

- PCHD All Hazards Plan
- PCHD Continuity of Operations Plan
- PCHD SNS and Mass Clinic Plan
- PCHD Public Health Surge Plan
- PCHD Pandemic Flu Plan
- PCHD Preparedness Exercise and Training Plan
- PCHD Environmental Health Response Plan
- PCHD Agency Communications Plan

Community Threats and Hazard Areas

The Pima County Office of Emergency Management (PCOEM) has completed a collaborative regional threat assessment and has identified a list of possible hazards facing the county and its local jurisdictions. This hazard information is included in the Pima County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) 2012. This assessment is based on historical occurrences and documented events. The State of Arizona Multi-Hazard Mitigation Plan supports the Pima County MJHMP. The most frequent and recurring hazards are floods/flashfloods and wildfires.

Flood/Flash Flood

Flooding is clearly a major hazard in the County. Pima County has been part of 13 disaster declarations for flooding, with three of those declarations occurring in the past five years.

As demonstrated by Pima County's past flood events, the impact to the general public is typically property damage and loss, injury, and in some cases, death. Floods having an impact on Pima County residents and infrastructure as a whole are low, though some parts of Pima County may be more affected, such as, some rural areas adjacent to riparian waterways, and therefore may become isolated because of transportation routes being washed out, or closed.

Much effort has been expended on developing flood response protocols among the various departments and jurisdictions having responsibilities to monitor, alert, and respond to flood events. During actual or potential flooding events, flood response departments and agencies are called to respond to the Pima County Emergency Operations Center to coordinate resources and communicate with other EOCs.

Pima County Flood Control District has worked diligently to increase the county's score with the Community Rating Service and this has resulted in a reduction in National Flood Insurance Program (NFIP) rates for affected Pima County residents.

Pima County is also recognized by the National Weather Service as a Storm Ready County because of its preparedness, alert and warning capabilities.

Wildfire

Pima County has a high vulnerability to wildfires. Due to climate (heat and wind), geographical terrain, and man-made incidents, Pima County has had 26 wildfires in excess of 100 acres for the period of 2002 to 2009. Wildfires and the resulting effects harm wildlife, soil, water and appearance of the land for many years. The pattern of less than normal annual precipitation will continue to exacerbate the wildfire threat. The consistent pattern of seasonal rainfall producing vegetation which later becomes potential fuel for fires will always be present. The Pima County Office of Emergency Management continues to address the fire threat through mitigation planning and community planning. The PCOEM, in partnership with the University Of Arizona School of Agriculture, applied for federal grant funds for a buffelgrass eradication program. This program works in the community to remove buffelgrass which is a non-native, invasive plant which is highly flammable and fast burning. PCOEM has also facilitated and coordinated the development of the comprehensive Pima County Community Wildfire Protection Plan (CWPP) which promotes fire prevention and suppression strategies, improve firefighter and public safety, reduce fuels, protect property and promote community involvement.

Extreme Temperature

Growth in Pima County over the past five years has significantly increased the amount population and infrastructure is exposed to extreme temperatures. There is also an increased demand on resources such as power in summers and natural gas in the winter. The primary intersects of extreme temperature hazards and future development of the county is in the general increase in population and infrastructure that would be exposed. Advanced building codes requiring adequate burial depth of water lines are generally being used and enforced.

Over the past two decades, as the metropolitan area has dramatically grown in size the "urban heat island" effect has developed, which cause temperatures in the center of metropolitan areas to become much warmer than those in rural areas. The concrete and asphalt of urban areas retains the heat of the day, and releases it slowly as compared to the surrounding desert terrain, which cools much quicker at night. As development continues to occur within Tucson and its environs, heat conditions will continue to increase.

In Pima County, PCOEM works closely with Tucson Electric Power, the American Red Cross, and the Pima County Health Department to monitor hazardous heat conditions and possible power interruptions during the summer monsoon. Plans include cooling centers and shelters to provide a refuge for people to escape the heat. Inversely, during times of very cold weather, plans include maintaining contact with Southwest Gas, Kinder-Morgan, Tucson Electric Power, Trico Electric, and the American Red Cross to set up warming centers as was done in the past during an interruption of natural gas leaving many without heat during frigid cold conditions.

Disease

Pandemic and infectious diseases create a serious threat to public health as they may affect a large percentage of the population, regardless of health condition, age or location. These potentially hazardous conditions affect humans, domestic animals, and livestock (food supply).

The Pima County Health Department seeks to prevent infectious diseases from entering the county and control those that are endemic or have already entered. Of particular concern to the County Health Department are Ebola, new pandemic diseases, such as SARS, new strains of HIV, new influenza strains such as the most recent H1N1 threat, botulism, and bio-terrorism pathogens such as anthrax, smallpox, or chemical attacks of sarin or VX gas. As a component of the Pima County Health Department, the Disease Control division seeks to reduce the incidence of disease morbidity and mortality in Pima County through the identification of community health problems, compilation of health statistics, and development of appropriate intervention programs. Special attention is paid to epidemiology, HIV/AIDS, sexually transmitted diseases, in addition to preventive programs such as immunizations and well women services.

Pima County recently developed a comprehensive Pima County Ebola Preparation and Response Framework which was the product of collaboration between many county departments, state agencies and local hospitals. This will coordinate the response and planning by medical and public safety departments and agencies to manage an Ebola outbreak should one occur.

Community Emergency Readiness and Hazard Mitigation Planning

The Pima County Office of Emergency Management (PCOEM) supports community preparedness and readiness through outreach programs.

- PCOEM coordinates the Southern Arizona School Safety and Preparedness Consortium which builds communications with and between schools, offers training in incident management, and strengthens school resilience through plan development.
- PCOEM conducts Community Emergency Response Team (CERT) training, which is a FEMA Citizen Corps program that teaches basic emergency response skills to the average person and equips them with basic equipment.

The Pima County Multi-Jurisdictional Hazard Mitigation Plan contains the mitigation priorities and projects identified by each of the local jurisdictions in the county – Marana, Oro Valley, Sahuarita, Tucson, Pascua Yaqui Tribe, Tohono O'odham Tribe, South Tucson, and unincorporated Pima County. Priorities are focused on the highest ranked hazards as identified by each jurisdiction. This collaborative planning process is revised every five years and is coordinated between the state and PCOEM.

The Pima County Health Department Office of Public Health Preparedness is engaged in collaborative, community focused emergency health planning to address biological, chemical, radiological, or natural disaster events that result in public health threats or emergencies. The Pima County Health Department is working to:

- Develop effective plans and resources during emergencies to protect the community.
- Develop and maintain public health emergency capacity.
- Coordinate with community, county, state, tribal, and federal partners to develop a plan to provide mass prophylaxis and treatment to all people in the county.
- Develop the capacity to rapidly identify diseases and initiate prevention and control activities.
- Develop effective, secure communication infrastructure for rapid communication among public health and its partners.
- Develop the capacity to effectively communicate health/risk information to the public and key partners.
- Develop a public health workforce (including volunteers).
- Better prepare the community for an emergency.

Fire Service

Fire service throughout Pima County is handled within departments or districts based on the governing body of the population area. Service in the population areas vary. The City of Tucson has several fires stations and can provide service within five minutes. South Tucson, which is a one square mile city, provides fire service to its residents within five to seven minutes. Service within the County is available and is ready when needed. Areas that are incorporated have more established service than the unincorporated areas of the County.

Fire Service Availability by Planning Area

Table 5.2.a: Existing Fire Service Inventory by Planning Area

Planning Area	Fire Service
1. Avra Valley	Avra Valley Fire District Silverbell Army Heliport Fire Department Picture Rocks Fire District
2. Tucson Mountains	
3. Southwest	Drexel Heights Fire District
4. Alter Valley	Three Points Fire District Pascua Pueblo Fire Department
5. Upper Santa Cruz	Elephant Head Volunteer Fire Department Arivaca Fire District Green Valley Fire District Helmet Peak Volunteer Fire Department
6. Mountain View	
7. Southeast	Corona de Tucson Fire Department Helmet Peak Volunteer Fire Department
8. Central	Rural - Metro Fire Department Tucson Airport Authority Fire Department Tucson Fire Department Raytheon Fire Department 162nd Fighter Wing Fire Department (Davis-Monthan AFB)
9. Catalina Foothills	Mt Lemmon Fire District Tucson Country Club Estates Fire District
10. Rincon Valley	Rincon Valley Fire District
11. Tortolita	Northwest Fire District

Planning Area	Fire Service
	Golder Ranch Fire District
12. San Pedro	
13. Ajo/Why	Organ Pipe Cactus National Monument Ajo/Gibson Volunteer Fire Department Why Fire District
14. Tohono O'odham Nation	Tohono O'odham Nation Fire Department

Source: Pima County GIS Department Inventory, 2013

Public Safety

The Pima County Sheriff's Department is committed to safety and well- being by utilizing advanced strategies of community policing and the direct supervision management of its detention facilities. Community policing involves the establishment of dynamic partnerships with citizens, communities, and other civic and criminal justice agencies working together toward common goals. The Pima County Sheriff's Department provides a wealth of information on its website at www.pimasheriff.org about crime prevention, detention center services and online services which include filing a police report and obtaining crimes statistics to name a few. The Department strives to provide accurate and timely information by way of its Facebook and Twitter accounts. It encourage citizens to follow pages to receive information on crime trends, road closures, and community events such as Dispose-A-Meds and Shred-A-Thons. In addition, its award winning Sheriff's Auxiliary Volunteers program provides home inspections, vacation checks and neighborhood watch patrols to assist the Department with its public safety mission.

5.3 Parks and Recreation

Pima County established its Parks and Recreation Department in 1947 to serve urban and rural residents and guests by providing leisure-time destinations and services. Today the Parks Department does everything from care for stately saguaros in Tucson Mountain Park to overseeing after-school recreation programs. Additionally, many other classes and services are offered at the parks and community centers. These facilities serve as an integral part of the community and are often the major service provider for the area. The following park facilities are currently in place in Pima County:

- Community Centers (13)
- Pools and Splash Pads (10)
- Parks (49)
- Dog Parks
- BMX and Skate Parks
- River Parks and Greenways
- Natural Resources
- Trailheads (21)
- Shooting Sports (5)
- Camping
- Mike Jacob Sports Park

Pima County has over 10,000 acres of public developed and undeveloped parkland within its planning area. This section summarizes the funding and economic use of the parkland and recreation facilities currently serving Pima County residents.

Pima County Sports Facilities Assessment

A countywide inventory of sports facilities was conducted by Pima County Sports and Tourism authority in 2013. The Pima County Sports Facilities Assessment lays the foundation for a comprehensive plan for the development of sport and recreation facilities including the ability to host sports and other events. It aggregates the findings into a long range development scenario, and assesses the existing sport and recreation infrastructure for a wide range of activities using two measures: (1) Providing recreational value to the citizens of Pima County; and (2) Enhancing regional, national, and international tourism.
Various jurisdictions maintain an inventory of their facilities in one of many formats. This study assimilated such information and developed a single database in a Geographic Information Systems (GIS) format that includes both table data (database) as well as graphic representation of the data (maps). The regional audit includes indoor and outdoor facilities from all jurisdictions and (to the extent of available information) all schools, private sports facilities meeting minimum auditing requirements. Minimum auditing requirements were defined as any existing facility comprised of at least two major sports fields (outdoor), and any significant number of indoor courts or facilities. Fields or courts could be aggregated by adding two separate facilities in close proximity to one another. The facilities may have been added to the audit where they otherwise would not have met the threshold on their own.

The following regionally established sports have been recognized and these sports have been measured against several filters:

- Aquatics (Diving, Swimming, Synchronized Swimming)
- Archery
- Athletics (Track and Field)
- Cycling (Road Cycling, Mountain Biking, BMX)
- Baseball (Professional, Youth)
- Basketball (professional, Youth)
- Football (Youth)
- Golf
- Indoor Ice Sheet Sports
- Lacrosse
- Rodeo
- Rugby
- Running
- Shooting (Trap & Skeet)
- Soccer
- Softball
- Tennis
- Triathlon
- Volleyball (indoor)

While it is recommended that these sports continue to be developed and promoted both locally and in terms of hosting regular organized competitions at the highest level of participation, programming for this study included a much wider range of activities for the purposes of arriving at a more comprehensive proposal for the long term development of sport facilities and activities.

Funding and Return Investment Mechanisms

Pima County Natural Resources, Parks and Recreation (NRPR) does not have a financial plan for return on investments, as a public entity, this is not its mission. The department does acquire land for open space and recreational purposes, which is a capital investment. This is accomplished through bonds and an in-lieu fee that is collected from the subdivision platting process. The in-lieu fee is also used for recreational equipment that needs replacing when it is vandalized or aged over the years. There are potential funding possibilities for NRPR that could include reorganization of the department. These opportunities would be to have the Stadium District - Kino Sports Complex and the Economic and Tourism Department under the NRPR umbrella. Keeping the revenue that is generated by the other departments under NRPR would enable NRPR to reposition itself to allow for a proactive parks department versus a department that is mostly reactive.

Existing Funding and Return Investment Mechanisms

Existing funding for the Natural Resources and Parks and Recreation Department come from various sources including:

- General Fund
- Supplemental Requests
- Bonds
- Grants
- Earned Revenue

Joint Use and Economical Use of Parks

Pima County has had bond programs in the past that have funded sports fields for various school districts with the requirement that the fields be open to the public when school is not in session. This joint use arrangement has worked well as the county provides the money for the construction of the fields and the school district maintains the fields.

The residential recreation areas section in the zoning code has standards for the amount of square footage and recreational facilities that is required in a residential subdivision, which is maintained by a homeowners association. These neighborhood parks provide areas for the residents to walk to a park versus driving to a community or district park. The neighborhood parks are geared to the people in the subdivision who can provide important recreational needs that are requested by the residents.

It is more cost effective for the county to provide regional parks of 40 acres and larger with recreational facilities, such as baseball, soccer and softball fields, swimming pools, shade structures with picnic areas, and have the homeowners maintain the smaller parks in their neighborhood that are used by local residents. This division of parks makes economic sense in that the residents are paying for the park they use and the large public parks provide facilities beyond those provided for in the smaller parks.

NRPR and Kino Sports Complex have sport fields for rent to public, youth and adult groups. These fields are rented out at a nominal rate to lessen the financial burden to the sports leagues in the county, so an increase to these fees is not feasible.

Earned revenue is however obtained for the Kino Sports Complex by renting facilities for various sports or entertainment events. These earned revenues have varied widely over the years. They have been as high as $1.8 million per year when two-team MLB Spring Training was conducted at the complex to as low as $700,000 in the year after MLB abandoned the Kino facilities. Currently, the amount of revenues budgeted is beginning to approach those that were received when two teams utilized the facilities for MLB Spring Training. At this level, additional General Funds will eventually not be necessary to support the complex.

5.4 Workforce Training/Education

The Pima County Workforce Investment Board is authorized by the Department of Labor and appointed by the Pima County Board of Supervisors guide local workforce policy and oversee the local One-Stop system that connects eligible job ready youth, adult, and dislocated workers with employment opportunities, with a focus on high-demand industry occupations. The Pima County One-Stop Career Center administers funding and programs under the Workforce Investment Act and is part of the Arizona Workforce Connection, a statewide network of career centers. The Pima County Workforce Investment Board pursues its vision of "Quality Jobs, Qualified Workers" through the following goals:

- Assisting people to obtain jobs in strategic industry sectors.
- Supporting employers in finding and hiring qualified employees.
- Engaging underrepresented labor pools by removing barriers to employment.

This section summarizes the workforce training and education programs currently serving Pima County residents.

Workforce Training Role in Improving Services and Economy

Workforce development is a key component in the economic development of our region. At the macro level, the availability of skilled workers is a central factor in economic competitiveness which in turn drives prosperity. Tucson's ability to attract quality jobs depends to increasing extent on the availability of a labor pool of qualified workers. Simultaneously, opportunities to increase skills mean increased earning power for current workers and individuals entering the workforce.

Pima County One-Stop offers a continuum of career development services for both youth and adults and conducts special outreach to low-income, dislocated worker and high-school dropout populations. Services are coordinated centrally, but delivered through a network of more than 50 organizations ranging from community-based non-profits, governmental agencies, and proprietary trainers. Services such as vocational rehabilitation, adult education, Unemployment Insurance, basic social services and labor exchange/Employment Service are co-located in the main One-Stop Center at the Rio Nuevo Community Resource Campus.

Three tiers of service are offered:

- Core services – include self-service options, such as labor market info, job banks and on-line job matching, and staff assisted options, such as workshops, resumes, job leads, career counseling, and referrals. There is no eligibility requirement for core services.
- Intensive Services – include vocational assessment, case management, individual employment plan services, pre-vocational adult education, job search and placement. Services are provided

based on eligibility for a variety of formula and discretionary grants targeting low-income, dislocated worker, disadvantaged youth and high-school dropout populations, as well as veterans.

- Training – for those who meet eligibility requirements and who lack specialized skills necessary to obtain employment, training is provided from a menu of more than 300 qualified occupational training programs and through on-the-job training contracts directly with employers. An assessment is used to determine whether occupational training is appropriate, and the job seeker is assisted in preparing a training plan.

The One-Stop Center provides support to employers in recruiting, staffing and training a viable workforce. Job order registration, applicant screening and job matching is conducted in person and online. Customized training may be implemented to upgrade the skills of existing workers, and on-the-job training is provided where appropriate for new employees. The One-Stop has also worked with industry clusters and other employer groups to design new training needed to address workforce shortages in fields such as information technology, engineering technology, machining and healthcare.

Existing Workforce Programs

Pima County connects job seekers – youth, adults, veterans and dislocated workers – to a network of employment, training, and educational programs. Some of these programs include:

Adults:

- One-Stop Center
- Sullivan Jackson Employment Center (SJEC)
- Kino Veterans' Workforce Center

Youth:

- Summer Youth Program
- Las Artes, Arts & Education
- Pima Vocational High School
- Pledge-A-Job program

Role of Workforce Training in Economic Development

Workforce investment priorities have to balance the goal of providing access to quality employment opportunities where they are found today with that of developing a skilled workforce for the quality jobs of the future. Whereas 50 years ago most of our jobs were unskilled and semi-skilled, future job growth will be concentrated at high skill levels, as global competitiveness gravitates toward innovation. Our sector strategies reflect this balance by offering career advancement pathways from lower-skilled

positions to high-skilled occupations that command high wages and increase the innovation capacity of our economy.

The foundation of the One-Stop is a shared vision articulated by the Workforce Investment Board as "Quality Jobs, Qualified Workers." The One-Stop coordinates a continuum of services on both sides of that coin – increasing qualifications of workers and widening the talent pipeline for industry to create more and better jobs.

Pima County One-Stop has a Business Services Team which collaborates with Tucson Regional Economic Opportunities on business attractions efforts, as well as with local Chambers of Commerce and other major trade groups. The team also conducts outreach to local companies, and ongoing industrial workforce needs surveys. These efforts help to connect businesses that are relocating, starting, expanding or maintaining operations in Pima County with services to recruit, retain and train a qualified workforce.

Workforce investment needs to be focused on industry sectors that provide the preponderance of the region's high-paying jobs and/or that offer our region the greatest competitive advantage in the global economy. Key sectors may be grouped in a variety of ways; Pima County One-Stop has identified the following strategic sectors:

- Emerging Technologies/Renewable Resources
- Aerospace/Defense/Manufacturing
- Transportation/Logistics
- Health Science/Bioscience
- Infrastructure

Workforce Training, Education, GED Education Gap

Pima County's efforts to develop a home-grown talent pool to fuel economic growth are challenged by low educational levels among adult workers. A significant proportion of One-Stop customers do not have adequate reading, language and math scores on standardized assessment tests to enroll in occupational training or attain employment at sustainable wages.

Southern Arizona faces a dilemma in that its regional economy needs to attract and grow high-wage jobs, but there is a shortage of skilled workers to fuel this growth. Meanwhile, many local workers – as well as unemployed job seekers – are unable to move forward in their careers because they lack sufficient skills and education to get a job or a promotion. Pima County One-Stop is focused on training the existing workforce for higher-skill jobs in strategic industry sectors. Since most workers can ill afford

to stop working to go to school, specialized approaches are needed for both employed and unemployed populations.

Employed worker training programs are being customized to business needs by such means as online format, onsite or proximate location, special scheduling. Unemployed worker training or retraining offers compressed as well as intensive instruction that is aligned to the requirements of unemployment benefits.

Both types of programs:

- Engage businesses as co-sponsors based on their immediate workforce needs and long-term interests.
- Provide competencies that directly match jobs for which employers have current or projected demand;
- Align where possible with credit-bearing coursework and seamless transfer to professional degree programs;
- Where possible, provide portable credentials or industrial certifications that will enhance trainees' employability and earning power;
- Offer supportive services to help training participants juggle work or job search, basic family needs and school.

The One-Stop and its partners have developed some strategies for providing remedial education so that job seekers can increase their earning power through training. For example Las Artes is a GED program for young adults and Pima Vocational High School is an alternative, work-focused pathway to high-school diploma – both sponsored by the Pima County Board of Supervisors. The "Lindsey Center" collaboration was developed in partnership with Literacy Connects and Pima College Adult Education through a series of special grants. In addition Pima County One-Stop funds adult education services through SER Jobs for Progress, Portable Practical Educational Preparation (PPEP), Inc., and Tucson Youth Development, and coordinates referrals with the Ready to Earn program offered by Goodwill Industries.

Features of these programs have included:

- Content contextualized around a specific career focus and/or specific occupational competencies;
- Intensive, full-time scheduling;
- Use of assessment tools and computer-assisted education to customize instruction to specific areas of weakness;
- Cohort-based instruction, enhanced with supportive services, job club activities, and motivational team building.

While small in scale and often dependent on special grants, the community/one-stop based adult education programs leverage diverse resources and produce skill gains and diploma attainment at high rates.

Youth and Juvenile Preparation for Future Workforce

In 2012-13, 1,270 youth were employed in summer jobs, and 300 former high-school dropouts earned a GED through Las Artes, or earned a high-school diploma through Pima Vocational High School.

Youth who need additional assistance or skill training may be eligible for the following services provided by the One-Stop Career Center:

- Individualized Career Development
- Summer Youth Opportunities
- After-School Opportunities
- Las Artes GED Program
- Pima Vocational High School
- La Casita Homeless Youth Employment
- Occupational Training
- Job Search Assistance
- Pledge-A-Job Placement Program
- Support Services

5.5 Arts and Entertainment

The Tucson Pima Arts Council is the designated non-profit agency that ensures a return on the investment of public dollars in the arts. The arts are one of the most important and visible components of what makes Tucson and Pima County great, and have a significant impact on the regions' economy, sense of place, quality of life and attractiveness to 21st century industry and talent. Yet the challenges are mounting in sustaining the arts in the region. The region is well below the national average in funding the arts, 50% of Arizona schools have no funds for arts education to create art interest and education, and most arts organizations have either scaled back or disappeared. Preserving the rich diverse art community offerings while exploring new sources of funding will be the challenge. The following section summarizes the County's role in funding arts programming.

County Role in Funding Arts and Entertainment

Currently, public funding for the arts equals approximately $1 per resident or 20% of the national average. The Tucson/Pima County region is among the lowest in per capita public and private financial support in the nation. Of the 50 largest U.S. cities, annual public funding ranks near the bottom at $.94 per capital for the Tucson/Pima County region, compared to an average of $6.13, with several cities above $10 per capita in annual support.

Funding and support for the arts is important because of the indirect economic benefits to the County. Two studies on the economic impact of the arts show the following: [8]

- $87.7 million in annual revenue
- 2,602 full time jobs
- 5.08% of the regional economy in for-profit and non-profit creative industries
- 1.9 million art event attendees in 2010 generated $44.94 million

[8] Americans for the Arts (AFTA): Arts and Economic Prosperity (2012) and Local Arts Index (2012)

Pima County should capitalize on the market potential of the region's Creative Economy to grow jobs and wealth. Particular opportunities include: live music/entertainment; film; culinary arts; interior design and artisan practices rooted in Hispanic and Indigenous traditions, such as tile, furniture, wrought-iron, adobe etc.

5.6 Library Services

The Pima County Public Library enriches lives and builds community through opportunities to learn, know, interact, and grow. The Library is recognized and valued by all community members as:

- A significant resource and advocate for youth as they develop from birth to thoughtful inheritors of our community.
- A destination and place of discovery that provides abundant print materials, digital options and functions as a welcoming place for the exchange of ideas among all residents to satisfy their life-long curiosity.
- A community asset and an active partner in community building recognized for creating and motivating a skilled workforce, nurturing and celebrating our diverse cultural heritage, supporting the arts in all forms, and building 100% literacy for the residents of Pima County.
- An organization that cultivates staff that are knowledgeable, passionate and positive about the central role libraries play in individual lives and community growth.
- A forward-thinking institution that recognizes, supports and provides technological breakthroughs advancing the convenient, effective use of information, knowledge and communication.
- An organization that incorporates and integrates the goals of sustainability into all aspects of its operations.
- A free democratic institution devoted to providing community members with the information needed to participate in our democratic community.

Pima County currently has 27 library branches that serve the County's planning area. The County's library system is the first regional system of its kind in the state and provides significant, positive beneficial services to the public, including economic development, employment and job training, and other skills development. This section summarizes the services and the changing role of the libraries currently available to Pima County residents.

Literate Community, Economic and Workforce Development

The Pima County Public Library reaches thousands of adults, caregivers, parents and children with family literacy activities and in conjunction with Make Way for Books, the Arizona Humanities County, Pima County Adult Education, the University of Arizona and the Arizona State Library.

- Children's services staff provide Storytimes, intergenerational programming that promote early literacy and student success to parents.
- Librarians provide training that offer hands-on activities and supervised practice sessions that guide caregivers and parents through a range of developmentally appropriate activities that promote reading readiness.

Collaborations with community partners allow the Library to provide homework and research assistance and information literacy for students of all ages.

- The Library collaborates with the Metropolitan Education Commission (MEC) to provide opportunities for Pima County residents to access online information about study skills, financial aid, career exploration and college selection.
- Literacy Connects provides professional development for the Library's ReadStrong Program, offering opportunities for the tutors to learn new strategies for teaching literacy. During drop-in times, ReadStrong tutors work with patrons, practicing reading comprehension strategies that help develop confidence and enjoyment in reading.

The Library's economic and workforce development services include dedicated computers for job seekers and career builders, increased assistance and community resource referrals, and online resources to support the development of 21st century skills. In connection with Pima County One Stop, Literacy Connects, the Arizona State Library Archives and Public Records, and the Arizona Department of Economic Security, the Pima County Public Library has taken an integrated approach to workforce development and entrepreneurship. In addition to assistance for job seekers, the Library offers GED preparation and tutoring services, English Language learning, and reading comprehension activities to help residents sharpen their skills, land that job and meet their goals.

- Library programs assisted 9,700 job seekers, an increase of almost 15 percent over the previous year. The library received hundreds of positive comments regarding expanded job help related services.[9]
- Six laptop computer labs gave rural and smaller branches with minimal meeting room space, the ability to add programs to help hundreds more patrons a month with their job search.
- The addition of 25 dedicated job help stations and dedicated job help zones helped hundreds more job seekers to be self-directed in their job search activities. 33,642 patrons took advantage of extended access.[10]

The Library provides work experience opportunities to Graduate Assistants, Interns, Youth Workers, and Mature Workers in partnership with Pima County One-Stop and the University of Arizona's School of Information Resources and Library Science. Additionally, the University of Arizona's College of Nursing, College of Public Health, and Arizona State University's School of Social work are working with the Library and the Health Department to offer unique educational opportunities for their students.

[9] Pima County Public Library Community Impact Plan 2012/2013 First Year Report, 2013
[10] Ibid

Digital Literacy

The Pima County Public Library serves as an access point for readers and for a range of community access services including public access computers, internet and wireless services, e-book, audio content, and online information services. The Library offers computer classes at local branches independently and in partnership with the OASIS Institute. These classes encourage the development of 21st century skills including digital literacy, critical thinking, and collaborative work activities. Computer classes are available in English and Spanish. The Library provides access to electronic content (e-books, audio content, e-magazines and online information services) while providing for equal access via a robust internet/Wi-Fi connection.

Connected Learning

Pima County Public Library is providing opportunities for patrons to create content in multiple formats through classes with career professionals. CreateIT provides youth with media and technology classes, as well as mentoring opportunities with local experts to increase 21st century learning skills in the areas of information, media and technology literacy. All classes are taught by career professionals and are open to middle school and high school students.

The Catalyst Café program is a monthly convening of nonprofits, small business, and smart ideas to talk technology and innovation in the service of people, neighborhoods, nonprofits and small business.

The Library is also a founding partner in the new Tucson Downtown Innovation District (DID), and joins the DID in their mission to nurture local talent and build a robust tech/innovation economy and to educate and encourage youth in STEAM concepts and disciplines.

Community Connections

The Library connects to the community outside of library facilities. Mobile outreach efforts include the Bookmobile, the Bookbike, and the Books on Wheels Program. The Bookbike has proven to be an exceptional way to connect the public with library services and promote an environmentally savvy and instantly recognizable face of the public library. This year Pima County Bicycle & Pedestrian Program has helped the Library to expand the Books-On-Wheels services by pedaling books to homebound residents.

The Library engages in sustainability projects with the community. The Seed Library's mission is to help nurture a thriving community of gardeners and seed savers in Pima County. In addition to providing access to free seeds at 8 library locations, the library supports gardeners and seed savers, from beginner to expert, through the process of growing, harvesting, and seed saving.

The Library continues an award-winning partnership with the Pima County Health Department to provide on-site intervention services and a focus on public health. The goals of the Library Nurses Program are to provide a safe and welcoming environment for all patrons and staff and minimize the number of 911 calls for non-medical emergencies at library branches.

- The program has grown from one nurse, to five nurses rotating among library branches, to all Public Health nurses in Pima County assigned to connect and engage with residents at public library sites.
- During the first year of the program, library nurses interacted with more than 2,800 patrons and 911 medical calls from libraries were reduced by 20 percent.[11]

[11] Pima County Health Department Library Nurse Project Annual Report, 2013

- In addition to providing needed services, the Library Nurses Program has built a strong foundation of partnership with the County Health Department and raised the profile of public health nurses as neighborhood resources.

The Library's Programs & Partnerships Office engages with other departments, organizations and agencies in the community to build resources, offer programs that focus on Pima County's diverse populations, and make connections to enhance the quality of life for residents in Pima County.

Opportunities and Challenges

In FY 2012-2013, 5,792,641 people visited the Pima County Public Library, and at the end of August 2013, we had over 416,000 library cardholders.[12] Despite these statistics that demonstrate our importance and relevance to the community, the Library continues to face several challenges: staffing, underbuilt facilities, bandwidth capacity, increasing content costs, and providing content in new formats.

The Pima County Public Library's greatest constraints involve funding. The community's demand for more learning opportunities has outgrown the Library's resources. Nevertheless, the Library continues to successfully serve the informational, cultural, educational, and recreational needs of the community.

[12] Pima County Public Library Community Impact Plan 2012/2013 First Year Report, 2013

5.7 Animal Care

Pima Animal Care is committed to providing timely service to residents and compassionate care to animals, while working to support public safety, find homes for homeless animals and educate the community about responsible pet ownership. This section introduces the concept of a "pet friendly community" and summarizes the animal care services currently available in Pima County.

Pet Friendly Community Key Components

A key characteristic of healthy communities is their support of responsible pet ownership including having a sustainable and humane system to address homeless pets. The National Institutes of Health and the CDC's Healthy Pets Healthy People Program have established the health benefits of animal companionship.[13] For example, pets have been found to decrease a person's blood pressure, cholesterol levels, triglyceride levels and feelings of loneliness. Pet ownership is also linked to increased opportunities for exercise, outdoor activities and socialization.

The concept of a "pet friendly" community be defined by some or all of the following, or additional factors not listed:

- Efforts to reduce cruelty, neglect and abandonment cases reported in the community
- Existence of laws prohibiting cruelty, neglect and abandonment and the penalties applied
- Level of pet overpopulation in community
- Live release rates of shelters (i.e. percentage of animals received at the community shelter that are adopted or returned to owner as opposed to being euthanized)
- Community priority of funding spaying/neutering programs
- Educational programs on the proper treatment of animals for school-aged kids
- Educational programs focused on specific problem communities/geographic areas
- Availability of Trap, Neuter and Return programs
- Availability of properties and master planned developments that plan for pets needs
- Availability of veterinarians willing to perform low-cost spay/neuters and/or offer lower cost medical treatment

[13]CDC Healthy Pets Healthy People. (2010). Health Benefits of Pets. http://www.cdc.gov/healthypets/health_benefits.htm

- Overall community support for shelters and rescue organizations (e.g. financially, volunteers)
- Frequency of adoption of homeless animals from shelters and rescue groups versus purchasing pets
- Efforts to discourage puppy/kitten mills and online sales of pets
- Availability of pet behavioral problem treatment education and programs (e.g. advice hotline)
- Community's overall animal care awareness (e.g. ranging from proper shelter, food, water to making a lifetime commitment, to ensuring the protection of pets on the 4th of July)
- Availability of rental/senior/condominium properties that allow pets[14]
- Availability of emergency shelters, transportation, and other assistance to people with pets
- Availability of shelters for homeless persons with pets (not just emergency but in the heat, rain, and cold)
- Accessible pet supply and service businesses
- Community presence of businesses which support rescue groups (e.g. donations, services)
- Community presence of businesses that allow pets
- Animal-centered community events
- Community events that allow/encourage pets
- Acceptance of entertainment events with questionable animal treatment (e.g. greyhound racing, rodeo calf roping, circuses)
- Robust owner compliance with licensing dogs
- A major portion of pets microchipped
- A major portion of pet owners with established veterinarians
- Mass transit system allows pets

If Pima County aspires to be deemed "pet friendly", the community can decide for itself what that designation entails. Pima County may choose a different or more rigorous set of criteria than other communities.

[14] Inability to find pet friendly housing is one of the leading causes of cat and dog abandonment (AAPAW Alamo Area Partners for Animal Welfare - http://aapaw.org/)

Pima County Animal Care

The Pima Animal Care Center is the County's major animal care facility in the region, serving unincorporated Pima County, Tucson, South Tucson, Marana, Oro Valley and Sahuarita. The main office and shelter are located in Tucson with a substation in Ajo.

The mission of Pima Animal Care Center (PACC) is to protect public health and safety through education and enforcement of animal control laws and ordinances. It is responsible for educating the public and enforcing the law in two different, but complementary, aspects:

- Protecting public health and safety through enforcement of animal control laws and ordinances
- Protecting animals through enforcement of animal welfare and cruelty ordinances and providing shelter for abandoned pets

The Pima Animal Care Center is a division of the Pima County Health Department and provides three categories of service to the community:

- Enforcement (Ajo Substation, Dispatch, Field Enforcement)
- Animal Services (Clinic, Shelter)
- Public Services (Community Outreach, Licensing)

Pima County has a relatively robust set of animal welfare laws. County ordinances require PACC to license dogs, impound loose dogs, impound an animal that has been exposed or possibly exposed to rabies, is vicious, destructive or dangerous, may be a danger to the safety of any person or other animals an animal that is deemed to be in distress. If the conditions are severe enough, PACC can withhold, pursuant to due process, such an animal from being returned to the owner. PACC enforces State and County animal care laws and ordinances governing such issues as dangerous and vicious animals, neglect, cruelty, excessive animal noise, quarantine of animals, bite incidents, and license and vaccination requirements. Through intergovernmental agreements with local municipalities, PACC also enforces the animal welfare codes and ordinances for the City of Tucson, City of South Tucson, Town of Marana, Town of Sahuarita and Town of Oro Valley.

Enforcement staff responds to routine and emergency animal care calls, assesses reported or observed violations of animal regulations, makes determinations, gathers evidence on animal care cases for presentation in court, testifies in court, and takes required action such as issuing citations and complaints. In Fiscal Year 2013/14, PACC Enforcement responded to almost 29,000 animal welfare, barking, and waste complaints.

PACC's Dispatch Unit receives and responds to animal care enforcement and service requests from the public, division personnel and other agencies, prioritizes animal care enforcement and service requests and determines appropriate action including dispatch and referral. Dispatch also assigns service requests and monitors officer safety by maintaining continuous location and status control of units in the field, relays calls for assistance to law enforcement agencies and makes updates to the computer based PACC records.[15]

The Licensing Unit receives and records mandated rabies vaccination information, and processes dog licenses for citizens of Pima County and its municipalities. In FY13/14, PACC processed 111,700 pet licenses for owners. Additionally, the Licensing staff (a) maintains a database of licensed dogs within Pima County, (b) issues license renewal notices, (c) receives fees, (d) processes license renewals, and (e) tracks rabies vaccinations for all licensed dogs. Licensing staff also (a) process pet adoption and rescue transactions, (b) process redemption transactions for impounded animals for return to their owners, and (c) provide discounts to low-income, disabled and senior citizens.

[15] Pima Animal Care Center Infrastructure Report, 2013

As the only open admissions shelter in Pima County, PACC accepts all homeless, unwanted, abandoned and lost pets free of charge, regardless of medical condition or temperament. In FY13/14, PACC cared for over 24,300 live animals and returned, transferred or adopted to owners, rescue groups or new owners over 13,750 pets.[16]

Every day the PACC shelter receives a variety of animals for multiple reasons. The top three reasons animals came to the shelter in FY 2013/2014are: 1) strays (12,250), 2) Owner turn in (5,340), and 3) Confiscation from owner (1,380). Volunteers provide many services at the shelter including help with adoptions and exercising and interacting with shelter animals among other duties. In FY13/14, volunteers contributed 29,310 hours of service to PACC.

PACC maintains a 2,400 square foot clinic that provides (a) rabies control testing and management, (b) on-site health screenings, (c) spay and neuter services, (d) special medical triage, (e) forensic medical examination, and (f) veterinary medical services to support PACC's Special Needs Adoption (SNA) and Rescue programs. The clinic provides an important public health service by offering rabies control assistance and advice to citizens and the local veterinary community and serving as a surveillance site for the appearance of zoonotic diseases in the community.

PACC engages in community outreach to provide the community with educational materials about adoption opportunities, responsible pet ownership, animal laws and ordinances including owner licensing responsibilities, conducts off-site adoption events, makes school and group presentations at PACC and off-site locations, staffs information booths at fairs and other public events and offers dog-bite prevention talks.

Community Animal Care Collaboration

Pima Animal Care Center relies on a network of animal welfare organizations to provide animal care services to Pima County residents. Although PACC is the only open admission shelter in Pima County, the Humane Society of Southern Arizona is responsible for taking in a large share of community pets. In Fiscal Year 2011 – 2012, Pima Animal Care Center (PACC) and the Humane Society of Southern Arizona together handled 33,500 animals. The Humane Society of Southern Arizona reports that the top reason (68%) animals come to them is "Owner Release" for the reasons of financial, moving, behavior, and too many animals.[17]

[16] PACC Facts 2014
[17] Humane Society of Southern Arizona "Operational Overview Presentation by Kerri Burns, Interim Executive Director "Idea Exchange on Animal Welfare in Pima County", November 14, 2012 Tucson, Arizona

Rescue and Placement of Pets

PACC currently collaborates with over 70 animal rescue organizations to find homes for thousands of pets each year. Notably, rescued animals remain at PACC an average of 12.71 days while adopted animals average length of stay was 17.37, and as such collaboration with rescue partners results in cost savings. These animal welfare organizations take on costly rehabilitative expenses, relieving PACC of incurred operational costs by reducing the time animals need to be in the shelter.

In FY 2013-2014, partner rescues, transfers of animals to other shelters/facilities, and special needs adoptions combined, accounted for 4,383 of the 13,752 live releases from PACC. These rescue partnerships have contributed to a 57% increase in PACC overall adoption rates and a 109% in special needs adoptions between Calendar Year (*November 1 – October 31*) 2010-2011 and Calendar Year (*November 1 – October 31*) 2013-2014. In total these efforts have allowed dramatic increases in the live release rate for PACC to 76% in FY 2013-2014, and 82% year to date.

Adoption from shelters and rescue groups also have a positive fiscal impact. When individuals adopt pets from PACC and other shelters and rescue groups, the costs shift from the public sector (animal shelters) sustained by a jurisdiction's general fund to individuals who take care of their animals and support the pet products and pet care industry. The multiplier effects of pet ownership to the economy are in the form of groomers, boarding facilities, vets, pet sitters, and retail sales of pet products, etc. Individual expenditures on pets and animals contribute to the local jurisdiction's tax revenues. The pet products and pet care industry generated expenditures of $53.33 billion in 2012 and has more than tripled since 1994.

Spay and Neuter Efforts

The estimated pet population for Pima County is more than 500,000 animals. The number of offspring a fertile dog and her offspring can theoretically produce based on an average of 6-10 puppies per litter in a six year period is 67,000 dogs. The number is even higher for cats which can produce a litter of 4-6 kittens three times a year and may be higher still due to our warm climate. It has been said to significantly impact the intakes at a shelter a community needs to alter at least the same number of pets as it takes into its shelters. Therefore, PACC staff projects the community would

need to alter nearly four times the number of pets per year than is now being accomplished.[18] Additionally, only 15 – 20 percent of owners reclaim their lost animals (e.g. owners redeemed 1,955 of the 11,345 animals saved last year).[19]

Pima County's strategy to reduce intake has relied on the sterilization of owned pets as the only method of population control that has demonstrated long-term efficacy in significantly reducing the number of animals entering animal shelters.[20] The county has been able to invest $220,000 toward spay and neuter programs based on licensing fees and other donations. This investment means that nearly 173,000 potentially unwanted and homeless animals will not be born.[21] In FY13/14, Pima County was the only local jurisdiction contributing to this spay/neuter program[22]. The county is encouraging the other jurisdictions which have intergovernmental agreements with PACC to dedicate their resources to spay/neuter surgeries as well; since spay/neuter, along with education, are the only proven ways to reduce animal overpopulation.[23]

PACC has focused programmatically on increasing the availability of effective voluntary spay/neuter service that are widely accessible to the community as the principal modality for reducing animal overpopulation, shelter intake and euthanasia. Pima County supports increased spay and neuter activities within the community through collaboration with Animal Welfare Alliance of Southern Arizona (AWASA). This no-cost spay/neuter initiative, which is funded by Pima County from the General Fund, donations, and grants, has proven Pima County residents will alter their animals when the service is affordable and accessible. This initiative targets companion animals in underserved and economically depressed areas throughout the county including within each of the jurisdictional entities. Table 1 below demonstrates the relationship between investment in this program and declining number of impounded animals at PACC.

Table 1. Pima County Support and Number of Total Intakes at PACC

Fiscal Year	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
County Community Spay/Neuter Support	$220,000	$220,000	$220,000	$220,000
Total Intakes at PACC	29,516	28,193	26,693	24,332

[18] Pima County Infrastructure Report for Pima Animal Control, 2012
[19] Animal Welfare Conference November 13-14, 2012 Workbook, Tucson, Arizona
[20] American Society for the Prevention of Cruelty to Animals (ASPCA) 2009 Report, referencing Clancy & Rowan2003; FIREPAW, 2004; Secovich, 2003
[21] C.H. Huckelberry, County Administrator memorandum "Collaborative Efforts to Reduce Animal Overpopulation in Pima County" July 30, 2013 to the Board of Supervisors
[22] Pima County Infrastructure Report for Pima Animal Control, 2012. Note: The Tucson City Council is discussing the possibility of contributing to spay/neuter programs at their September 10, 2013 meeting.
[23] C.H. Huckelberry, County Administrator memorandum "Collaborative Efforts to Reduce Animal Overpopulation in Pima County" July 30, 2013 to the Board of Supervisors

As part of its long term commitment to spay and neuter initiatives, Pima County initiated a partnership with Best Friends Animal Society to address the feral cat challenge through an effective Trap, Neuter and Return program targeted in nine high stress zip codes historically demonstrating the largest number of feral cats.

Fiscal benefit to the County and jurisdictions due to spay and neuter initiatives can be estimated from FY 2013 – 2014 cost analyses. In FY 2013-2014, PACC had a live outcome for 23,976 shelter pets, costing the County $2.8 million for care and evaluation of these pets, or $118.41 per companion animal. By comparison, the contracted spay and neuter cost averages to $70 per animal. The decrease in shelter volume associated with our spay/neuter policy has a cost benefit and reflects the County's long-term investment in this strategy. Continuance of support for aggressive spay and neuter initiatives is essential to reducing the number of pets cared for by PACC and the costs associated with this service.

Pima Alliance for Animal Welfare (PAAW)

It will take a community effort to address the homeless pet situation.[24] PACC cannot do it alone. Pima Alliance for Animal Welfare (PAAW) was formed in November 2012, bringing together representative from rescue groups (dogs, cats, horses and pigs), breeders, funders, veterinarians, shelters (Hermitage, Pima Animal Care Center, and Humane Society of Southern Arizona among many others), and national organization like Humane Society of US and Best Friends Animal Sanctuary. From that meeting came a consensus that the community had to do something immediately. The alliance agreed to discuss ways to work cooperatively to reduce the number of animals coming into the shelters, to help those already in the shelter find a second chance at having a loving home, and to provide support to current pet owners.[25] A Steering Committee was appointed to meet regularly and move the issue forward checking in with the bigger group every six months. PAAW is a staff supported fund of the Community Foundation for Southern Arizona.

The mission of PAAW is to engage all Pima County residents, agencies, and organizations in aggressive adoption and spay/neuter efforts, responsible breeding, and conscientious pet ownership to ensure all companion animals have a loving home and humane care.[26]

PAAW has adopted three priorities related to improving animal welfare in Pima County:

- **Crowd Control:** How do we stop animals from coming in to our shelters?
- **Quality of Life:** How do we improve their lives while in a shelter or with a rescue organization?
- **Happily Ever After:** How do we ensure that animals leaving the shelters and rescue groups are placed in a situation where they are safe, wanted and taken care of appropriately and are not returned?

[24] C.H. Huckelberry, County Administrator memorandum ",Collaborative Efforts to Reduce Animal Overpopulation in Pima County" July 30, 2013 to the Board of Supervisors
[25] Ibid
[26] Ibid

Workgroups made up of PAAW members coordinate the completion of projects to further each of the above priorities. In February 2014, PAAW identified the following focus areas for each priority:

- **Community Cats/Trap Neuter-Return** – the health and well-being of free-roaming cats (See Figure 2: Pima Alliance for Animal Welfare; Trap-Neuter-Return Reference Map) on next page;
- **Human/Animal Bond** –the need to embed animal welfare into existing social service organization, especially those serving low-income seniors; and
- **Adoption Marketing/Mega Adoption Event**– an aggressive marketing campaign about adoption culminating with a mega-adoption event to introduce the community to the wonderful animals in need of a home that are housed at shelters and with rescue groups.

The alliance continues to actively work towards their goals. There is clearly a momentum occurring in the community to address the homeless animal situation. Momentum initiated by committed PACC volunteers, rescue groups, PAAW, community leaders and many others.

Animal Care Services High Stress Areas

A team of students from the University of Arizona Eller College of Management was recruited to assist with analyzing data from the primary animal shelters serving Pima County - Humane Society of Southern Arizona (HSSA) and PACC - to help identify strategic solutions to save more lives. Specifically their goal was to "identify areas where appropriate interventions could lead to measurable improvements and meaning full education to the public".

The Eller team found the following zip codes to be the top five sources (in order of number of animals) for:

Feline Intake
HSSA - 85711, 85719, 85705, 85716, 85745
PACC – 85705, 85706, 85713, 85719, 85710

Canine Intake
HSSA – 85716, 85745, 85710, 85705, 85730

Feline Adoptions
PACC – 85711, 85705, 85712, 85719, 85710

These zip codes are located as follows:

85705	Downtown, Miracle Mile, Stone Avenue, Flowing Wells areas - River Road to 1st Avenue to Aviation Hwy to Santa Cruz River/I-10
85706	South-central - Irvington Road to I-10/west edge of Davis Monthan AFB to Valencia Road to the Santa Cruz River
85710	East - Wilmot Road to Speedway Blvd to Harrison Road to Golf Links Road
85711	Near east - Alvernon Way to Speedway Blvd to Wilmot Road to Golf Links Road
85712	Near northeast - Alvernon Way to River Road to Wilmot Road to Speedway Blvd
85713	South - 22nd St. to Alvernon Way to Ajo Way to Kinney Road
85716	Central - Tucson Blvd to River Road to Alvernon Way to 22nd St.
85719	Central - 1st Street to the Rillito River to Tucson Blvd to 22nd St.
85730	East of Davis Monthan Air Force Base (DMAFB) – Golf Links Road to Old Spanish Trail to Irvington Road alignment to DMAFB
85745	West - I-10 to 22nd St. to Tucson Mtn./Saguaro National Parks to Sunset Road

The students found that the breeds with the highest numbers taken in by both agencies are: pit bull, Chihuahua, shepherd, and Labrador Retriever. They also provided data on the geographic sources of volunteers, the live release rate for PACC, and the relationship of income to the geographic sources by zip codes of intake and adoptions.

A separate, rough evaluation to determine if any particular geographic area request more PACC services than others was done by Development Services staff based on the number of enforcement responses Pima Animal Control Center (PACC) received during Fiscal Year 2012-13. This evaluation did not include data from the Humane Society of Southern Arizona. The populations of each zip code were accounted for in the calculations. The results of the evaluation are: 1) a high number of overall enforcement responses come from zip codes 85705, 85706, 85713; 2) a high number of enforcement calls regarding neglect come from 85705, 85706, 85711, 85712, 85713; 3) a high number of enforcement calls regarding cruelty come from 85705, 85710, 85713; 4) a high number of enforcement calls regarding loose animals come from 85705, 85706, 85713.

5.8 Food Access

The availability of fresh, nutritious, and affordable food is a key determinant of health, particularly among low-income or underserved populations. The Centers for Disease Control and Prevention (CDC) and United States Department of Agriculture (USDA) have identified the food environment and "food deserts" – areas with limited access to affordable fresh food – as critical issues to consider for public health. Improving the availability of fresh food and eliminating food deserts is accomplished by increasing the local production of healthy food and encouraging affordable distribution in previously underserved areas.

The Pima County Health Department (PCHD) has partnered with numerous public and not-for-profit agencies to enhance local production of healthy food and affordable distribution. These efforts, include establishment of home or community gardens and enhancement of gardening cooperatives, support of urban agriculture and livestock, and partnerships to advance farmers markets and farm stands in underserved areas.

Multiple benefits may be gained by producing food locally including physical activity, social interaction, reduced resource consumption, control over pesticides and additives in food, aesthetic benefits of gardens, and food security. Food security means not only local availability of nutritious foods but also the safety and cleanliness of the food. Consumers are becoming more aware of the problems caused by an industrialized food system such as more processing, greater use of antibiotics, pesticides, fertilizers, foodborne illnesses, environmental damage, high levels of energy use, and inhumane treatment of farm animals.

Local gardens and small farming operations usually have the advantage of personal responsibility for the safety of the food produced, the ability to address waste products, the humane treatment of animals compared to industrialized systems, less pesticide and fertilizer use, less animal waste, and energy use. For example, the ratio of fossil fuel energy to food energy required for industrially produced meat products can be as high as 35:1[27]. Local food production is one alternative to industrialized food production.

While significant steps have been taken to improve food security in Pima County, there is much more to be done. Large areas remain effective food deserts and obesity and other malnutrition-related conditions are a primary cause of morbidity and mortality. Only 20.8% of Pima County residents are consuming the recommended 5 servings of fruits and vegetables each day. While this is above the national average, it is below Arizona average and puts county residents at risk for diet-related disease.

[27] "Putting Meat on the Table: Industrial Farm Animal Production in America, Pew Commission on Industrial Farm Animal Production, Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, November 2006.

Zoning barriers continue to exist limiting the ability of county residents to fairly and safely sell their surplus home-grown produce while at the same time allowing frequent yard and garage sales, despite Arizona Revised Statute specifically protecting the rights of residents to sell such produce (A.R.S. §3-561 et seq.) without undue restriction. The perception of safety, disease risk and neighborhood noise (related especially to urban livestock) continue to be concerns that should be addressed to further encourage local food production and distribution. A comprehensive understanding by the public that garden-grown produce is acceptable and allowable for service in restaurants will continue to improve options available at local eateries, enhancing both physical and economic health in Pima County.

Innovative and cost-effective methods to continue to expand local food production, urban farming and livestock, and affordable food distribution must be identified and implemented to sustain the work started by PCHD and community partners.[28]

Community Gardens

Under the Communities Putting Prevention to Work program, PCHD collaborated with the Community Food Bank of Southern Arizona and Community Gardens of Tucson to significantly expand support for private and community gardens in neighborhoods at greater risk for obesity and related conditions. The expansion of the Food Bank's Gardening Cooperative and active partnership with several school, church and neighborhood groups resulted in the addition of hundreds of home-based gardens. For those residents interested in gardening but lacking land for their use (such as those living in apartments or other multi-unit dwellings), training and supplies for container gardening was provided, allowing the growth of fresh vegetables, fruits and herbs in small containers on a porch or patio.

Alongside the Community Food Bank, Community Gardens of Tucson was contracted to install and manage nearly 20 community gardening sites in parks, church or school yards or on private property with granted access rights (such as apartment complexes), allowing hundreds of families to participate in planting, growing and harvesting their own fresh fruits and vegetables.

Between the home and community garden efforts, it is estimated that nearly 500,000 servings of fresh fruits and vegetables will be grown in Pima County each year that would not otherwise have been available. [29]

[28] Pima County Health Department (Don Gates)

Farmer's Markets

While the growth of over 500,000 servings of fresh fruits and vegetables and the expansion of urban livestock is valuable in creating healthy food options, without a means of affordable distribution the positive impact of these efforts is limited. Farmer's Markets and farm stands provide an opportunity for residents to purchase locally grown or sourced foods at affordable prices and are particularly valuable in underserved or food desert areas. Not only do such markets provide a venue for food purchase, they provide local gardeners and consignment growers with an avenue to turn their surplus produce into additional income for their family.[30] Such markets can also help build community through social interaction.[31]

Again in conjunction with the Community Food Bank, PCHD helped develop a new year-round farmers' market, supported the relocation and expansion of a second year-round market, and provided the support to pilot a mobile farm-stand program. This farm stand program allows a single van to carry the equipment and produce required to set up a temporary sales site at a school, church or other community organization, providing flexibility and a very low overhead option for areas that might not be able to support a weekly, fixed location market.

Food-buying cooperatives are another option for affordable food distribution, and PCHD drove an initiative to link child care providers to healthy food via a food-buying cooperative operated out of the Community Food Bank. By aggregating the buying power of multiple child care homes and centers with the infrastructure of the Community Food Bank, participants are able to afford healthy, nutritious food of high quality that would otherwise be beyond their means.

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[29] Pima County Department of Health (Don Gates)
[30] Pima County Department of Health (Don Gates)
[31] Pima County Development Services Department (David Petersen)

Additionally, as the local government agency responsible for enforcement of food code, PCHD has verified that use of food grown in private or community gardens is allowable to serve in cafeterias and restaurants provided all other food code parameters for storage, preparation and service are followed.[32]

There appear to be at least five farmer's markets located in what may be considered underserved areas. The farmer's markets are[33]:

- El Pueblo Farmers' Market located in El Rio Clinic parking lot on the SW corner of Irvington Road and S. 6th Ave. Open Mondays from 3-5 pm.
- Community Food Bank Farmers' Market located at 3003 S. Country Club (Between 36th St & Ajo) Open Tuesdays from 8 am – noon.
- Marana Farmers' Market located at Marana Health Center 13395 Marana Main Street (Open Tuesdays from 3-6 pm)
- Santa Cruz River Farmers' Market located at 100 S. Avenida del Convento (near Congress and Grande) Thursdays from 3-6 pm Oct-April Thursdays from 4-7 pm May-Sept
- Farmers' Market at 77north Marketplace, 16733 N. Oracle Road in Catalina Fridays from 8 – Noon (9 am -1 pm beginning Sept. 6th)

According to the Pima County library and individual farmer's market websites, there appears to be at least 16 additional farmer's markets.

Ajo's Collaborative Food Access Efforts

According to "A Sonoran Oasis – Developing a Local Food System for Ajo, Arizona" (2011) Ajo "has seen the emergence of a local food system through a farmer's market, community gardens, pomegranate orchard, and more". Additional efforts include capturing rainwater, farm stands, educational programs on food production and making healthy food choices, and a number of small enterprise programs. New organizations have sprung up in the last few years adding to the many organizations working together to create a local, decentralized food production system that helps the economy and provides more food choices. Ajo and surrounding area residents work with organizations ranging from health centers, school districts, garden groups, the Tohono O'odham Nation, cooperative extension agencies, and government offices.

[32] Pima County Department of Health (Don Gates)
[33] Farmers' Markets Listed by Community Food Bank

Just announced in December 2014, Ajo was selected as one of 26 communities by the Obama Administration to participate in Local Foods, Local Places, a federal initiative providing technical support to integrate local food systems into community economic action plans. Ajo will receive technical assistance to develop and implement an action plan promoting local foods and entrepreneurship in order to create an economically vibrant community.

Small-scale Community Agriculture

The Pima County Health Department (PCHD) has also supported expanded urban agriculture through support of the Community Food Bank urban farm programs. Under the same initiative, PCHD helped develop and launch Las Milpitas de Cottonwood urban farm. Located in south central Tucson, Las Milpitas features a large community garden, instructional settings, several resources for small producers, composting, and youth farm education programs. This working farm provides opportunities for the community to learn and participate in food security while helping established small producers manage and expand their crops.

Advocacy for sustainable food sources and regional food security continues to be a primary goal of the Community Food Bank, and PCHD is supportive of this mission. The Health Department has provided for regulatory reviews and guidance regarding urban livestock such as chickens and goats, providing information to community residents on allowances under existing city, county or state codes and ordinance. Additionally, PCHD continues to provide guidance on the handling of animal food products such as eggs and honey.[34]

The Zoning Code appears to be fairly liberal in provisions for keeping of livestock, poultry and small animals, and beekeeping. Beekeeping is permitted in all zones subject to development standards. Raising of ratites (emus and ostriches) is permitted in the IR, RH, GR-1, SR, SR-2, and SH zones and are conditional uses in the CR-1 and CR-2 zones. Raising of hogs is permitted in the IR, RH, GR-1, SR, and SH zones. Birds (chicken and poultry) are permitted in the IR, RH, GR-1, SR, SR-2, SH, TR (no roosters), CR-1, CR-2, and CR-3 (no roosters) zones with few limitations. Raising of livestock (cattle, goats, and sheep) is permitted in the IR, RH, GR-1, SR, SR-2, SH, CR-1, and CR-2 zones. [35]

[34] Pima County Department of Health (Don Gates)
[35] Pima County Development Services Department (David Petersen)

Economic Development

Chapter 6: Economic Development Background

Key Points

- ✓ Identification of Key Economic Development Corridors
- ✓ Current strategies in place to develop or strengthen industry clusters
- ✓ Exploration of tourism, revenues, and other opportunities

6.1 Economic Development

Every community has a goal to build prosperity. Economic Development is the set of programs and strategies that aid the development of these different aspects of prosperity and seek to strengthen them. Pima County, Tucson Regional Economic Opportunities Inc. (TREO) and the state all play key roles. The differing types of a community's capital include:

- **Intellectual capital** Incubation facilities for business startups, angel funds, new ideas or labs for researching should be readily available.
- **Financial capital** "Rainy day funds" are an example of public stewardship of financial capital, designed to help society weather risks and uncertainties.
- **Social capital** is the stock of trust, relationships, and networks that support civil society. These connections are facilitated through broadband Access, access to recreation and gathering spaces, and organized community events.
- **Individual capital** is the stock of skills and physical and mental healthiness of people in a region.
- **Natural capital** is the stock of unimpaired environmental assets such as the Arizona Sonoran Desert, its non-renewable resources and renewable resources, as well as climate.

- **Political capital**, is evidenced by the ability of an individual or a group to influence the distribution of resources, including helping set the agenda of what resources are available[1].

TREO Economic Blueprint for the Region

Tucson Regional Economic Opportunities, Inc. was formed in 2005 to be the lead economic development agency for the region. In early 2007, TREO released **Securing Our Future Now: An Economic Blueprint for the Tucson Region**. The Blueprint, as it's known, combined quantitative analysis of metro Tucson with focus group conversations, interviews, and surveys. The report highlighted the region's strengths and weaknesses in the various areas of wealth, mentioned above, and suggested concentrating on five areas to develop a more competitive economy: **TREO' s "Power of Five"**

[1] Wealth Creation in Rural Communities, Funded by the Ford Foundation Revised 9/11

This blueprint was updated and released by TREO Board of Directors on April 30, 2014. Pima County funds TREO and has representation on the Board of Directors. That update recommended the following:

- Establish one goal for job growth that the region will work towards, 40,000 new jobs over the next 5 years
- Concentrate on creating export based jobs
- Focus on the military assets such as extending the industries for aerospace and defense
- Align education to meet the industry demand for talent and skills
- Focus on education to build a talent pipeline
- Achieve seamless connectivity to Mexico, Canada and other Southwest Business markets through infrastructure investment and funding
- Focus on entrepreneurship to grow our own industry
- Build a Healthy Community with a focus on healthcare industry

Pima County's Economic Plan

In alignment with the TREO Blueprints, Pima County expanded its role in regional economic development efforts beyond the existing programs geared to managing workforce training, managing tourism attractions, and contributing to the funding of TREO. Faced with a regional economic slump as the impacts of the Great Recession lingered, the Pima County Board of Supervisors adopted a plan from the County Administrator in January 2012 to address a series of initiatives to spark economic recovery through the retention and recruitment of industry to the region. The adopted plan forms the foundation of the policy plan in the comprehensive plan. Most of the initiatives centered on infrastructure projects to support existing industry, changing the business climate, and a continued focus on workforce development efforts. The Economic Plan was supplemented with an action plan. The 2015-2017 action plan will include the following 13 central initiatives:

1. PRIMARY JOB CENTER DEVELOPMENT including:
    A. Raytheon Buffer;
    B. Aerospace, Defense and Technology Business and Research Park;
    C. Sunset Road and Interstate10/River Road development;
    D. Tech Launch Arizona;
    E. Biosciences and Biotechnology;
    F. Redevelopment of Downtown Primary Employment – 97 E. Congress Street and Lot at Broadway/Scott; and
    G. Assist Expansion of existing, local Manufacturing Companies.

2. REGIONAL INFRASTRUCTURE INVESTMENT FOR JOB CREATION including:
    A. Planning an Interstate 11, Auxiliary Interstate Highway;
    B. Interstate 10 to Interstate 19;
    C. State Route 189 - Mariposa to Interstate 19;
    D. Assisting with Second Parallel Runway at Tucson International Airport;
    E. Direct Connection to Auxiliary Interstate Highway;
    F. A Rail/Truck Interface at the Port of Tucson and Aerospace/Defense Park; and
    G. Regional Collaboration with Other Southern Arizona Employment Centers (Fort Huachuca, Yuma Air Center, Santa Cruz Produce).

3. PROTECTING OUR EXISTING MAJOR EMPLOYMENT BASE
    A. Raytheon – Roadway Relocation and Buffer
    B. Davis-Monthan Air Force Base – P4 Process and Mission
    C. Arizona Air National Guard – New Entrance and Munitions Handling and Storage Facility
    D. The University of Arizona – State Funding
    E. Health Services Industry
    F. Logistics Industry
    G. Expand Local Manufacturing, especially advanced technology manufacturing by:
        1. Providing Workforce Training Assistance Programs
        2. Supporting Business Development Programs
        3. Helping to Advertise Local Businesses (or Business Sectors) to Outside Markets
        4. Listening to and Constantly Improving Business-Government Interface

4. LOGISTICS CENTER AT TUCSON INTERNATIONAL AIRPORT ENVIRONS
    A. Pima County as the Logistics Hub of the Southwest
    B. Distribution Center Redevelopment – Target Fulfilment Center and Others
    C. Port of Tucson – Rail/Truck interface
    D. Air Cargo Capacity at TIA – Increased by New Second Runway
    E. High Speed Surface Transportation Interstate 10 and Interstate 19 and Connecting New Interstate Auxiliary Highway
    F. Mexico Trade Interface - Rail and Trucking, Taking Advantage of Growing Port Capacity in Guaymas, Mexico

5. LEVERAGING THE INTELLECTUAL CAPACITY OF THE UNIVERSITY OF ARIZONA
    A. Tech Launch Arizona
        1. Wheelhouse Arizona
        2. Tech Transfer Arizona
        3. Tech Parks Arizona
        4. Corporate Relations Arizona
    B. Biosciences, Health and Agriculture
    C. Defense
    D. Optics, Materials Science, Manufacturing

6. PROMOTING TOURISM
   A. Diversify Sports Attractions by
      1. Encouraging Professional Soccer as an Emerging Attraction Sport
      2. Building Infrastructure to Attract Amateur and Youth Tournaments
      3. Updating Kino Stadium and Amateur Baseball Infrastructure
   B. Making Cycling a Tourism Destination Event
   C. Creating New and Expanding Existing Tourism through Public Investment in
      1. Regional Visitor and EcoVisitor Center
      2. Maintaining and Improving Leased Property Infrastructure
      3. Assisting to Improve Other Community Attractions
      4. Increased advertising of local community attractions
   D. Inbound Medical Tourism

7. MINING – MODERNIZING A TRADITIONAL INDUSTRY
   A. Support advanced mining technology and resource extraction with minimum impact footprints
   B. Reclamation support activities to reclaim mining sites and tailings disposal sites
   C. Collaborate with mining interests to maximize natural resources conservation
   D. Maximize renewable water resources for meeting the water supply needs of mining

8. ENHANCING OUR RELATIONSHIP WITH MEXICO
   A. Impacting the Cost of Doing Business for Import/Export: Taxation Impact of Maquiladora and Sales Tax, Technical and Engineering Expertise to Support Maquiladora Operations
   B. Support Expanded Relationship of Port of Tucson and Other Logistics Sites with Mexico especially Hermosillo, Guaymas and Queretaro
   C. Strengthen Rail Service and Customs Capacity at the Border
   D. Educate Southern Arizona Businesses and Citizens About Cross-border Opportunities and Making it Easier for Mexico-based Businesses to do Business in Pima County
   E. Work with Visit Tucson to Increase Tourism to and from Mexico

9. CANADA
   A. Expanded Foreign Direct Investment
   B. Encourage local expansion and addition of subsidiaries from Canadian Owned Companies – Bombardier, Stantec, Oracle Mining, Hudbay and Fortis Energy.
   C. Utilize existing Canadian contacts to seek new Canadian Investment in Pima County
   D. Promote Canadian and other foreign investment in Pima County-Mexico cross border manufacturing projects
   E. Work with Visit Tucson to Increase Tourism to and from Canada

10. SOUTH KOREA
    A. Renewable energy development
        1. Small business development in Pima County
        2. Baseball training at Kino Stadium
        3. Tourism

11. JOB TRAINING AND WORKFORCE SKILLSET ENHANCEMENT
    A. Higher Skills Equal Increased Competitiveness, More Jobs and Increased Earning Power: Provide Matching Fund grants for Internships, Apprenticeships and Incumbent Worker Advanced Education
    B. Continue to operate a Workforce Investment Board and One Stop Regional Workforce Development Center to provide Centralized Information, Recruitment and Training Resources to Employers and to be an Access Hub for Federal and State Training Funds
    C. Increase Library System Resources for Business and Entrepreneurial Development

12. DOWNTOWN REDEVELOPMENT
    A. Creating a Regional Art and Cultural Center
    B. Enhancing the Opportunity for Corporate Headquarters Location
    C. Expanding the Administrative and Legal Center of the Region

13. INVESTING FOR AN ECONOMICALLY COMPETITIVE FUTURE
    A. County General Obligation Bonds
    B. Solving the Transportation Funding Dilemma

6.2 Existing Economic Development "Corridors of Opportunity"

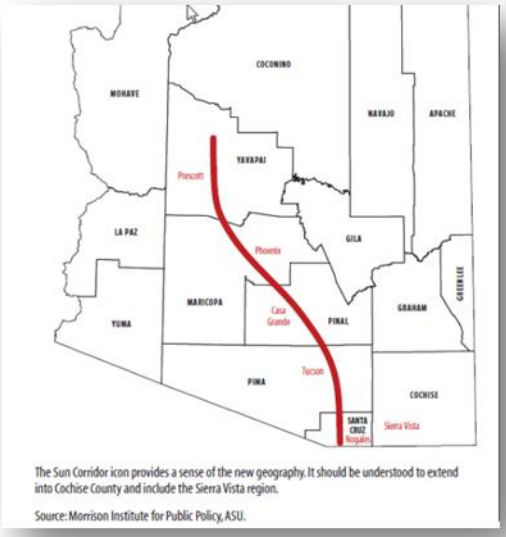
Traditionally, the I-10 corridor has also served as an economic development corridor with much of the industrial base of the region located adjacent to that corridor. This co-location with the interstate has also lead to congestion and further widening to accommodate not only regionally trade and commerce but office commuting. Other corridors should be considered to join major employment centers and satellite supply chain providers. Such corridors could join health care centers and hospitals to bioscience industry, the ports and warehouses with airports and rail, aerospace and defense industry with protected corridors for airports, Davis Monthan, and supporting facilities. The Sonoran Corridor proposes just that to connect aerospace and defense uses and industry along with logistics and trade facilities. Economic development corridors integrate:

- Development Principles;
- Transportation Principles;
- Land Use Principles;
- Economic Principles;
- Environmental Principles; and
- Social Principles.

The intent of these corridors is to ultimately promote such principles to:

- Reduce travel times;
- Increase mobility, accessibility and affordability;
- Integrate multiple modes of transportation, compact and mixed land uses and job creation;
- Strengthen the development of prominent economic activity nodes;
- Increase recruitment and retention of major employers within the region;
- Enhance community integration, health and walkability through connectivity; and
- Protect natural and cultural resources.

Sun Belt Corridor and What Arizona Wants



The Sun Corridor (roughly the size of Indiana) is the label for the emerging southwest megapolitan area. Megapolitan areas are defined as compact, with 2 or more metropolitan areas 50 or 200 miles apart, connected by commuting patterns, complex and bounded by key corridors. Anchored by Phoenix and Tucson, The Sun Corridor includes approximately 1/5th of Arizona's land mass but 80% of the population. Of the approximately 11.2 million acres within the Sun Corridor, private ownership accounts for more than a third of the land, roughly twice the percentage of the entire state.[2]

Figure 1: The Sun Corridor

The Arizona We Want

The Center for the Future of Arizona (CFA) is leading a long-term project to define a vision of statewide goals and the strategies needed to achieve those goals. A survey showed that Arizonans are highly attached to their community. The Arizona We Want report notes that GDP growth is correlated with high levels of citizen attachment to community. The poll also shows that Arizonans rate their communities' natural environment highly, but are pessimistic about the availability of job opportunities.

As a statewide effort, the Arizona We Want project may be useful for defining a vision that can unify communities throughout the Sun Corridor (Figure 1). Used in combination with the results of Imagine Greater Tucson, this may provide a useful vision for the megapolitan region. [3]

[2] Megapolitan Arizona's Sun Corridor, Morrison Institute for Public Policy, May 2008
[3] Tucson's New Prosperity, Capitalizing on the Sun Corridor, Sonoran Institute, July 2010

Canada, Arizona, Mexico (CANAMEX) Trade Corridor

Figure 2: CANAMEX Corridor

The Canamex Trade Corridor was established by the North American Free Trade Agreement (NAFTA) as a high priority series of highways that will link Mexico with Canada. The corridor was proposed for use by railroads, pipelines and fiber optic communications. The route is depicted below, but a second proposal is being studied for Interstate 11 following a similar route, that will replace the non-highway portions of U.S. 93 and offer an alternate bypass around Phoenix and Tucson.

The alternate route of I-11 is currently the subject of Southern Arizona Stakeholder partners meetings hosted by the Arizona Department of Transportation (ADOT). Pima County is in support of the proposed I-11 and has suggested route alternatives.

The US/Mexico Border and Our Binational Economy

Ever since the enactment of NAFTA, bilateral trade has grown exponentially, reaching a record high of nearly $535 billion in 2012. Mexico is now the third-ranked commercial partner of the U.S. and the second largest market for U.S. exports. Mexico spent $163 billion on U.S. goods in 2010, and trade with Mexico sustains six million jobs in the U.S. U.S. sales to Mexico are larger than all U.S. exports to the BRIC countries (Brazil, Russia, India and China) combined, as well as all combined sales to Great Britain, France, Belgium and the Netherlands. Twenty-two states count Mexico as their No. 1 or No. 2 export market, and it is a top-five market for 14 other states. In 2010, Mexico exported more than $4.3 billion

in vegetables; the U.S. accounted for 90% of this total, becoming Mexico's largest vegetable export market.[4]

In 2010, Mexico invested an unprecedented five percent of its GDP in infrastructure. With 76 seaports along its 11,000 kilometers of seashore on the Pacific and Atlantic Oceans, 85 airports, 26,700 kilometers of railroad and 366,000 kilometers of road, Mexico is one of the most "interconnected" countries in the entire hemisphere.

Goldman Sachs research on the Next 11 Emerging Markets estimates that the Mexican economy will become the world's fifth largest economy by 2050, putting Mexico ahead of Brazil, Russia and China. And given its rapidly advancing infrastructure, increasing middle class and rapidly declining poverty rates, it is expected to have a higher GDP per capita than all but three European countries by 2050.

The resolution in July of a long dispute has allowed Mexican trucks to make deliveries in America. Once in place, the U.S. – Mexico cross-border trucking program is projected to produce savings of up to $675 million annually for binational trading costs, according to the Mexican federal government. The automotive, electronics and aeronautic industries, among others, are examples of the highly integrated supply chains between U.S. and Mexican industries that have successfully faced global competition. Supply chains are critical to businesses' underlying value, growth potential, and economic competitiveness.

A major challenge to supply chain economics is border delays, security concerns, and infrastructure constraints. These issues create an environment of uncertainty in the business community, which deters investment, job creation and economic prosperity.

In May of 2010 the U.S. and Mexico signed the 21st Century Border Management Joint Declaration. Recognizing the importance of fostering the commercial relationship, both countries have agreed to coordinate efforts to enhance the economic competitiveness by expediting lawful trade. Today more than 75,000 trucks (carrying close to 80 % of our two-way trade) cross the border on a daily basis. [5]

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[4] Realizing the Strategic National Value of our Trade, Tourism and Ports of Entry with Mexico, New Policy Institute, May 2013

[5] Realizing the Strategic National Value of our Trade, Tourism and Ports of Entry with Mexico, New Policy Institute, May 2013

The Tucson Tech Corridor

The Tucson Tech Corridor is cluster of industrial zoned or commercial properties (many shovel ready) located along Interstate 10 and is anchored by landowners and developments that are among the region's leaders in economic development and real estate development (Figure 4). Partners involved in this project include Diamond Ventures, University of Arizona Science & Tech Park, Ashland Group, and Port of Tucson located at Kolb and Valencia adjacent to I-10 and the Union Pacific Railroad.[6]

Figure 4: Tucson Tech Corridor from TTC Website

[6] Information and map from http://tucsontechnologycorridor.com/vision.html

The Port of Tucson

Approximately one mile from the UA Tech Park Kolb entrance along Kolb Road, the Port of Tucson is a multi-faceted rail facility located in the Century Park Research Center in Tucson, Arizona. Companies throughout the region have easy access to this major intermodal hub. The Port of Tucson provides a wide variety of rail oriented transportation options in and around the southwest region (Figure 5). These options include intermodal container handling, boxcar access, and team track. In addition to intermodal container handling, The Port of Tucson provides the following services:

- Intermodal Team Track Services
- Rail Spur to Truck Cross-docking
- Transload / Reload services
- Container-Yard Storage
- Leased Warehouse Space
- Frozen Storage
- Build to suit Warehousing

Figure 5: The Port of Tucson

The Port of Tucson is a transportation and logistics center designed to assist businesses in Tucson and the southwest with access to rail and intermodal container transportation options. Its location near the US/Mexico border, facilitates increased trade and business relationships between companies North and South of the border. The Port of Tucson is a facility that allows standardized shipping containers to be unloaded directly from ships in the ports of Long Beach Los Angeles onto rail and transported to Tucson. No longer do international shipments from Asia, for example, have to be unloaded onto trucks at the port for transport over highways. That means lower handling costs for companies, but it also reduces truck traffic and its associated costs. An 80-car, double-stacked train, for example, takes 160 trucks off the highway. Better yet for companies, it costs about the same to ship a container all the way from China to Tucson by rail as it does to truck a container from Long Beach to Nogales.

The Port of Tucson's rail access consists of a two mile siding complimented by an additional 3,000 foot siding. The 3,000 foot siding branches to grade level access, dock level access, intermodal container access, and team track facilities. The rail service has been designed with expansion in mind. Rail access to additional properties and warehouse space can be facilitated with ease. Recently, the Port of Tucson has received a $5 million federal grant to build an intermodal ramp that will allow the facility to handle increased international cargo.

The Century Park Research Center is also registered as a Foreign Trade Zone (FTZ 174, site 2), which allows the facility to ship and receive product in bond. Foreign Trade Zone transportation and storage can equate to savings on products or materials being imported.

The Port of Tucson and Pima County

The federal government awarded Pima County and The Port of Tucson a $5 million grant that will enhance businesses' direct rail access to West and Gulf Coast ports and help position this region as a major transportation hub. Of nearly 600 applications, fewer than 10 percent were selected for funding through the TIGER 2013 grant program.

Pima County has 140 miles of opportunity in the Sun Corridor, which stretches from Pima County to Maricopa County and will have 85 percent of the state's population and 90 percent of the jobs. The Port, which already receives boxcars of Mexican beer and trainloads of pipelines, military equipment and other commercial shipments, opens global markets for manufacturers and exporters and is one more way for the region's businesses to ship to customers efficiently and at competitive rates.

The grant will speed up train transfers. Currently, trains entering the Port have to practically slow to a stop, causing delays for other trains and for motorists who have to wait for the cars to pass. The grant will allow for the equivalent of an "off-ramp" that will eliminate the need to slow and stop arriving trains.

Pima County has invested more than $168 million in transportation improvements in the southern corridor of the community, as part of Pima County's vision to link the major employment centers on the south side. The development of the Port facility will require 40 heavy construction workers and the completed project should provide jobs for 100 logistic workers when the facility is fully operational. More importantly, the facility will serve as a catalyst for the development of additional jobs throughout the region, including in local warehouses and distribution centers.

The Bio Industry Corridor

Tucson and Southern Arizona are home to an emerging biotechnology industry sector particularly focused on medical devices, diagnostics and pharmaceutical development. The Tucson region is home to two of the world's largest pharmaceutical companies: Roche and Sanofi-Aventis. There are also several leading institutes and organizations including the Critical Paths Institute (C-PATh) – a joint collaboration between the University of Arizona and the Food and Drug Administration and several emerging biotech companies. Pima County helped foster this industry by putting forth an innovative package to attract a budding bioscience firm to the region. Pima County lacks vacant wet lab space, so the county utilized vacant medical space to construct then lease wet lab space at the Abrams Health Building August 2012. The wet lab space is the temporary home for Accelerate while Accelerate builds a permanent location and launches its bio- diagnostic product. After they move out, the wet lab space will be available for another company to locate to the region. The region's lack of wet lab space puts it at a disadvantage in competing with other areas in the county. The addition of Accelerate Diagnostics opening a lab at the Abrams Building, created a corridor in alignment with the U of A Bioscience Park.

The Arizona Bioscience Park

The Arizona Bioscience Park encompasses 65-acres of land in central Tucson. It is located adjacent to some of Tucson's most historic and multi-cultural neighborhoods. The eastern boundary of the Bio Park is situated along Kino Parkway, one of the major north/south transportation corridors in Tucson. The northern boundary of the Park is located along 36th Street across from the Quincey Douglas Library Neighborhood Center and Silverlake Park.

Regionally, the Bio Park is strategically located 2.5 miles from the University of Arizona Main Campus, 4 miles from Tucson International Airport and 3 miles from downtown Tucson. The UA Bio Park is located within a five mile radius of 40 biotech companies and organizations, including three major research hospitals: University of Arizona Medical Center, University of Arizona Medical Center South Campus and Southern Arizona VA Health Care System.

The Aerospace Defense Corridor

2013 study by the International Trade Administration, WorldTradeStatistics.com revealed that Arizona's aerospace & defense total exports rose by more than 18% from 2011 to 2012, reaching a $2.87 billion total. The increase was primarily due to a near $400 million increase in aircraft, engines and parts exports. According to a 2012 Deloitte study, Arizona ranks fourth nationwide in aerospace industry payroll and fourth in aerospace revenue at $14.99 billion. More than 1,200 Arizona-based companies make this state America's third largest supply chain contributor for aerospace & defense.[7]

- TTechAmerica's 2013 Cyberstates Report ranks Arizona fourth nationwide for jobs in the space and defense systems manufacturing industry, employing more than 8,700 people. A 2012 report by Brooking Metropolitan Policy noted that Tucson ranks fourth in the nation for the total percentage of manufacturing workforce dedicated to high-tech work, with more than 51% of it related to aerospace & defense. Four major research institutions in Arizona have been provided the NASA Space Grant: Arizona State University, Embry Riddle University (home of the nation's highest ranked aerospace engineering program among non-doctoral program schools, according to U.S. News & World Report), Northern Arizona University and the University of Arizona. [8]Among the companies taking advantage of Arizona's favorable aerospace & defense climate are:

- Raytheon
- Honeywell
- General Dynamics C4 Systems
- The Boeing Company
- Northrop Grumman
- Orbital Sciences
- United Technologies – includes Goodrich, Hamilton Sundstrand
- L3 Communications
- Standard Aero (MRO)
- Bombardier
    - Nammo Talley

[7] Arizona Commerce Authority Aerospace Industry http://www.azcommerce.com/industries/aerospace-defense
[8] Ibid.

Arizona's A&D supply chain includes more than 1,200 small, medium and large-scale, world-renowned companies that contribute almost $15 billion annually to the economy and are responsible for more than 150,000 jobs. Numbers reflecting Arizona's long-standing history and success in aerospace and defense.[9]

The Pima County Board of Supervisors authorized in June 2013 a contract to begin the design for a new road realignment near Raytheon Missile Systems that will help protect jobs at our region's largest private employer, while allowing for possible future expansion. The contract is a $1.7 million planning and design contract to start the process of realigning Hughes Access Road. Ultimately, the $8 million project will relocate Hughes Access Road from Nogales Highway to Alvernon Way. (Figure 6)

Relocating a roughly four-mile segment of the existing road approximately 2,500 feet to the south has several benefits that will help address two ongoing concerns: a lack of buffer space for Raytheon operations and an inability to expand. It will also accommodate the addition of a second runway for Tucson Airport Authority expansion further north. (Figure 6)

Pima County in 2012 purchased nearly 400 acres south of the Raytheon facility to help address urban encroachment. Moving the road alignment helps address the issue of high volume of public traffic close to Raytheon's operation, while providing Raytheon additional flexibility to preserve or expand their programs in the future. (Figure 6)

The project will improve access throughout the general area and serve as the backbone for a new, 10-mile aerospace and defense parkway, while allowing for compatible development in a new potential aerospace and defense research and business park. Although a final route is not designed, it is proposed to link to I-19 to the West in possible alignment with a I-11 route and to I-10 to the east to further connect the interstate system and provide commerce and trucking routes.

[9] http://www.azcommerce.com/industries/aerospace-defense/industry-impact

Aerospace and Defense Corridor Economic Development Initiative Planning and Implementation Action Plan

The Tucson International Airport (TIA) environs have been the major aerospace, defense and manufacturing job center in our region for decades. Presently, in the TIA environs and The University of Arizona Science and Technology Park, which is 10 miles east of TIA, there are 40,000 high technology/high wage jobs in aerospace, defense, manufacturing, scientific research and logistics.

Public infrastructure investment to support these job centers is nothing new. In 1980, transportation improvements known as the Kino/Campbell Corridor, Kolb Corridor and Palo Verde Corridor were initiated and completed, totaling over $168.1 million of investment. These infrastructure investments substantially improved mobility between and among these job centers and the urban population of greater Tucson.

In 2010, the vulnerability of growing and sustaining these job centers was demonstrated when Raytheon chose to locate a component of their production and assembly facilities in Huntsville, Alabama in a new facility being constructed at Redstone Arsenal. Tucson could not compete for this line of business due to critical constraints on the Tucson manufacturing and production facilities of Raytheon.

From this lost opportunity for future jobs came the realization that our region needs to do a much better job of protecting the existing employment base and fostering an environment where existing private employers can grow and expand without constraint or restriction. After over a year of public review, a cornerstone of the newly adopted economic strategy of Pima County is to take steps necessary to provide a coordinated master planned approach that will allow for expansion of that base in place or within our region.

The primary objective of the Aerospace and Defense Corridor Economic Development Initiative is to retain and grow new high-technology aerospace and defense jobs in the vicinity of TIA and to encourage significant science and technology-based job growth in the Tucson Technology Corridor, including The University of Arizona Science and Technology Park.

Concentrating economic development planning on this corridor takes advantage of significant amounts of open space to avoid traditional conflicts between industrial and residential uses, incorporates existing assets such as The University of Arizona Science and Technology Park, Port of Tucson and TIA, and offers maximum benefit from a master planned approach. Also, there are complementary employers with diverse labor and material demands to attract supply chain growth and related or complementary industrial users. The Aerospace and Defense Corridor is a strategic investment that can be made at this time to retain the existing employment base, as well as provide the greatest opportunity for employment base expansion. Today, these regional job centers are not efficiently interconnected by surface transportation or the technology necessary for complementary growth.

Likewise, concentrating significant public infrastructure investments within this existing and future job corridor would appear to be a sound economic development strategy. Focusing our economic development efforts on the Aerospace and Defense Corridor will allow this region to achieve multiple economic development objectives, job protection and creation, and other community objectives.

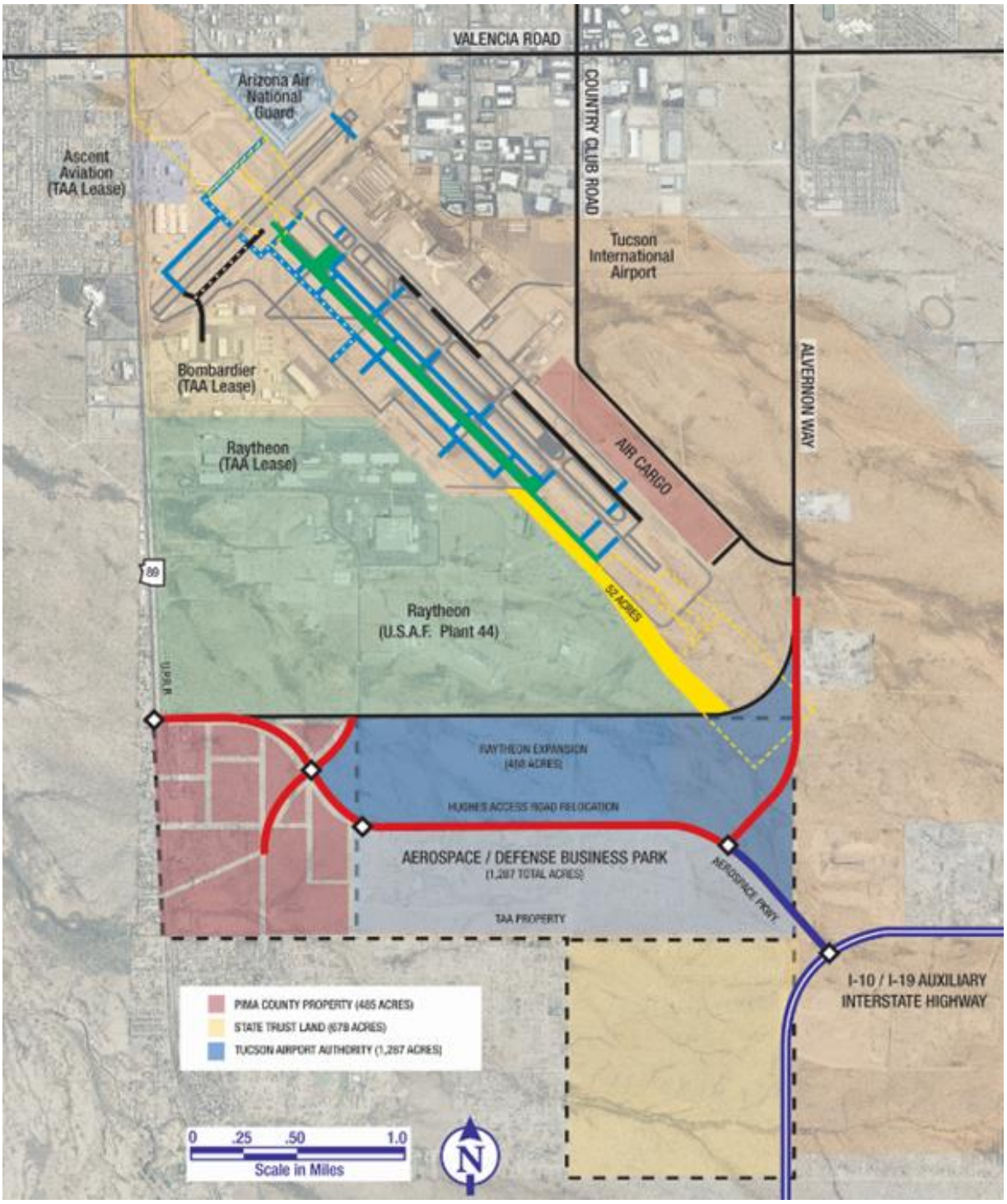


Figure 6: Proposed Aerospace and Defense Corridor Road Alignments

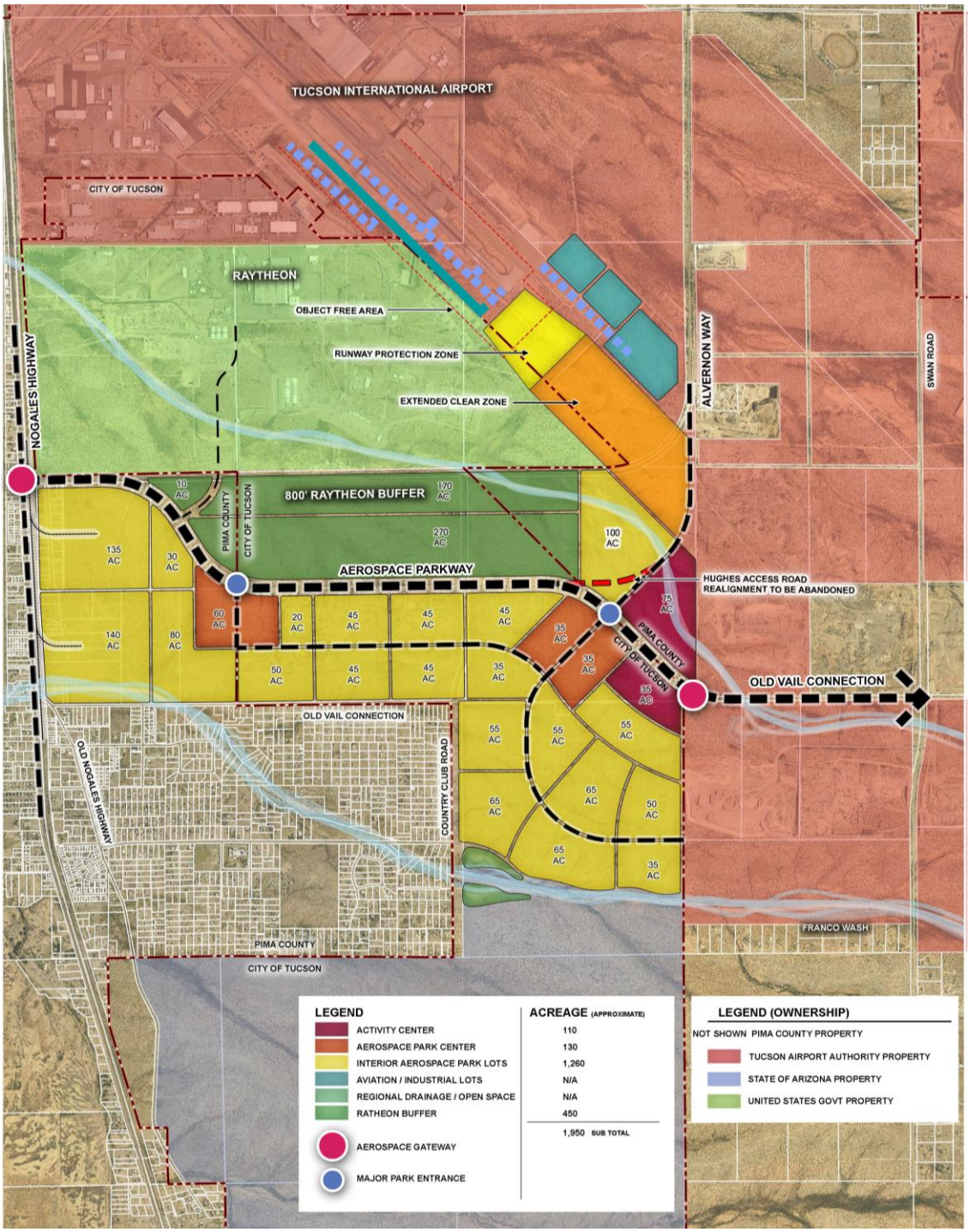


Figure 7: Aerospace Defense Parkway Plan and Research and Business Park

The Tucson Modern Streetcar

It is not often that one major infrastructure improvement can have a dramatic impact on major retail and housing activity and job centers, but the Tucson Modern Streetcar will do just that leaving opportunity for housing and development along its path.

The 3.9-mile streetcar route will connect major activity centers in the City of Tucson: The University of Arizona, Arizona Health Sciences Center, University Main Gate Business District, 4th Avenue Business District, Congress Avenue Shopping and Entertainment District, and the Mercado District. By connecting these neighborhoods and key employers, it has revitalized the downtown. This key public investment has led to further private investment critical to downtown renaissance and attracting the younger creative class workforce. Although located in the City, Pima County owns substantial amounts of real estate along the route and aid in the development and connectivity of the streetcar through redevelopment of its properties. A vital downtown was

The Sun Link project has already triggered transit oriented development - new retail, office and residential development and redevelopment along the streetcar corridor. To date, more than $800 million has been invested by the private sector. Fifty new restaurants, bars and cafes, some 1500 new student housing apartments plus 58 new retail businesses have popped up along the route over the past two years, and there are mixed-use housing developments in the works. Additionally, there has been significant corporate business expansion within the Sun Link route: a new headquarters for UniSource Energy, with 400+ plus employees, and Providence Service Corporation, both publicly traded companies. More development is planned for the downtown area connecting to the university.

Figure 8: Tucson Modern Street Car Route and Character Areas

6.3 Existing Major Employment Centers

Davis-Monthan Air Force Base

Davis-Monthan Air Force Base (D-M AFB) is a key component of the Air Combat Command installation system of the United States Air Force. The base is staffed by 7,700 military and civilian personnel and is home to approximately 5,000 aircraft. The 355th Fighter Wing is the host unit at Davis-Monthan Air Force Base, however, other units also call D-M home. Twelfth Air Force, the 563rd Rescue Group and The Aerospace Maintenance and Regeneration Group (AMARG) are all based out of D-M. The 162nd Fighter Wing Operation Snowbird detachment's mission, is to provide support for U.S. military flying units and allied partners deployed for training. It is housed at the base.

It is a major contributor to the economic well-being of Southern Arizona. The Air National Guard is the region's 37th largest employer, generating more than $280 million in annual economic benefit. Davis-Monthan, meanwhile, is the third largest public employer in the region, contributing $1.1 billion a year to the local economy. According to D-M's Fiscal Year 2012 Economic Impact Analysis, released in April 26, 2013 D-M and military retirees circulated approximately $1.6 billion and helped create more than 4,600 jobs in the local area.[10]

Figure 9: Davis Monthan Air Force Base

D-M lies to the northwest of the UA Tech Park. The base operates and maintains 519 buildings, encompassing 4,409,801 square feet of space. D-M's footprint includes 6,011 acres of government-owned land and 4,578 acres of easement, rights-of-way and leased land, totaling 10,589 acres.

Residential neighborhoods lie northwest of D-M. Recognizing that encroachment around the air base may endanger future missions, Pima County has authorized and spent $10 million to purchase properties in the Davis-Monthan Air Force Base Departure Corridor, to ensure the long-term viability of the region's third-largest employer. The County placed a priority on lands under the primary flight paths to help prevent encroachment of inappropriate land uses upon the base.

[10] FY12 Davis-Monthan Air Force Base Economic Impact on Tucson

The University of Arizona

Leveraging the intellectual capacity of the University of Arizona (UA) as a major economic development strategy is a large part of Pima County's Economic Development Plan. With a total of 10,846 employs in 2013, The University is ranked among the top 20 public research universities nationwide. The UA generates more than $625 million in research. Together, the University of Arizona, the UA Tech Park and UA Health Network infuse billions of dollars into the state economy each year. The University system reaches every Arizona county and five tribal reservations, supporting one out of every 93 jobs in the state.[11] The Main campus encompasses 387 acres in central Tucson.

UA not only serves as a learning and research institution but also as an economic development catalyst for new technologies, science and business startups. The UA has three Communities of Innovation -- the Arizona Center for Innovation, the UA Tech Park, and the UA Bio Park – that contribute significantly to the economic expansion of the community with the following goals:

- Attract new businesses
- Grow established businesses
- Launch new companies
- Commercialize new technologies
- Create high-paying, clean jobs

[11] University of Arizona website, About the University

The UA Tech Park

Annually, the UA Tech Park generates an economic impact of over $3 billion in Pima County. The UA Tech Park is home to 40 tenant companies that employed 7,570 people in 2013. In total, the UA Tech Park created 14,803 jobs in the regional economy. The average annual salary for UA Tech Park employees was $85,515, compared to the Pima County average of $39,973. In total, an estimated $77.9 million in tax revenues distributed to state, county and city governments. The UA Tech Park generated a total impact of $3.02 billion in Pima County.[12]

Raytheon Missile Systems

Raytheon is a unique technology company and a world leader in defense electronics, with a broad range of products, service and capabilities. The proud legacies of Raytheon, E-Systems, Texas Instruments Defense, Hughes Aircraft and others have come together to form one company with one vision: to be the most admired defense and aerospace systems company through our world-class people, innovation and technology. The largest private employer in Southeastern Arizona, Raytheon employed 10,300 people in 2013.

[12] UA Tech Park website: Economic Impact

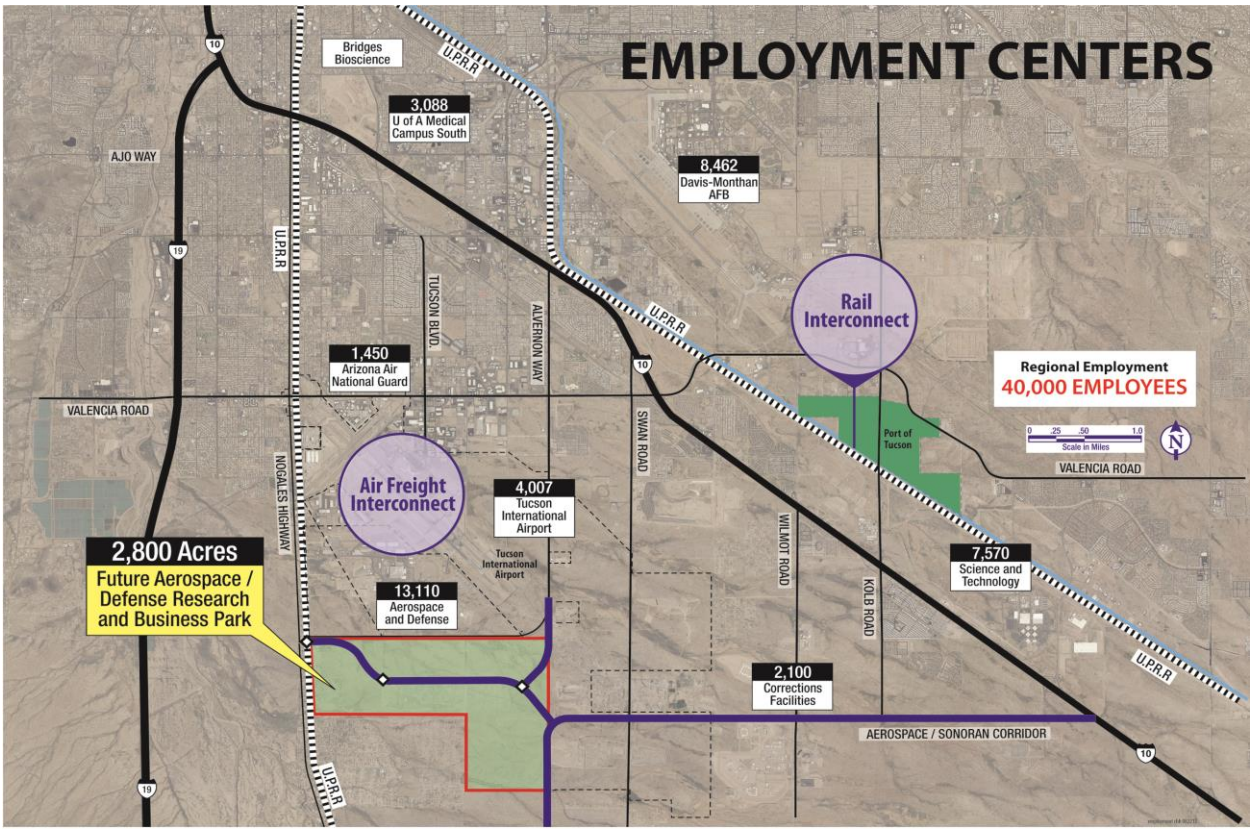


Figure 10: Employment Centers and Logistics

Tucson International Airport (TIA)

Providing employment for 4,007 people in the region, the Tucson International Airport plays a key role in the region. The Tucson Airport Authority (TAA) completed their Master Plan update in 2013. This update includes five components. While a number of "air side" improvements will be made, the most significant will be the construction of a second main runway at TIA to enhance safety. This is a major undertaking that will require the relocation of some existing airport tenants and land acquisitions or restrictions from the USAF on a portion of the second runway and extended clear zone. A significant investment is being made by the Federal Aviation Administration (FAA) at TIA in the development of a new control tower at a cost of approximately $40 million. The County will work with and assist TAA in completing the Master Plan update, developing operational airport improvements necessary to enhance safety and improve operations, as well as development and completion of the second runway. In 2012, the Tucson International Airport traffic yielded 935,966 passengers.

6.4 Strengthening Economic Development Corridors and Employment Centers

The major emerging economic development corridors from multistate to regional include:

- **The Canamex Corridor** connecting trade from Mexico to Canada, this also includes discussion of a new interstate highway connecting Las Vegas to the border. ADOT is leading the study of routes with Mexican officials and the other states. A study group has formed here in southern Arizona and Pima County has proposed a suggested route to mitigate environmental and residential disruption. Residents in Avra Valley, one of the potential routes, have voiced strong opinions.
- **The Sun Corridor** connecting inter related routes and communities within Arizona stretching from Sierra Vista to Prescott. This consists of series of the transportation networks and solutions to transport goods. The market and job centers overlap in this corridor so united it can share resources, build capacity and transport its people.
- **The Aerospace and Defense Corridor** that connects defense related industries and land around the airports and will help connect I-19 and I-10 for trade and buffer from DMAFB, Raytheon, and TIA. This corridor will serve to attract additional industry as well as provide critical infrastructure to connect I-19 in the south and provide traffic alternatives to access to the east. It will buffer TIA and Raytheon from domestic traffic.
- **The Tucson Tech** corridor that connects the U of A tech park with interrelated commercial and industrial lands and routes along I-10 includes rail access at the Port of Tucson. This corridor connects to Texas on the east and ports on the shores of California for Asian trade opportunities.
- Many districts exist in the form of Educational Districts (University of Arizona), Medical Districts (emerging Southern BioScience and medical campuses), Solar Districts, and Corrections District (at the end of Wilmot south.) These districts become major **employment centers** with associated offices, housing (senior) or workforce housing, or research or distribution facilities.

Economic Development Programs in the Region

Economic development programs in the region include:

State of Arizona

The State of Arizona is primarily responsible through legislative adopted initiatives to give tax credits, tax waivers, grants, and loans funded by the state. Almost all financial incentives flow through the recently formed new Arizona Commerce Authority (ACA). The ACA is an economic development organization committed to attracting and retaining industry and to creating quality jobs for Arizona and its citizens. The authority is a partnership of public and private-sector individuals. In early 2011, the governor signed into law the Arizona Competitiveness Package, making Arizona more competitive on the global business landscape with loans, tax incentives and closing funds.

City of Tucson

As the largest city within Pima County, Tucson plays a vital role in the region's economic development. Under its Economic Development department the city offers a package of 21 incentives that are categorized by the city as Development Services Programs, Financial Incentives, Loan Programs, Business Assistance and Incentive Districts. Most of the incentives are broadly available to businesses based on the type of business operation or its geographic location. Tucson provides critical infrastructure for the region's economic development including being the largest water provider. Tucson, like Pima County, actively supports tourism, international trade and other key areas of economic development.

Town of Oro Valley

The town has no specific incentive programs but does offer an Economic Development Zone at Oro Valley's Innovation Park. Essentially an overlay district that was created in October 2012, the EEZ offers streamlined development review to companies developing or expanding in Innovation Park. The process consists of exemption from the town's conceptual design, architecture and conceptual public art plan approval processes. The town's planning and zoning administrator assures compliance with the town code in order to speed the development approval process. Oro Valley's innovation Park is a critical bio-medical hub and the town is actively attempting to develop more high-tech industry.

Town of Marana

Marana's incentives are part of its larger economic development strategic plan known as the "Economic Development Roadmap." The town offers internal incentives which include the Marana Job Creation Incentive Program (MJCIP) and the Expedited Development Review Incentive (EDRIP). The MJCIP incentive reallocates construction sales for new construction, expansion or renovation by non-retail companies who locate or expand within the town boundaries. The Expedited Development Review Incentive Program provides qualifying companies expedited review of development plans through the town's development services department. Marana's location along Interstate 10 and the Union Pacific rail lines has made logistics and manufacturing priorities in the town's economic development strategy.

Town of Sahuarita

The Town of Sahuarita's economic development department works closely with the Green Valley-Sahuarita Chamber of Commerce on issues of business expansion and retention. Sahuarita does not offer any incentives of its own. The town is geographically positioned near Interstate 19 and Pima County's planned Sonoran Corridor, and views Mexico trade, logistics and the manufacturing established in southern Tucson as economic development drivers.

City of South Tucson

The City of South Tucson does not have an economic development department and does not offer any incentives. A 2009 Economic Development plan for the city notes that South Tucson is within the Pima County Foreign Trade Zone administered by TREO. The city has begun looking at developing a business park in order to diversify its primarily retail economy.

Other Economic Development Programs and/or Incentives in the Region

Besides the package of assistance programs that the ACA offers from the state, Pima County has experience with the following:

Foreign Trade Zones

Foreign Trade Zone designation is considered if requested by an industry. However this is usually in consultation with the school district so that no revenue is lost to that district. The Port of Tucson is registered as a Foriegn Trade Zone (FTZ 174, site 2), which allows the facility to ship and receive product in bond. Foriegn Trade Zone transportation and storage can equate to savings on products or materials being imported.

Shovel Ready and Infrastructure Programs

Designed to build roads or critical infrastructure to facilitate the expansion or attraction of industry.

Open Space Programs

Programs designed to buffer from uses that would conflict with the industry.

Mitigation Programs

Such as noise mitigation meant to mitigate sound issues and help the community adjust to changes in industry focus.

Workforce Training Programs

Tax credits are offered to assist training and the hiring of employees. Matching of job skills with job training to prepare the workforce for emerging new industry and skills.

Business Climate Assistance Programs:

Business One Stop program that will assist employers with business startup, grants, permits, approvals, and guidance on community resources.

TABLE 6.4.a: Economic Development Programs, Mechanisms and Strategies Currently Available at the County to Secure its Long Range Vision for Major Economic Development Corridors

Major Corridor	Existing Economic Development Programs, Mechanisms and Strategies
Aerospace and Defense Corridor	• Infrastructure: Relocate Hughes Access Road. Initiate planning for the relocation of Hughes Access Road, Anticipated construction costs of $8 million are to be shared equally by the City of Tucson and Pima County. • Buffer and Protect Raytheon and provide for TIA expansion. This relocation will providemaximum protection for Raytheon Missile Systems and allow for possible Raytheonexpansion, as well as facilitate long-term development of the Tucson Airport Authority's plans for job expansion and economic development. • Provide Open Space to Support Davis-Monthan Air Force Base and the 162nd Fighter Wing of the Arizona Air National Guard. Take those actions necessary to support the military functionality of Davis-Monthan Air Force Base and the 162nd Fighter Wing of the Arizona Air National Guard by supporting their growth and expansion, as well as new military missions that may be assigned, including continued voter-authorized bond investments of $10 million to protect the Davis-Monthan Departure Corridor. • Mitigate Impacts: .Help Abate Aircraft Noise. Implement a new aircraft noise abatement program for Davis-Monthan Air Force Base and Tucson International Airport with an investment of $20 million in voter-approved bond funding. • Plan the Aerospace/Defense Research and Business Park. Allocate $100,000 from the Board Contingency Fund to advance planning for an approximately 2,800-acre Aerospace/Defense Research and Business Park in partnership with the Tucson Airport Authority, Pima County and the City of Tucson.
The Tucson Tech Corridor	• Infrastructure: Support the UA Tech Park. Support the Tucson Tech Corridor and the UA Science and Technology Park by allocating as much as $10 million for public infrastructure to help make the UA Science and Technology Park "shovel ready" for new technology employers. • Fund the Aerospace Parkway and Alvernon Way Improvements. Allocate up to $90 million in general obligation bonds to be approved by the voters for completion of the aerospace parkway linking the job centers at Tucson International Airport with the Tucson Tech Corridor and the UA Science and Technology Park.

TABLE 6.4.b: Economic Development Programs, Mechanisms and Strategies Currently Available at the County to Secure its Long Range Vision and Support Jurisdicitons, Emerging Clean Industries and Regional Economic Development Agencies

Economic Development Categories	Existing Economic Development Programs, Mechanisms and Strategies
Jurisdictions	Support Economic Development in Jurisdictions and regional job growth centers in Oro Valley, Marana, Sahuarita and South Tucson by inviting the submission of detailed economic proposals from these communities for infrastructure investments to make these regional centers attractive and competitive locations for job attraction.
Solar Renewable Energy Projects	Support Solar Renewable Energy Projects. Reserve and make available lands purchased by Pima County in the Davis-Monthan Departure Corridor for renewable energy solar facilities. A total of 460 acres have been acquired, which could provide as much as 50 megawatts of renewable solar energy.
Tucson Regional Economic Opportunities (TREO)	Increase County Investments in Economic Development Agencies. Increase from $350,000 to $450,000 Pima County's annual contribution to Tucson Regional Economic Opportunities, Inc. to promote job attraction to our region, with an optional additional $50,000 allocation for job infrastructure investment; provided other local governments make similar contributions for infrastructure investments within their community to facilitate job attraction.

County Economic Development Partnerships with Major Industry/Employers

Aerospace and Defense

There are currently between 20,000 and 30,000 people employed in the Aerospace industry in southern Arizona. Tucson is ranked one of the top 5 areas in the U.S for this industry. Tucson is 8.35 more concentrated in the aerospace product and parts manufacturing industry than the average of all metropolitan statistical areas across the country.

Pima County provides assistance to Raytheon, one of the largest employers in Pima County and surrounding areas, in order to bring further economic growth, foster expansion, and protect jobs. Through open space purchases and road relocation, Pima County will not only partner with business to facilitate infrastructure but also help meet their training needs and workforce development.

University of Arizona

Ranked among the top 20 public research facilities in the nation, the University of Arizona is one of the largest public sector employers in the region. Employing Nobel and Pulitzer Prize winners, the UA generates more than $600 million in research and partners with businesses to help ensure innovative ideas come to fruition. Leveraging the intellectual assets of this community is key to fostering the clean, high-quality jobs Pima County wants to attract and build. Capitalizing on the Intellectual Assets of The University of Arizona is a central component of the current County economic development strategy.

1. **Physician training:** The University of Arizona Medical Center - South Campus University of Arizona not only provides lifesaving treatment in a medically-underserved area of the community, but also serves as a teaching medical campus, creating a qualified physician pool in the region.

2. **Community medicine:** County bond dollars are helping fund the development of a Family and Community Medicine facility and laboratories at the South Campus.

3. **Behavioral Health:** A unique partnership between several public and private organizations, including Pima County and the University of Arizona, led to the development of two new University of Arizona behavioral health facilities integrated into the South Campus. The Crisis Response Center provides triage for people in crisis and directs them to appropriate care, while the Behavioral Health Pavillion provides inpatient, outpatient, and emergency medical and behavioral health services.

Public/Private Partnerships

Pima County taps into a diverse pool of talent, perspectives and financial resources to foster strong programs and initiatives that will weather tough economic times and provide quality service for the local community.

1. **Tucson Medical Center:** With 3,000 employees, the nonprofit TMC is Southern Arizona's largest community hospital and an important economic leader. The County partnered with TMC to bring back more than $10 million in federal matching dollars to help bolster physician training efforts and to help the hospital recoup skyrocketing costs of charity care.

2. **Pima Community College:** The County, through its One-Stop Career Centers, partners with the college on medical job training efforts.

3. **YMCA of Southern Arizona:** The County has entered into a novel program with this provider of recreational and wellness services. By providing the land, equipment and facilities, it allows the YMCA to do what it does best: The direct delivery of services.

4. **Indoor Sports Center:** Pima County teamed up with Southern Arizona Community Sports to construct a 40,000 square foot facility that will provide young adults more opportunities to experience team sports, with the capacity for five basketball and eight volleyball courts.

TABLE 6.4.b: Other Employers by Industry Type

Other Employers	Industry Type	Location
Innovation Park	Start-ups, incubators, medical and Research and Development (R&D)	Town of Oro Valley
Tucson International Airport	Tucson International Airport and Ryan Airfield. TIA is a full commercial service airport serving the Tucson metropolitan area, southern Arizona, and northern Sonora, Mexico. Ryan Airfield serves as a general aviation reliever airport for TIA and is a popular recreation field for transient pilots	City of Tucson
Catalina Foothills Resort District	Includes holistic healing destinations such as Miraval and Canyon Ranch and tourism destinations such as La Paloma and Ventana Canyon	Pima County
Corrections District	Department of Corrections	Pima County
St. Mary's Medical District	Medical and Health Care	City of Tucson
St. Joseph Medical District	Medical and Health Care	City of Tucson
UMC Medical District	Medical and Health Care	City of Tucson
TMC Medical District	Medical and Health Care	City of Tucson
Northwest Hospital Medical District	Medical and Health Care	Pima County
Oro Valley Hospital	Medical and Health Care	Town of Oro Valley
Downtown Government District	Government	City of Tucson
Veterans Affairs Medical District	Medical, Health Care/Veterans Affairs	City of Tucson
Pima Community College District	Education	City of Tucson
Tohono O'odham	Gaming/Tourism	Tohono O'odham Nation
Pascua Yaqui Tribe	Gaming/Tourism	Pascua Yaqui Tribe

Source: Pima County Development Services Department, 2013

Major Private and Public Employers in Southern Arizona

Table 8.44a lists major the top 25 private employers in southern Arizona in 2013. Table 8.44b lists the top 10 public employers in southern Arizona in 2013.

TABLE 6.4.c: Top 25 Private Employers in Southern Arizona in 2013

Employer	Number of Employees	Industry Type
Raytheon Missile Systems	10,300	Aerospace and Defense
Wal-Mart Stores inc.	7,450	Retail
UA Healthcare	6,099	Medical/Healthcare
Freport-McMoRan Copper & Gold	5,463	Gold and Copper Production
Carondolet Health Network	3,668	Medical/Healthcare
TMC HealthCare	2,977	Medical/Healthcare
Fry's Food Stores	2,700	Retail Food
Corrections Corp. of America	2,314	Coorections
Asarco LLC	2,297	Minerals/Copper Mining
Afni Inc.	2,199	Customer Care
Southern Arizona VA Health Care	2,182	Medical/Healthcare
Citi	2,000	Financial Services
Bashas' Inc.	1,800	Retail Food
APAC Customer Service	1,777	Customer Care Outsourcing
Northwest Medical Center	1,757	Medical/Healthcare
Safeway Inc.	1,685	Retail Food
Target Stores Inc.	1,640	Retail
Walgreens	1,420	Retail Pharmaceutical
IBM	1,375	Applications Innovation/IT Services
Sol Casinos	1,300	Casinos/Resort
TEP/UniSource Energy	1,232	Electric Utilities
Union Pacific Railroad	1,200	Transportation and Logistics
Circle K Stores	1,200	Convenience
GEICO	1,155	Insurance Services
Ventana Medical Systems, Inc.	1,150	Pathology Testing Laboratories (Medical Support)

Source: Arizona Daily Star, 2013

TABLE 6.4.d: Top 10 Public Employers in Southern Arizona in 2013

Employer	Number of Employees	Industry Type
University of Arizona	10,846	Education
Davis-Monthan Air Force Base	9,100	Aerospace and Defense
State of Arizona	8,807	State Government
Tucson Unified School District	6,790	Education
Pima County	6,500	County Government
U.S. Customs and Border Patrol	6,076	Federal Government
City of Tucson	4,585	Municipal Government
U.S. Army Intelligence Center and Fort Huachuca	5,096	Federal Government
Tohono O'odham Nation	4,350	Native Nation Government
Pima Community College	2,384	Education

Source: Arizona Daily Star, 2013

Fiscally Appropriate Land Use Strategy

A fiscally appropriate land use strategy takes competitive advantage of and supports:

- Major economic development corridors
- Major employment centers
- Binational economy
- Governor's industry clusters initiative
- Innovation and new technology development
- Clean and energy efficient industry
- Mixed-use 24-hour neighborhoods
- Public/private partnerships

6.5 Tourism

Travel and tourism is one of the most important "export-oriented" industries in Arizona. Arizona is one of 6 of the top tourism states in the nation along with Florida, New York, Hawaii, Las Vegas, and California, but spends the least of most states to promote tourism. Florida spends $60 million a year on tourism promotion, California $50 million, Hawaii $75 million, New York $160 million and Nevada and Las Vegas $310 million. Arizona is at about $20 million, and maybe $15 million goes into advertising. Defining Arizona's natural attractions to the traveling public is important.

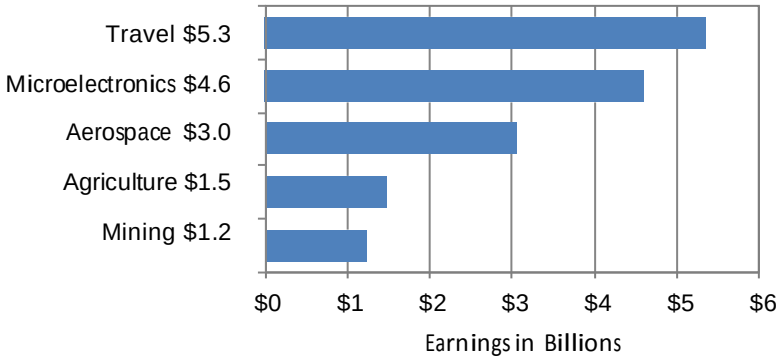
Spending by visitors generates sales in lodging, food services, recreation, transportation and retail businesses – the "travel industry." These sales support jobs for Arizona residents and contribute tax revenue to local and state governments. Travel is especially important in the non-metropolitan areas of the state, where manufacturing and traded services are less prevalent. [13]

The Arizona travel industry continued its moderate expansion in 2012. Although real spending (adjusted for inflation) and travel-generated employment remain below their pre-recession levels, both spending and employment levels improved – spending for the third consecutive year and employment for the second year. Continuing improvement in the broader economy should foster continued growth in the travel industry. [14] In Arizona Travel Impacts 1998-2012, the Arizona Office of Tourism summarizes Arizona travel:

- **Direct Travel Spending:** Total direct travel spending in Arizona was $19.3 billion in 2012. Travel spending increased by 4.6 percent in current dollars compared to 2011.
- **Lodging sales:** A primary component in total visitor spending, lodging sales increased by 4.4 percent from 2011 to 2012 following a 3.9 percent increase the preceding year and a 4.6 increase from 2009 to 2010.
- **Travel Activity:** Visitor air travel arrivals on domestic flights increased by 0.5 percent in 2012, following similar increases the preceding two years. Air travel to Arizona declined by 8 percent per year in 2008 and 2009. Other indicators of room demand and visitor volume also showed modest increases.
- **Employment:** Direct travel-generated employment was 161,300 in 2012. This represents as addition of 4,200 jobs, an increase of 2.7 percent. This is the second consecutive year of employment growth in the travel industry since the decline in employment associated with the 2008-2009 recession.

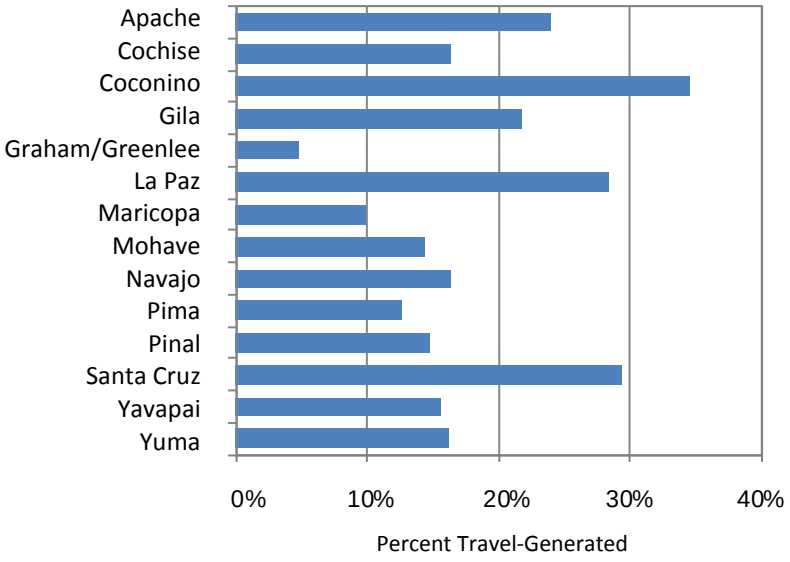
[13] Arizona Travel Impacts 1998-2012, Arizona Office of Tourism, Dean Runyan Associates, June 2013.
[14] Ibid.

- **Re-spending of Travel Related Revenues**: The re-spending of travel-related revenues by businesses and employees supported 139,000 additional jobs outside of the travel industry with earnings of $5.6 billion.
- **The Gross Domestic Product (GDP):** The GDP of the travel industry was $7.6 billion in 2012. The travel industry and the microelectronics industry have been the top two export-oriented industries in the state in recent years.



Source: Preliminary 2012 estimates by Dean Runyan Associates. Agriculture includes food and beverage processing industries.

Figure 12: Selected Arizona Export-Oriented Industries, 2012.



Source: Dean Runyan Associates and Arizona Department of Revenue. These estimates represent the total state transaction privilege tax receipts generated by travel spending. Counties and municipalities generally are allocated a portion of these receipts based on resident population. Other county and municipal excise taxes are also imposed on visitors.

Figure 13: State Transaction Privilege Taxes Generated by Direct Travel Spending, 2012.

Travel Generated Employment and Earnings

The following table provides estimates for individual counties. Total employment includes all full-time and part-time wage and salary employment and self-employment. Because total employment includes all jobs, regardless of the hours worked, the average annual earnings of the job or the number of individuals employed, this indicator is in some respects less useful than earnings estimates. Nonetheless, the distribution of counties is similar for earnings and employment. [15] As shown in this table, Pima County was second to Maricopa County in total travel generated employment and earnings in 2012.

TABLE 6.5.a: Travel-Generated Employment and Earnings as Percent of Total 2012

	Employment			Earnings (Million)		
County	Total	Travel	Percent Travel	Total	Travel	Percent Travel
Apache	30,510	1,590	5.2%	$1,144	$32	2.8%
Cochise	55,540	3,660	6.6%	$2,843	$75	2.6%
Coconino	83,020	10,870	13.1%	$3,213	$282	8.8%
Gila	21,580	2,990	13.9%	$793	$64	8.1%
Graham/Greenlee	17,050	980	5.7%	$750	$14	1.8%
La Paz	7,590	1,230	16.2%	$345	$30	8.8%
Maricopa	2,241,050	86,000	3.8%	$114,167	$3,558	3.1%
Mohave	61,020	5,950	9.8%	$2,277	$129	5.7%
Navajo	39,660	3,440	8.7%	$1,466	$80	5.4%
Pima	487,740	22,340	4.6%	$21,424	$577	2.7%
Pinal	80,710	5,590	6.9%	$3,423	$135	4.0%
Santa Cruz	17,770	1,960	11.0%	$790	$49	6.1%
Yavapai	82,060	8,090	9.9%	$2,773	$179	6.5%
Yuma	82,530	6,660	8.1%	$3,765	$153	4.1%
Arizona Total	3,307,840	161,340	4.9%	$159,173	$5,357	3.4%

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis. Total and Travel-Generated Employment Estimates by Dean Runyan Associates, 2013.

Note: Details may not add to totals due to rounding. Percentages calculated on unrounded numbers.

[15] Arizona Travel Impacts1998-2012, Arizona Office of Tourism, Phoenix, Arizona, June 2013

TABLE 6.5.b: Arizona County Travel Impacts 2012

	Travel Spending			Related Travel-Generated Impacts			
County	**Total** ($Million)	**Visitor** ($Million)	**Earnings** ($Million)	**Employment** (jobs)	**Local Taxes** ($Million)	**State Taxes** ($Million)	**Total Taxes** ($Million)
Apache	127	110	32	1,590	3.6	5.6	9.1
Cochise	348	316	75	3,660	10.7	14.3	25.0
Coconino	1,045	1,000	282	10,870	29.7	43.3	73.0
Gila	282	270	64	2,990	5.0	11.5	16.5
Graham/Greenlee	77	66	14	980	1.8	3.4	5.1
La Paz	146	142	30	1,230	2.9	5.8	8.7
Maricopa	11,533	8,758	3,558	86,000	338.5	395.5	733.9
Mohave	536	471	129	5,950	10.6	21.4	32.0
Navajo	304	279	80	3,440	7.9	13.2	21.1
Pima	2,665	2,129	577	22,340	50.1	100.4	150.5
Pinal	628	537	135	5,590	11.7	26.7	38.4
Santa Cruz	271	260	49	1,960	5.0	10.0	15.0
Yavapai	699	638	179	8,090	15.6	28.5	44.1
Yuma	657	595	153	6,660	14.3	26.2	40.5
Arizona	19,318	**	5,357	161,340	507.2	705.7	1,212.9

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis, 2013.

Notes: Details may not add to totals due to rounding. Property taxes and sales taxes paid by travel industry employees not included in the county estimates due to data limitations. The local and state tax estimates for the state of Arizona (Sections II and III of this report) include property taxes and the sales taxes paid by travel industry employees.

**The sum of county visitor spending is less than statewide visitor spending because a portion of county ground transportation is allocated to "other travel" at the county level.

TABLE 6.5.c: Arizona County Total Travel Spending 1198-2012p ($ Millions)

														Annual Percent Change	
County	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012p	**11-12p**	**98-12p**
Apache	83	104	99	97	101	115	122	123	147	119	120	126	127	0.9	3.1
Cochise	226	269	271	281	311	331	340	367	375	352	365	361	348	3.4	3.1
Coconino	639	704	667	713	758	812	845	885	939	879	938	998	1,045	4.7	3.6
Gila	195	218	213	221	228	248	260	269	260	245	256	269	282	5.1	2.7
Graham/ Greenlee	36	44	40	41	42	49	62	65	67	52	61	69	77	10.9	5.9
La Paz	105	114	117	121	122	134	127	130	133	130	128	138	146	6.3	2.4
Maricopa	6997	8114	7570	8235	8960	9993	10659	10851	10584	9480	10292	10912	11533	5.7	3.6
Mohave	310	351	377	408	422	459	516	504	515	478	511	528	536	1.4	4.0
Navajo	195	249	231	229	232	256	280	281	308	262	272	291	304	4.6	3.2
Pima	1,832	2,110	2,098	2,170	2,362	2,618	2,697	2,649	2,550	2,380	2,481	2,588	2,665	3.0	2.7
Pinal	222	252	272	285	320	362	417	480	526	497	580	636	628	1.4	7.7
Santa Cruz	242	280	289	280	299	302	281	284	282	294	261	239	271	13.2	0.8
Yavapai	372	469	477	497	510	573	613	640	651	584	613	661	699	5.8	4.6
Yuma	377	439	458	478	518	556	585	590	624	611	603	650	657	1.0	4.1
Arizona	11832	13716	13180	14055	15188	16809	17802	18118	17960	16364	17479	18467	19318	4.6	3.8

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis, 2013.

Notes: Details may not add to totals due to rounding. Percentages calculated on unrounded numbers.

TABLE 6.5.d: Arizona County Travel-Generated Earnings 1998-2012p ($Millions)

														Annual Percent Change	
County	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012p	**11-12p**	**98-12p**
Apache	20	24	24	23	23	25	27	29	32	31	30	30	32	5.8	3.4
Cochise	50	57	59	61	67	70	73	82	84	81	81	76	75	-1.6	3.0
Coconino	189	204	195	206	221	228	240	265	283	267	262	271	282	3.9	2.9
Gila	50	54	54	55	56	61	65	68	66	63	60	61	64	5.5	1.8
Graham/ Greenlee	8	10	9	9	9	11	14	15	15	12	12	13	14	6.3	3.9
La Paz	23	25	26	26	26	28	27	28	29	29	29	30	30	2.7	2.0
Maricopa	2,200	2,551	2,431	2,592	2,814	3,014	3,281	3,425	3,298	3,158	3,247	3,418	3,558	4.1	3.5
Mohave	85	94	104	110	110	116	133	133	136	133	127	124	129	4.1	3.0
Navajo	48	60	57	55	56	59	66	68	76	69	71	73	80	9.1	3.7
Pima	401	460	479	480	517	563	580	582	556	538	538	548	577	5.3	2.6
Pinal	54	58	65	66	73	81	94	112	122	121	126	132	135	2.5	6.8
Santa Cruz	44	49	52	50	54	54	52	54	54	54	50	44	49	9.3	0.8
Yavapai	105	129	133	137	139	152	165	177	180	164	162	168	179	7.0	3.9
Yuma	86	97	103	108	118	120	131	135	144	145	143	153	153	0.4	4.2
Arizona	3,363	3,874	3,792	3,978	4,283	4,583	4,947	5,173	5,075	4,865	4,939	5,142	5,357	4.2	3.6

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis, 2013.

Notes: Details may not add to totals due to rounding. Percentages calculated on unrounded numbers.

TABLE 6.5.e: Arizona County Travel-Generated Employment 1998-2012p ($Millions)

														Annual Percent Change	
County	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012p	**11-12p**	**98-12p**
Apache	1,550	1,630	1,530	1,460	1,520	1,610	1,590	1,580	1,700	1,640	1,620	1,590	1,590	0.1	0.2
Cochise	3,690	3,930	3,800	3,760	3,930	4,030	4,110	4,380	4,340	4,120	4,070	3,820	3,660	4.0	0.1
Coconino	11,220	11,180	10,240	10,530	10,740	10,950	10,750	11,110	11,540	10,920	10,590	10,710	10,870	1.5	0.2
Gila	3,150	3,120	3,220	3,220	3,040	3,130	3,160	3,120	3,000	2,940	2,910	3,050	2,990	1.9	0.4
Graham/ Greenlee	40	40	40	40	40	50	60	70	70	50	60	70	80	4.1	2.7
La Paz	1,500	1,420	1,350	1,350	1,290	1,350	1,200	1,220	1,230	1,230	1,190	1,230	1,230	0.2	1.4
Maricopa	84,020	87,700	77,850	80,880	83,780	87,470	89,530	90,130	87,910	82,290	81,630	83,330	86,000	3.2	0.2
Mohave	5,500	5,680	5,950	6,060	6,020	6,250	7,070	6,500	6,380	6,170	6,090	5,870	5,950	1.3	0.6
Navajo	3,430	3,940	3,420	3,280	3,140	3,200	3,360	3,300	3,570	3,190	3,250	3,330	3,440	3.2	0.0
Pima	21,230	23,030	22,900	22,890	24,140	25,200	25,100	23,870	22,220	21,820	21,450	21,580	22,340	3.5	0.4
Pinal	3,160	3,130	3,780	3,880	3,960	4,270	4,680	4,880	5,250	4,930	5,100	5,550	5,590	0.7	4.2
Santa Cruz	2,430	2,520	2,550	2,470	2,560	2,530	2,400	2,330	2,270	2,230	2,060	1,870	1,960	4.8	1.5
Yavapai	6,370	7,100	8,120	8,220	7,900	8,060	8,180	8,280	8,460	7,710	7,340	7,670	8,090	5.5	1.7
Yuma	4,800	4,950	5,590	5,540	5,700	5,840	6,200	6,040	6,110	6,130	6,060	6,540	6,660	1.8	2.4
Arizona	152,740	160,030	151,110	154,400	158,550	164,810	168,530	168,000	165,190	156,330	154,300	157,070	161,340	2.7	0.4

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis, 2013.

Notes: Details may not add to totals due to rounding. Percentages calculated on unrounded numbers.

TABLE 6.5.f: Pima County Travel Impacts, 2002-2012p

	2002	2004	2006	2008	2010	2011	2012p
Total Direct Travel Spending ($Million)							
Destination Spending	1,782	1,987	2,241	2,043	2,023	2,074	2,129
OtherTravel*	316	375	456	506	458	515	536
Total Direct Spending	2,098	2,362	2,697	2,550	2,481	2,588	2,665
Visitor Spending by Type of Accomodation ($ Million)							
Hotel, Motel	808	924	1,074	903	900	927	947
Private Home	328	375	423	451	450	467	467
Campground	23	25	56	36	29	31	32
Vacation Home	36	39	43	47	47	49	51
Day Travel	587	624	645	605	597	599	633
Destination Spending	1,782	1,987	2,241	2,043	2,023	2,074	2,129
Visitor Spending by Commodity Purchased ($ Million)							
Accommodations	308	339	420	349	320	328	331
Food Service	412	471	526	475	509	521	540
Food Stores	116	128	134	132	129	132	137
Local Tran. & Gas	188	236	294	279	272	306	318
Arts, Ent & Rec.	159	175	188	173	175	178	179
Retail Sales	465	469	468	411	414	404	422
Visitor Air Tran.	134	170	210	223	204	203	200
Destination Spending	1,782	1,987	2,241	2,043	2,023	2,074	2,129
Industry Earnings Generated by Travel Spending ($ Million)							
Accom. & Food Serv.	251	282	320	304	300	307	329
Arts, Ent & Rec.	65	71	80	76	76	76	76
Retail**	78	81	86	80	73	73	75
Ground Tran.	24	27	30	25	28	29	30
Visitor Air Tran.	5	5	10	12	11	11	11
Other Travel*	56	50	54	59	51	53	57
Total Direct Earnings	479	517	580	556	538	548	577

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis. Total and Travel-Generated Employment Estimates by Dean Runyan Associates.

Note: Details may not add to totals due to rounding.

* Other travel includes ground transportation to other Arizona destinations, resident air travel, travel arrangement services, and convention and trade shows.

** Retail includes gasoline.

TABLE 6.5.f: Pima County Travel Impacts, 2002-2012p (Continued)

	2002	2004	2006	2008	2010	2011	2012p
Industry Employment Generated by Travel Spending (Jobs)							
Accom.&FoodServ.	12,900	13,790	14,630	12,740	12,510	12,650	13,250
Arts, Ent & Rec.	3,960	4,550	4,550	3,860	4,040	4,070	4,180
Retail**	3,050	3,050	3,120	2,880	2,590	2,580	2,580
Ground Tran.	800	820	830	680	710	730	750
Visitor Air Tran.	140	130	220	250	210	200	200
Other Travel'	2,040	1,800	1,750	1,800	1,390	1,340	1,380
Total Direct Employment	22,900	24,140	25,100	22,220	21,450	21,580	22,340
Government Revenue Generated by Travel Spending ($Million)							
Local Tax Receipts	41.1	45.0	53.9	47.3	47.0	49.3	50.1
State Tax Receipts	78.2	86.1	95.0	85.5	90.3	97.2	100.4
Total Direct Gov't Revenue	119.4	1 31 . 1	148.9	132.8	137.4	146.4	150.5

Source: Dean Runyan Associates, U.S. Bureau of Labor Statistics, and U.S. Buerau of Economic Analysis. Total and Travel-Generated Employment Estimates by Dean Runyan Associates.

Note: Details may not add to totals due to rounding.

* Other travel includes ground transportation to other Arizona destinations, resident air travel, travel arrangement services, and convention and trade shows.

** Retail includes gasoline.

The Pima County Department of Economic Development and Tourism

As shown in the previous tables, travel and tourism continues to be among the most important export industries driving Arizona's and Pima County's economy. To enhance the economic welfare of the Pima County citizens and businesses, the Pima County Department of Economic Development and Tourism act as primary liaison with the business, academic and tourism community. It provides business development, marketing, training, and revenue enhancement programs to Pima County's leased asset partners, the Arizona-Sonora Desert Museum, Old Tucson Studios, Colossal Cave Mountain Park, Pima Air and Space Museum, Pima County Fairgrounds, and more.

Program Goals and Objectives

- Coordinate Pima County's economic development resources to concentrate on collaborative community efforts in business and job creation, business retention and expansion, increased tourism and enhancing the communities quality of life.
- Effectively coordinate all public resources to produce a sustaining positive business development climate.
- Create a unique awareness of Pima County through branding to increase business and leisure travel.
- Develop a more comprehensive marketing plan in partnership with Visit Tucson with the following initiatives: increase Mexican tourism to the attractions, create a destination special event department in Tucson, develop a marketing assistance grant program for the area attractions, assist in the development of new air routes to Tucson, and increase the number of film and video production utilizing Pima County as their base shooting and production headquarters.
- Increase cultural and heritage awareness of Pima County.
- Develop optional use concepts for County land for Pima County Fairgrounds, Leased Property Attractions and environmental friendly businesses.
- Develop a partnership approach to County Involvement in all public and private organizations involved in economic and tourism development.
- Increase the number of special events and revenue producing activities at Kino Sports Complex.

The department and its programs are funded by both public and private funds in partnership with its community outside agencies, the City of Tucson, Southern Arizona Attractions Alliance, Arizona Office of Tourism, Arizona Commerce Authority and the Metropolitan Tucson Convention and Visitors Bureau.

Tourism Impacts and Drivers on the Region

Tourism is one of the region's positive and pure industries. The outside visitor contributes to an increase in the bed tax, which bolsters the revenue to the region without the associated burden of population growth. It is important to understand key drivers to the region as a foundational source for generating tourism such as hotels and resorts, parks and attractions, and festivals and events.

Annual Visitors Statistics

Mexico Visitation and Spending in Pima County

Visitors from Mexico are a valued market segment for the tourism industry in the region. A 2007-08 study by the University of Arizona, The Mexican Visitors to Arizona, states that Mexican visitors' expenditures in Pima County increased 237% from $289 million to $976 million from 2001 to 2007-08. Pima County receives 36.3% of the total expenditures by Mexican visitors in Arizona. The number of border crossings from Mexico to Arizona increased from 22.91 million in 2001 to 24.02 million in 2007-08, an increase of 4.92%.

According to the study, 13.37 million Mexican visitor parties visit Arizona while 1,008,176 parties' final destination was Tucson. Average party size is 2.68 people. Therefore, Tucson received 2,701,912 Mexican visitors. The percentage of Mexican visitors who stayed overnight in Arizona rose from less than 4% to 16%. This increase is due largely to the increased percentage of visitors to Metro Tucson on overnight visits.

According to the same study, 98.9% of Arizona's Mexican visitors are from the state of Sonora. Shopping is still the primary reason for Mexican visitors to the US. Other reasons include visiting friends and family and work. The report attributes $976.4 million in expenditures to Mexican visitors to Pima County (5.2% of Pima County's taxable sales) and 2.3 million overnight visitors.

The Mexican Visitors to Arizona study was conducted by the University of Arizona Economic and Business Research Center, reported by the Eller College of Management and sponsored by the Arizona Office of Tourism, Phoenix Sky Harbor International Airport, Maricopa County DMOs, and the Metropolitan Tucson Convention and Visitors Bureau.

Convention and Visitors Bureau Statistics Performance Indicators and Measures

Table 6.5.g lists performance indicators and measures gathered by the Metropolitan Tucson Convention and Visitors Bureau (MTCVB) for 2011 and 2012. While occupancy, average daily rate, and revenue per room increase during this period, bookings and room nights, and number of participants slightly decreased. Although the economic impact slightly decreased, it is a strong indicator of the importance of visitors to the region with a total impact of $132.6 million in 2012.

TABLE 6.5.g: Performance Indicators and Measures

Performance Indicators	2011	2012
Occupancy	55.8%	57%
Average Daily Rate	$89.32	$90.00
Revenue Per Available Room	$49.88	$51.29
Pima County Bed Tax Collections	$6,386,614	Not Available
Performance Measures		
Bookings (Meetings & Sports)	362	327
Room Nights (Sports & meetings)	331,805	312,167
Delegates/Participants	176,297	171,702
Economic Impact	$145 million	$132.6 million

Source: MTCVB) Performance Indicators and Measures Data, 2013

Tourism Economics

Table 6.5.h provides direct and indirect impact of tourism in the region and relevant economic, demographic and socioeconomic data based on data available at the Arizona Office of Tourism. Table 6.5.i provides the same data for Pima County.

TABLE 6.5.h Tourism Economics Tucson and Southern Arizona 2012 (Pima, Cochise, Santa Cruz)

Categories	2012
Domestic Overnight Visitors per Year - Pima, Cochise, Santa Cruz counties	7.0 Million
Direct Travel Spending	$3.3 Billion
Tourism Jobs - Direct Employment	28,000
Direct Tax Receipts	$190 Million
Median Age of Visitors	46.5 years
Median Income of Visitors	$71,350
Average Length of Stay	4.6 Nights
Average Party Size	2.6 Persons

Source: Arizona Office of Tourism (AOT), Tourism Economics, Longwoods, VisaVue, Smith Travel Research and Dean Runyan Associates, 2012

According to AOT, top states of visitor origin include: Arizona, California and Washington and the top cities of visitor origin include: Phoenix, Los Angeles, Seattle, San Diego, and San Francisco and Bay area.[16]

[16] AOT/Dean Runyan Associates 2012

TABLE 6.5.i: Tourism Economics Pima County 2012 (Includes Tucson)

Categories	2012
Direct Travel Spending	$2.665 Billion
Tourism Jobs - Direct Employment	22,340
Direct Tax Receipts	$150.5 Million

Source: Arizona Office of Tourism (AOT), Tourism Economics, Longwoods, VisaVue, Smith Travel Research and Dean Runyan Associates, 2012

According to Table 6.5.i, Pima County captured a substantial amount of the direct travel spending, direct employment and direct tax receipts.

TABLE 6.5.j: Hospitality Facts 2013

Category	2013
Lodging Properties within the Tucson City Limit	101 properties/10,112 rooms
Lodging properties within Pima County	169 properties/16,851 rooms
City Bed Tax	12.05% plus a $2 per room/ per night surcharge
County Bed Tax	12.05%
Oro Valley Bed Tax	14.05%

Source: MTCVB and AOT, 2013

TABLE 6.5.k: Average Visitor Travel Party Spending Per Night 2013

Category	2013
Lodging	$167.78
Food & Beverage	$125.59
Entertainment	$74.09
Local Transportation	$26.25
Retail shopping	$130.68
Other	$8.09
Total Spending	**$532.48**

Source: Strongpoint Research, MTCVB Visitor Survey (page 26) November 2012.

Convention and Visitors Bureau Statistics by Type of Event

Table 6.5.l shows number of visitors attracted to the region via major annual conferences, conventions and other events by source.

TABLE 6.5.1: Convention and Visitors Bureau Statistics by Type of Event 2013

Conference Name	Total Visitors	Source
Tucson Rodeo Parade	200,000	Tucson Rodeo
Fourth Avenue Street Fair	200,000	Fourth Avenue Merchant Association
Tucson Meet Yourself	100,000	Tucson Meet Yourself
Tucson Festival of Books	100,000	University of Arizona
Tucson Gem and Mineral Show	55,000	Visit Tucson [17]
Tucson Rodeo/ La Fiesta de los Vaqueros	55,000	Tucson Rodeo
Jehovah's Witness Convention	46,900	Visit Tucson
El Tour de Tucson	39,000	El Tour de Tucson
TAR Soccer Shotout	18,000	TAR Soccer Shotout
Tucson Invitational Games	11,500	Tucson Invitational Games
Mariachi Conference	9-10,000	La Frontera

Source: Various sources as indicated in table.

[17] Most recent estimate based on 2007 Economic Impact Study. More current data is not available.

Film Performance Indicators

Table 6.53.5 includes film industry performance indicators for 2011 and 2012 based on MTCVB data. As provided in this table, there was an increase in production dates and direct spending from 2011 to 2012.

TABLE 6.41.5: Film Performance Indicators

Category	2011	2012
Definite Projects- Southern Arizona	62	56
Production Days- Southern Arizona	240	260
Direct Spending- Southern Arizona	$5.9 million	*$17.8 million

Source: MTCVB Performance Data 2011 and 2012

Impact of Mexican Visitors

Visit Tucson, with visitor centers in Hermosillo and Ciudad Obregon, is the only Convention and Visitors Bureau (CVB) in Arizona with two or more centers in Mexico. More than 9,000 metro Tucson hotel and resort reservations were booked through those centers in 2012 and it's anticipated that number will grow with the fall 2013 implementation of a new hotel reservations system on Vamos a Tucson.

Visit Tucson's marketing of the region to potential visitors augments Pima County's programs to enhance trade and transportation infrastructure between the County and Mexico.

Quarterly Lodging Taxes Generated

The following tables show quarterly lodging taxes generated from 2009 to 2012 in Pima County.

TABLE 6.5.m: Quarterly Lodging Taxes

Lodging Categories	2009	2010	2011	2012
Lodging	$8,527,245	$8,866,733	$8,881,639	$9,018,718
City $2 Night Surcharge	$3,136,969	$3,490,597	$3,540,089	$3,463,577

Source: MTCVB, 2013

TABLE 6.5.n: Quarterly Lodging Taxes

Fiscal Year	Hotel Excise Tax (1)	Rental Vehicle Surcharges (2)	Recreational Vehicle Tax (3)
2002-03	$ 2,536	$ 1,436	$ 195
2003-04	2,717	1,277	209
2004-05	2,885	1,595	200
2005-06	5,212	1,589	214
2006-07	7,796	1,357	210
2007-08	6,901	1,732	222
2008-09	5,628	1,389	159
2009-10	5,637	1,521	181
2010-11	5,887	1,538	165
2011-12	6,626	1,464	146

Source: Pima County Finance and Risk Management Department, 2013

Notes:

(1) Tax increased from 1% to 2% January 1, 1997; the additional 1% can only be used for County sports facilities. In January of 2006, the tax increased from 2% to 6%, of which only 34% can be used for sports facilities.

(2) Car rental surcharges increased from $2.50 to $3.50 per rental contract July 1, 1996. Usage is restricted to County sports facilities.

(3) Recreational vehicle taxes apply at the rate of $0.50 per vehicle per night and became effective July 1, 1997. Usage of this tax is limited to athletic activities.

TABLE 6.5.m: Quarterly Lodging Taxes

Fiscal Year	Total Pima Unincorporated Hotel/Motel Tax Revenue Reported By AZ Dept. of Revenue	Total Pima Unincorporated Hotel/Motel Tax Revenue	MTCVB Distribution	Stadium Distribution	Econ Dev Distribution
FY2008/09	6,700,310.59	6,700,941.98	3,350,471.03	2,278,320.25	1,072,150.70
FY2009/10	5,637,658.37	5,637,026.98	2,818,513.50	1,916,589.19	901,924.29
FY2010/11	5,590,967.70	5,590,967.70	2,795,483.87	1,900,929.04	894,554.79
FY2011/12	6,311,777.52	6,626,373.57	3,313,186.70	2,303,302.42	1,009,884.45
FY2012/13	6,030,599.89	6,030,599.89	3,015,299.87	2,050,404.04	964,895.98

Source: Pima County Finance and Risk Management Department, 2013

Heritage Tourism Opportunities

Tourism activity that is, or can be, aligned to physical or intangible heritage includes: built structures and surrounds; cultural landscapes; historic sites, areas and precincts; ruins, major preserved archaeological sites; sites associated with mining, industrial, scientific and agricultural heritage; sites of important events and commemorations; collections that house or collectively promote objects of heritage significance (museums, tours, trails and festivals); created landscapes (botanic and public gardens); and history, traditions, culture, iconography and performances typical of a locale.

Heritage tourism also encompasses "intangible heritage" which includes: oral traditions, languages, rituals and beliefs; social practices, knowledge, human activities, multicultural interactions, and stories and histories that shape the essence and character of a host community.

Heritage tourism occupies a significant proportion of the 'cultural tourism' spectrum, and while it often overlaps with and links to other tourism product, the historic or human dimensions considerably inform and shape all parts of the spectrum. In this sense, heritage provides an 'overarching' component or common thread for many tourism products in a county or region.

This section identifies existing opportunities for heritage tourism that currently support the long-range viability of the county and region as well as available funding programs, financial mechanisms and/or partnerships that may support these enterprises.

Major heritage sites in the area include:

San Xavier del Bac Mission

Mission San Xavier del Bac was founded in 1692 by a Jesuit missionary, Father Eusebio Francisco Kino. It was then that he became the first non-Indian to visit the village of Wa:k, or "Bac," as he wrote it. A part of the Tohono O'odham Reservation, San Xavier offers a window into the regions past.

Juan Bautista de Anza National Historic Trail

The Juan Bautista de Anza National Historic Trails encapsulates the Spanish and Mexican history and culture of the American Southwest. The Anza Trail is a 1,200-mile marked route, beginning in Southern Arizona. It memorializes the route established over two centuries ago by Juan Bautista de Anza II, Captain of the Presidio of Tubac in Sonora (now Southern Arizona). This intrepid explorer led an expedition to scout a new overland route to northern California and established the Presidio at San Francisco.

Arizona History Museum/Arizona Historical Society

Established by an Act of the First Territorial Legislature on November 7, 1864, the Arizona Historical Society (AHS) is Arizona's oldest historical agency. Architects of the Territory's code of laws realized they were making history and that it was important to preserve a record of their activities. One of their earliest actions was to create the means for documenting the past and recording contemporary events as they unfolded. This became the Arizona Historical Society, formed to collect and preserve "all facts relating to the history of this Territory."

Today, AHS serves as the steward of state history, fulfilling its mission to collect, preserve, interpret, and disseminate the history of Arizona and the West. Collections, housed in AHS museum facilities throughout the state, number in excess of three million objects. The Society's artifact and manuscript holdings offer unrivaled opportunities for public programming, educational outreach, and exhibitions, as well as academic and community-based research.

AHS collections not only provide premier resources for recounting Arizona's past, but are invaluable tools for promoting public understanding of contemporary issues such as water availability, immigration, free trade, mining, ranching and agribusiness, the defense industry, cultural diversity, and urban development and revitalization.

The Arizona Historical Society — through its exhibits, programs, publications, and outreach — informs and inspires people of all ages by reminding them of the boldness and daring spirit that characterized countless individuals, past and present, who have made Arizona their home.

Arizona State Museum (Tucson)

The Arizona State Museum is the oldest and largest anthropology museum in the Southwest, established in 1893 by the Arizona Territorial Legislature. Arizona State Museum's collections and experts are among the world's most significant resources for the study of southwestern cultures. Located in the University of Arizona campus, The Arizona State Museum attracted 20,000 visitors in 2012. The Museum:

- Is the state's official permitting agency for archaeological and paleontological projects across the state.
- Serves as the state's official archaeological repository and is the largest/busiest non-federal intake facility in the country.
- Administers the Arizona Antiquities Act and assists state and federal agencies in enforcing related legislation.
- Is the University of Arizona's anthropology museum and is one of the oldest research units on the campus.
- Hosts researchers from around the world who use the collections to expand the frontiers of knowledge in archaeology, ethnology, and ethno-history.
- Is an affiliate of the Smithsonian.
- Holds a comprehensive collection of American Indian basketry, totaling 25,000+ woven pieces of rare and outstanding baskets, sandals, cradle boards, mats, cordage, and preserved fibers representing every indigenous basket-making culture in North America.
- Holds the world's largest whole-vessel collection of Southwest Indian pottery (20,000+ specimens).
- Cares for more than 3 million objects, including more than 300,000 catalogued archaeological artifacts, 40,000 ethnographic artifacts, 500,000 photographic negatives and original prints, 90,000 volumes of rare and hard-to-find titles, 6,000 maps, 1,500 linear feet of archival documents, and more than 1,000 sound recordings.
- Curates the artifacts used by pioneering archaeologists to define the Mogollon and Hohokam cultures, as well as the Salado phenomenon.
- Holds one of the nation's top Navajo textile collections that includes some of the earliest and most rare examples of this type of weaving, including one of the largest Navajo rugs ever woven.
- Holds one of the largest collections of Casas Grandes pottery in any museum outside of Mexico.
- Holds one of the largest collections of Seri material in the U.S.
- Has more than 500 outstanding examples of Mexican folk masks from the renowned Cordry Collection.
- Holds the archives, papers and original field notes and drawings of SW anthropology giants such as Emil Haury, Grenville Goodwin, Edward Spicer, Clara Lee Tanner, and others.

- Has more than 4,000 comparative vertebrate skeletons in the Stanley J. Olsen Laboratory of Zoo-archaeology.

Tohono O'Odham National Cultural Center and Museum

The Cultural Center & Museum is working to instill pride by creating a permanent tribal institution to protect and preserve O'odham "jewe c himdag". Working with elders, the Cultural Center & Museum promotes understanding and respect of O'odham "himdag" through educational programs and public outreach. It also includes an extensive collection of Tohono O'odham art.

Marana Heritage River Park

Marana Heritage River Park is west of the Interstate 10 on Tangerine Farms Loop Road and south of Gladden Farms. Last year, the Town of Marana council adopted a budget authorization for the 2014 fiscal year, which will allow for the Parks and Recreation department to begin on the first modules. One of the focus areas is Heritage Farm, which will be built to celebrate the culture of farming in Marana.

The farm currently has a community garden and a demonstration garden. The gardens are an area for residents to learn about Marana's farm heritage through planting, working and eating the locally grown food. Looking to the future, the department would want commercial farming, retail and a farmer's market in the area. The second focus area is Heritage Park where a heritage themed splash pad, Ramada and access area would be built.

The last focus area is Heritage Ranch, which is meant to bring different regional areas to the community. The ranch will have two arenas, each 150 by 300 feet that will hold different sporting events celebrating the regions heritage. The area will include lights, speakers, concessions stands, restrooms, a maintenance facility, stalls for the horse, parking, landscaping and the use of a utility line. The estimated cost is $7.9 million and if approved would open in summer 2015.

La Fiesta de los Vaqueros (Tucson Rodeo)

The first La Fiesta de los Vaqueros (Celebration of the Cowboys) in 1925 touted three days of events and competition. Today, the event has grown to a nine-day celebration centered on the Tucson Rodeo, one of the top 25 professional rodeos in North America and takes place in mid Febraury every year. Current and former Professional Rodeo Cowboys Association (PRCA) world champions are featured in each Tucson Rodeo. The entry list for Tucson could be the Who's Who' of pro rodeo. Approximately 11,000 fans gather for this event each year.

Santa Cruz Valley Heritage Alliance

Heritage tourism focuses on promoting the people, cultures, and unique sites and attractions that make up Pima County. Millions of tourists travel throughout the world seeking to learn about the history of specific regions. The Santa Cruz Valley Heritage Alliance is in place to advocate for Tucson and southern Arizona to be designated as a national heritage area. Earning such a designation would make this region more attractive to travelers seeking this type of experience. The Santa Cruz Valley Heritage Alliance and Visit Tucson promote the following heritage experiences identified by the Alliance:

1. **Sky Islands and Desert Seas**: Sky islands are forested mountain ranges separated from each other by basins and valleys (seas) of desert and grasslands. The Sky Island region of southeastern Arizona, southwestern New Mexico, northeastern Sonora and northwestern Chihuahua has a globally unprecedented array of northern and southern plant and animal species.
2. **Streams in the desert**: The Santa Cruz River and its tributaries have supported humans and wildlife in the desert for thousands of years.
3. **Bird habitats and migration routes**: Pima County is one of the major bird migration routes in the western U.S.
4. **Native American lifeways**: Southern Arizona is one of the longest-inhabited places in North America and is home to two Native American tribes.
5. **Desert farming**: People have farmed in Pima County for four millennia and constructed canals to irrigate fields in the same locations for the past 3,500 years.
6. **Ranching traditions**: The high desert grasslands of southern Arizona facilitates ranching, which has profoundly shaped the region's cultural and natural landscape.
7. **Spanish & Mexican frontier**: Beginning in the 1680s, the Santa Cruz Valley was part of the northern frontier of New Spain, where Spanish colonists, soldiers and missionaries interacted with local Native Americans
8. **Mining booms:** Ghost towns and old mines throughout the region are visible reminders of mining booms and busts over several centuries.
9. **U.S. Military Posts on the Mexico border**: The operations and posts of the U.S. military are an important part of the history of southern Arizona.
10. **U.S.-Mexico Border Culture**: The Santa Cruz Valley spans the border between the United States and Mexico, where residents of this region find their lives are entwined with people on both sides of the border via family ties, economic interaction, or common history.

Increasing the emphasis on heritage tourism would bring additional visitors and their economic impact to Pima County. Visit Tucson and the Santa Cruz Valley Heritage Alliance will continue their collaboration to market the region's unique heritage to potential visitors.

Medical/Holistic Healing Destination Tourism Opportunities

Historically, the healing power of the sun had made our region a Mecca for holistic healing. Miraval, Canyon Ranch, the University of Arizona Center for Integrative Medicine attract people from all over the world. Medical/holistic health tourism opportunities in the county and region are identified in this section.

Destination Spas

Pima County has two of the world's top destination spas in Canyon Ranch and Miraval. Affluent customers travel to Tucson from throughout the world to partake in programs ranging on average between four and 10 days. Typically, the further the distance traveled, the longer the stay.

Both spas offer consultants who help customers package the experiences they want. High-end resort accommodations are combined with spa, fitness, health and wellness, nutrition education and food tailored to a healthy lifestyle. Destination spas differentiate Tucson. Many cities have stellar resorts with upscale resort spas. Destination spas, however, attract extremely affluent visitors who patronize them multiple times per year including celebrities like Oprah Winfrey. These visits provide rejuvenation and a rededication to a healthy lifestyle. On average, destination spa customers spend considerably more than do typical resort customers.

Developing nonstop flights to Tucson from New York, Boston, Atlanta and other East coast cities would help attract additional customers to Canyon Ranch and Miraval. Canyon Ranch has established resorts in Lenox, Mass., and in Miami to make it more convenient for its customers to engage in their programs.

Canyon Ranch

Canyon Ranch is more than a place. It's a state of mind and a way of life. For more than 30 years, Canyon Ranch has been empowering people to live healthier, longer, more joyful lives through fitness, nutrition, stress management and integrative wellness. Located on more than 150 acres in the iconic Sonoran Desert of Southern Arizona, Canyon Ranch was once the heart of a large, working cattle ranch, and, then from the '30s through the '70s, a rustic guest ranch. Today, the ranch is a world-class destination health spa resort featuring healthy gourmet cuisine & wellness programs.

Miraval

Miraval is a top-rated destination retreat - a resort, an award-winning spa, and a great getaway. Situated in the warm shade of Santa Catalina Mountains in northern Tucson, Arizona on 400 acres of idyllic land, Miraval is a place dedicated to opening eyes, minds, and hearts. For nearly two decades, Miraval has built its programming around the concept of Life in Balance™.

Mental and Behavioral Health

Sierra Tucson is recognized internationally for its customized treatments for addictions, pain management, and mental and behavioral health disorders.

Sierra Tucson

Sierra Tucson is an internationally renowned treatment facility that has helped thousands of people rebuild their lives over the past 30 years. Sierra Tucson is multi-licensed by the state of Arizona, and dually accredited by The Joint Commission as both a hospital and behavioral health care facility that is known and respected as a leader in the treatment of addictions and behavioral disorders. With a clinical staff-to-patient ratio of 2.5:1, the professional, experienced, and caring staff develop individualized treatment plans for each patient. Progressive, effective therapies help every individual discover, confront, and learn to manage the issues at the very heart of human behavior and disease.

Cottonwood de Tucson

Cottonwood de Tucson was founded in 1987 by a group of recovering individuals. Their vision was to create a world-class treatment center in Tucson, and then use that model in building other centers in key areas around the country. The treatment model they developed was welcomed and needed in the late 1980's and Cottonwood de Tucson experienced rapid growth and success. Cottonwood de Tucson was followed by Cottonwood de Albuquerque and Cottonwood de Austin in short order.

In April 1993 the Welch family purchased the controlling interest in Cottonwood de Tucson. By early 1993 Cottonwood began to emerge with an innovative dual-diagnosis treatment model that to this day continues to set them apart from other treatment facilities. Key behavioral health staff began arriving, a multi-disciplinary team was assembled, and slowly Cottonwood de Tucson began to be recognized as an addiction rehab treatment facility that married the best-of-the-best treatment modalities.

Medical Services

Pima County has a plethora of outstanding health-care systems and facilities led by the University of Arizona Medical Center. The University of Arizona Health System delivers world-class care in nearly every conceivable area of medicine. The quality of their care and facilities attracts customers from throughout Arizona, the southwestern United States and Mexico.

A trend that has emerged recently, however, is that U.S. citizens in need of surgery and other expensive care and procedures are traveling to Mexico for these services because medical charges are so much less there. These trends will need to be followed to determine how much growth can be expected in Pima County related to medical tourism.

University of Arizona Medical Center

The University of Arizona Medical Center-University Campus was ranked among the nation's best hospitals for the care of older adults and as high performing in 11 other medical specialties in U.S. News & World Report's Best Hospitals list of 2012-13. With an aging U.S. population, the University's medical center will attract people and their friends and family to Tucson.

University of Arizona Cancer Center

Founded in 1976 as a Division of The University of Arizona's College of Medicine, the University of Arizona Cancer Center is a Center of Excellence in the Arizona Health Sciences Center. In 1990, The University of Arizona Cancer Center was designated as one of the first comprehensive cancer centers by the National Cancer Institute (NCI). The University of Arizona Cancer Center is the only comprehensive cancer center headquartered in Arizona.

The primary responsibility of an NCI comprehensive cancer center is to conduct research that will lead to the reduction of cancer morbidity and mortality. A framework for this research consists of focusing upon the molecular and cellular mechanisms of oncogenesis.

Molecular mechanisms emphasize genetic, epigenetic, and signaling mechanisms, while cellular mechanisms emphasize the biology of invasion and metastasis, as well as stromal-cellular interactions. With the primacy of this research mission in mind, the research programs and core services constitute a bedrock of The University of Arizona Cancer Center.

The translational research performed by University of Arizona Cancer Center investigators has resulted in the development of at least 17 bio-technology and pharmaceutical companies, mostly in Arizona. Biotechnology companies include: Ventana Medical Systems, Cancer Technologies, DeMetrix, and ImaRx. Pharmaceutical companies focused on cancer treatment include: AmpliMed, Arizona Cancer Therapeutics, Cylene, Montigen Pharmaceuticals, ProLx, Sanofi Aventis, and Targeted Cancer Therapeutics, LLC. Pharmaceutical companies focused on cancer prevention include: Cancer Prevention Pharmaceuticals, Clinuvel, Niadyne, Surface Safe, Topical Technologies, Inc., and PHusis Therapeutics.

A study performed by the Eller College of Management at the University of Arizona in 2008 suggests that the impact of a sustained $70 million in annual research funding through The University of Arizona Cancer Center includes: 5,180 jobs, $237 million in wages, $795 million in gross sales, $7 million in city and county revenues, and $10.5 million in state revenues.

University of Arizona Server Heart Center

The Sarver Heart Center, established in 1986, is dedicated to the prevention and treatment of cardiovascular disease via the academic pillars of research (discovering knowledge), education (sharing knowledge) and patient care (applying knowledge).

The Arizona Center for Integrative Medicine

The Arizona Center for Integrative Medicine at the University of Arizona College of Medicine is leading the transformation of health care by creating, educating, and actively supporting a community that embodies the philosophy and practice of healing-oriented medicine, addressing mind, body and spirit. The Center was founded in 1994 by Dr. Andrew Weil, and has focused its efforts in three domains: *education, clinical care and research*. The Center was built upon the premise that the best way to change a field is to educate the most gifted professionals and place them in settings where they can, in turn, teach others.

Older Adults Communities & Aging in Place

The climate of the region as played a key role in attracting retirees to the region. In addition, the existing County population is aging. According the the Arizona Department of Health Services Pima County age cohorts, in 2008, approximately 32 percent of the total County population consisted of persons 50 years or older. New innovative ways of building communities.

According to the Pima Association of Governments (PAG) the median age in Pima County was 32.8 in 1990 (slightly below the national average), 35.7 in 2000 and was estimated as 36.7 in 2007. The slow rise of the median age is due to the aging of the Baby Boomers, not to any massive influx of seniors. Although most of metropolitan Tucson's growth over the next 20 years will be driven by working age people moving here for employment opportunities, the current aging population and those moving here to retire seeking a better climate provide an opportunity to reevaluate the need create older adult communities that are based on healthy communities principles.

Need to add from PCOA study and economic impact of seniors

Geo-Tourism and Visitors

The US definition of geotourism was heavily influenced by the National Geographic Society, which defines geotourism as tourism that sustains or enhances the geographical character of a place – its environment, culture, aesthetics, heritage, and the well-being of its residents. The concept of Geographical sustainable tourism with coining the word Geo-tourism, was introduced publicly in a 2002 report by the Travel Industry Association of America (as of 2009 this organization adapted name to U.S. Travel Association) and National Geographic Traveler magazine.

The National Geographic's Geo-tourism (NGG-tourism program) is "best practice" tourism that sustains, or even enhances, the geographical character of a place, such as its culture, environment, heritage, and the well-being of its residents.

National Geographic's Geo-tourism program incorporates sustainability principles, but in addition to its do-no-harm ethic, focuses on the place as a whole. The idea of enhancement allows for development based on character of place, rather than standardized international branding, and generic architecture, food, and so on. Best practices of Geotourism include:

- **Integrity of place:** Enhance geographical character by developing and improving it in ways distinctive to the local, reflective of its natural and cultural heritage, so as to encourage market differentiation and cultural pride.

- **International codes:** Adhere to the principles embodied in the World Tourism Organization's Global Code of Ethics for Tourism and the Principles of the Cultural Tourism Charter established by the International Council on Monuments and Sites (ICOMOS).

- **Market selectivity:** Encourage growth in tourism market segments most likely to appreciate, respect, and disseminate information about the distinctive assets of the locale.

- **Market diversity:** Encourage a full range of appropriate food and lodging facilities, so as to appeal to the entire demographic spectrum of the geotourism market and so maximize economic resiliency over both the short and long term.

- **Tourist satisfaction:** Ensure that satisfied, excited geotourists bring new vacation stories home and encourage friends to experience the same thing, thus providing continuing demand for the destination.

- **Community involvement:** Base tourism on community resources to the extent possible, encouraging local small businesses and civic groups to build partnerships to promote and provide a distinctive, honest visitor experience and market their locales effectively. Help businesses develop approaches to tourism that build on the area's nature, history and culture, including food and drink, artisanry, performance arts, etc.

- **Community benefit:** Encourage micro- to medium-size enterprises and tourism business strategies that emphasize economic and social benefits to involved communities, especially poverty alleviation, with clear communication of the destination stewardship policies required to maintain those benefits.

- **Protection and enhancement of destination appeal:** Encourage businesses to sustain natural habitats, heritage sites, aesthetic appeal, and local culture. Prevent degradation by keeping volumes of tourists within maximum acceptable limits. Seek business models that can operate profitably within those limits. Use persuasion, incentives, and legal enforcement as needed.

- **Land use:** Anticipate development pressures and apply techniques to prevent undesired overdevelopment and degradation. Contain resort and vacation-home sprawl, so as to retain a diversity of natural and scenic environments and ensure continued resident access to scenic features and enviroments. Encourage major self-contained tourism attractions, such as large-scale theme parks and convention centers unrelated to character of place, to be sited in needier locations with no significant ecological, scenic, or cultural assets.

- **Conservation of resources:** Encourage businesses to minimize water pollution, solid waste, energy consumption, water usage, landscaping chemicals, and overly bright nighttime lighting. Advertise these measures in a way that attracts the large, environmentally sympathetic tourist market.

- **Planning:** Recognize and respect immediate economic needs without sacrificing long-term character and the geotourism potential of the destination. Where tourism attracts in-migration of workers, develop new communities that themselves constitute a destination enhancement. Strive to diversify the economy. Adopt public strategies for mitigating practices that are incompatible with geotourism and damaging to the image of the destination.

- **Interactive interpretation:** Engage both visitors and hosts in learning about the place. Encourage residents to promote the natural and cultural heritage of their communities so tourists gain a richer experience and residents develop pride in their locales.

Geotourism Opportunities in the Pima County Region

Many people choose to live in and visit Pima County due to its climate, natural Sonoran Desert beauty and opportunities to explore the region in a variety of active and passive ways. Pima County's Loop Trail, which traverses the periphery of Tucson is mostly complete and offers cyclists a scenic recreational experience that they can handle at their own pace. Sabino and Madera canyons, Catalina State Park, Mount Lemmon, Organ Pipe National Monument and many other areas throughout Pima County, allow residents and visitors to hike, cycle, mountain bike, rock climb, engage in birding and photography, and more.

Pima County's past emphasis on acquiring and preserving land in its natural state is paying off now, and will in the future, by providing lands for residents and visitors to explore. One such preserve is Saguaro National Park, which contains the world's largest and most dense forests of saguaro cacti. Such acquisition and preservation policies are also an economic strategy for a region largely dependant on its natural beauty and uniqueness attracting travelers the world over. This section identifies regional geotourism jewels within the region.

Visit Tucson's fall 2012 visitor inquiry study found that 60% of metro Tucson visitors engage in outdoor desert activities, while more than half took in western culture and attractions (55%) and caves and desert attractions (54%).

The region's weather, unique Sonoran Desert beauty and wide-open spaces differentiate Pima County from many areas of the world. Preserving scenic lands and enhancing geotourism-related attractions and activities will enhance residents' quality of life, while helping to attract more visitors and their expenditures to Pima County.

Summerhaven/Mount Lemmon/Ski Valley

With 150,00 visitors in 2011, a trip up to Summerhaven/Mount Lemmon/Ski Valley offers an incredible educational experience for those interested in its numerous climatic zones. "During World War II, a group of skiers made up of Lowell Thomas, a noted journalist and adventurer, a local forest ranger, and many Davis Monthan serviceman which included Thomas' son, later a Governor of Alaska, and Art Devlin, a future Olympic ski jumper and Television commentator, formed the Saguaro Ski Club. The well-known cartoonist, Paul Webb, created a patch and membership certificates for the club showing a skier wrapped around a saguaro cactus.

Thomas sent honorary memberships to dozens of friends, famous personalities around the world, making membership a tongue in cheek must. A ski gala was held that first year at the Arizona Inn with many of Thomas' friends in attendance. A Forest Service lease was obtained, an old model "A" with its tires removed propelled a rope tow and Mt. Lemmon Ski Valley had its beginning."[18]

18 http://www.skithelemmon.com - The official Web Site of Mt. Lemmon Ski Valley

Biosphere 2

Attracting 100,000 visitors annually, Biosphere 2 is nestled in the Sonoran Desert in Pima County. The University of Arizona assumed ownership of Biosphere 2 in July 2011. A generous gift from the Philecology Foundation helps fund Biosphere 2 operations and some research projects. Other grants and awards, primarily from the National Science Foundation, also support research activities. In the 1800s, the Biosphere 2 property was part of the Samaniego CDO Ranch. After several changes of ownership, it became a conference center in the 1960s and 1970s, first for Motorola, then for The University of Arizona. Space Biospheres Ventures bought the property in 1984 and began construction of the current facility in 1986 to research and develop self-sustaining space-colonization technology.

Two missions, between 1991 and 1994, sealed Biospherians inside the glass enclosure to measure survivability. Behind this highly public exercise was useful research that helped further ecological understanding. Several first-person accounts have been published by former crew members that provide different perspectives on the experiment.

In 1994, Decisions Investments Corporation assumed control of the property and Columbia University managed it from 1996-2003 and reconfigured the structure for a different mode of scientific research, including a study on the effects of carbon dioxide on plants. Columbia also built classrooms and housing for college students of earth systems science.The property was sold June 4, 2007, to CDO Ranching and its development partners who then leased the property to UA from 2007-2011.

The enclosure now serves as a tool to support research already underway by UA scientists. As a laboratory for large-scale projects, such as the Landscape Evolution Observatory (LEO), the university's stewardship of Biosphere 2 will allow the UA to perform key experiments aimed at quantifying some of the consequences of global climate change. [19]

Sabino Canyon

Of all the natural attractions in and around Tucson, Sabino Canyon is certainly the most popular. This large chasm in the Santa Catalina Mountains is one of the most unique Southwestern desert canyons. Sabino Canyon is a natural desert oasis located in the Coronado National Forest and is home to spectacular desert landscapes and abundant wildlife.

[19] University of Arizona Science Biosphere 2 http://b2science.org/who/history

Saguaro National Park (East and West)

Tucson, Arizona is home to the nation's largest cacti. The giant saguaro is the universal symbol of the American west. These majestic plants, found only in a small portion of the United States, are protected by Saguaro National Park, to the east and west of the modern city of Tucson. Here you have a chance to see these enormous cacti, silhouetted by the beauty of a magnificent desert sunset.

Catalina State Park

Located about 12 miles north of the city on Arizona Highway 77 (Oracle Road), this park affords the best views of the canyons and domes of the Catalina Mountains in the area that was formerly known as Romero Ranch. The park attracts visitors interested in hiking, bird watching and wild habitat in its lush Sonoran desert setting.

Colossal Cave Mountain Park

Attracting 38,000 visitors in 2012, the Colossal Cave Mountain Park invites visitors to explore the different sections of this site, experience the area's history, learn about the area's abundant wildlife, enjoy tours of the caves and learn about its bat population.

Tohono Chul

The Tohono Chul Park enriches people's lives by connecting them with the wonders of nature, art and culture in the Sonoran Desert and inspiring wise stewardship of the natural world. The Hummingbird garden is planted with salvia, desert honeysuckle, desert willow and many other hummingbird-friendly plants. Hummingbirds are drawn to sweet, flute-shaped flowers, which are perfect for the birds' long, narrow beaks. You're sure to see a "hummer" flitting from flower to flower.

The hummingbirds most frequently seen in this garden are the black-chinned, a summer visitor, and the Costa's and Anna's, which have taken up permanent residence in the park. Migrants you may see include broad-billed, rufous, and occasionally calliopes and Allen's. These hummingbirds, which migrate from colder climates, may be seen drinking their fill from the salvia, which blooms through the winter season.

Technology and Innovation Impacting Tourism Opportunities

Travel is one of the areas that has been most affected by consumer technology in recent years. Travelers research potential vacation destinations online and typically consult multiple websites in doing so. The percentage of travel booked online continues to grow steadily as more Americans become outfitted and familiar with technology.

Technological advances allow cities and regions to dispel misperceptions, such as through the use of video to educate consumers that there is much more to Pima County than saguaros and 100-degree days. Tucson's rapidly-developing downtown, unique events like the All Souls Procession, Tucson Festival of Books and the Tucson Gem, Mineral & Fossil Showcase can be shown and described in detail to show visitors what they can experience.

Visit Tucson implemented a new "app" in 2012-13 to allow consumers to download the Tucson Attractions Passport, which features offers to numerous Pima County attractions. While this passport is still printed and sold, offering it online allows tech-savvy consumers to research the attractions, purchase the passport online and redeem the coupons electronically at attractions.

Visit Tucson introduced a new website in fall 2012 and is "re-skinning" the website in fall 2013 to reflect its new "Free Yourself" brand. Video and new content are added almost daily to make it a living, breathing reflection of Pima County's tourism attributes, which evolves continually. Visit Tucson is also unveiled its new mobile website in 2013 to better promote metro Tucson.

With the advent of social media, it's vital that Visit Tucson continually update and communicate with potential travelers via Facebook, Twitter, Instagram and other emerging channels. Having a stagnant presence on these mediums drives customers away. Social media is a way to engage customers and let them know about deals, upcoming events and new attractions and offerings.

Travelers are also visiting consumer-review websites for "credible" reviews about places to visit, along with the hotels, restaurants, attractions and other vacation elements that are important to them. Visit Tucson advertises on sites, such as Trip Advisor, and monitors many others to get a feel for potential visitors' reactions to Tucson. Visit Tucson also engages in search engine optimization to ensure consumers entering Tucson travel keywords into Google and other search engines can easily find www.visittucson.org.

Another way technology is impacting tourism is through online travel agencies (OTAs), such as Travelocity, Expedia, Kayak and more. These sites allow individual consumers to compare prices for airline travel, hotel stays and rental cars and then book the offer that best suits them. Some OTAs are delving into attraction and event ticket packaging, as well. Visit Tucson and the Southern Arizona Attractions Alliance currently use aRes to market and sell attractions tickets and Visit Tucson uses aRes as its hotel booking engine on www.visittucson.org. Visit Tucson is working with attractions and hotels to get them to work together on additional packaging opportunities. Vamos a Tucson moved forward with Regatta, a new online booking platform, which will be used in the Vamos a Tucson visitor centers in Mexico to book hotel stays and, eventually, attractions tickets, as well.

Due to the speed of change related to technology, Pima County and Visit Tucson will need to stay on top of new travel-related technology trends to ensure the best possible customer experience related to researching and booking all aspects of travel within Pima County.

Aerospace Tourism Opportunities

Pima County has taken a leadership role in southern Arizona related to the aerospace industry by creating an aerospace and defense corridor initiative. This initiative will bring substantial transportation and infrastructure investment to the area containing Tucson International Airport, Davis-Monthan Air Force Base, Raytheon Missile Systems and Bombardier Aerospace. The County's intention is to retain and grow new high-technology aerospace and defense jobs in that region.

There is considerable travel associated with these industries, which could create the demand needed to support additional flights in and out of Tucson International Airport, along with business travel and meetings to support area hotels and resorts. Pima County also has top aerospace-related tourism attractions in the Pima Air & Space Museum, the Boneyard and Titan Missile Museum.

The Pima Air & Space Museum and the Boneyard

Located adjacent to Tucson International Airport, the Pima Air & Space Museum is one of the largest air and space museums in the world. It features more than 300 aircraft and spacecraft, including many of the most historically significant and technically-advanced craft ever produced.

The Boneyard

Pima Air & Space Museum offers bus tours of the 309th Aerospace Maintenance and Regeneration Group facility, also known as the "Boneyard." The Boneyard is an aerospace storage and maintenance facility housing hundreds of retired aircraft.

The Titan Missile Museum

The Titan Missile Museum, which is a preserved Titan II missile site, is a treasure for Pima County and southern Arizona. The museum educates visitors about the Cold War conflicts between the United States and the former Soviet Union and how technology was used by the United States to avoid nuclear war.

From a tourism perspective, it's imperative that these attractions be maintained and promoted to aid with attracting visitors to Pima County. A total of 37 percent of Tucson travelers visited an aircraft, astronomy or missile attraction, per Visit Tucson's fall 2012 visitor inquiry study. That same study found that "aircraft/missile" was the primary reason for recommending Tucson to other travelers for 7% of local visitors.

Sports Tourism Opportunities

Pima County has been the site of numerous national and international youth and amateur sports events through the years, and has been home also to professional baseball and, now, Major League Soccer spring training activities. Based on existing facilities throughout Pima County, Visit Tucson focuses on attracting youth and amateur soccer, baseball and swimming/diving events to the region. Visit Tucson has also worked with United States national governing bodies to bring in USA Swimming, Diving, Shooting, Volleyball and Wrestling activities.

Through the work of the Pima County Sports & Tourism Authority a study has been conducted to examine the types of venues needed to serve the local community, and that would also attract regional, national and international events in targeted sports. The results of that study can help guide land use as it relates to sports tourism for many years to come.

Kino Sports Complex

Pima County is in the midst of transforming the northern fields at Kino Sports Complex from baseball to soccer fields. This work includes transforming one field into a "pocket" stadium with grandstand seating to accommodate 3,000 spectators. This stadium and the surrounding facilities are being used by the FC Tucson, Arizona's Premier Development League franchise, and by Major League Soccer for its spring training matches. Youth and amateur lacrosse, field hockey, rugby and other field sports can be played

on these fields by local clubs and by national and international teams brought in for tournament competition.

The southern portion of Kino Sports Complex primarily hosts baseball events, including Tucson Invitational Games, which features more than 50 college baseball teams annually in January and February, and, occasionally by Korean professional baseball teams.

Kino Stadium, with a capacity of 11,500, was used through August 2013 by the Tucson Padres Triple-A baseball team and is used for other baseball and soccer activities, as well as concerts and other major events.

Cycling

Pima County's Loop Trail, with 100 miles of shared-use paths for visitors on foot, bikes, skates and horses, and the region's bike lanes, mountains, elevation and sunny year-round weather make it a haven for cyclists. Cycling is an amenity that is promoted heavily to potential visitors. Pima County is also involved with cycling events, such as **El Tour de Tucson** and the **Old Pueblo Grand Prix**, which attract competitive cyclists from throughout the world.

Tucson Trap and Skeet Club

Tucson Trap and Skeet Club is set to host several major shooting events each year: the Old Pueblo Skeet Open; the Winter Chain Trap Shoot; and the Satellite Spring Grand American.

New Tourism Opportunities

International Visitors

The biggest tourism opportunity for Pima County and the nation is increasing international travel from developing nations. Visit Tucson, the entity that serves as Pima County's tourism marketing organization, doesn't have the budget to market extensively in Brazil, China and India. However, the massive number of inhabitants in those nations, combined with increasing wealth, will lead to large influxes of visitors from those nations in coming decades.

It will be vital for Tucson to work with the Arizona Office of Tourism and other convention and visitors bureaus (CVBs) throughout Arizona to market collectively the state and its many experiences to these potential travelers to ensure Arizona receives its market share of them.

Visit Tucson invests a considerable amount in marketing metro Tucson to potential visitors in Mexico. Visit Tucson has visitor centers in Hermosillo and Ciudad Obregon, Mexico, and engages in a substantial

amount of consumer advertising and promotions to drive visitors to Tucson to shop, for sports events and to enjoy the region's attractions. The most recent study on the travel-related impacts of Mexico on Arizona, found that Mexico visitors spend $976 million annually in Pima County. There is much more than can be done to facilitate travel and trade between Mexico and Pima County.

Growing Tourism

Cities and regions that are top tourism destinations are strategic in their approach to growing the industry. They invest in tourism marketing and meetings recruitment through their CVBs. They invest in tourism-related capital projects and infrastructure that provide recreational, entertainment and culture venues and opportunities for residents and visitors alike. They also invest in sports events and festivals that attract visitors regionally, nationally and internationally to their areas. When done properly, a strong public vision and limited public investment, can spur millions of investment in capital projects and events that add to residents' quality of life, while attracting targeted visitors.

Meetings

In 2008, hotels and resorts throughout Pima County had a year-round occupancy of approximately 68 percent. In 2013, year-round occupancy is at 56 percent. The majority of the decrease is attributed to a drop in meetings activity throughout the United States. Decreases were recorded in the number of meetings, number of people attending meetings, length of stay and per-day spending. Pima County's resorts rely heavily on meetings for their survival.

The meetings industry is recovering slowly, but Arizona, including Pima County, is behind pace. Tucson is hampered by a lack of nonstop flights, along with low resort rates and other concessions offered to meeting planners to get them to book meetings. Visit Tucson is increasing its investment in attracting meetings to Tucson and will continue to focus heavily on this aspect of tourism.

Strategies that May Help Grow Tourism

- Discount Kino Sports Complex Use Fees. Discount facility use or rental fees for the Kino Sports Complex by 25 percent if an event or activity guarantees at least $25,000 in hotel room rentals or meals and discount the use fee by 50 percent if the guaranteed amount is $50,000 or greater.
- Facilitate Amateur and Professional Soccer. Allocate $2 million from the Chicago White Sox settlement fund to make permanent soccer stadium improvements at the Kino Sports Complex.
- Finish and Enhance The Loop. Place priority capital funding on completing The Loop and enhancing the river park system to facilitate destination tourism.
- Expand Tourism Venues. Recommend bond fund public investments in tourism venues as shows in Table 6.5.o:

TABLE 6.5.o: Expand Tourism Venues Recommendation

Venue	Recommended Bond Fund
Arizona-Sonora Desert Museum Water Exhibit	$4,000,000
Pima Air and Space Museum Cold War Exhibit	$4,000,000
Pima Air and Space Museum Space Exploration Exhibit	$8,000,000
Tumamoc Hill Regional Visitors Center	$10,000,000
Tucson Children's Museum	$6,000,000
Tucson Museum of Art	$5,000,000
Total:	$37,000,000

Source: Visit Tucson, 2013

Metropolitan Tucson Convention Visitors Bureau (MTCVB)

The Metropolitan Tucson Convention & Visitors Bureau adopted a "doing business as (dba)" designation of Visit Tucson in June 2013. It's a 501(c)(6) nonprofit company with nearly 90 percent of its funding coming from bed tax invested by Pima County, City of Tucson and Town of Oro Valley.

Visit Tucson's mission is to drive economic development by connecting visitors with their ideal travel and meetings experiences in Tucson and southern Arizona. It accomplishes this through a variety of strategies and tactics employed by its many divisions, including: marketing; public relations; convention sales & services; travel industry sales; Mexico marketing; sports; film; partnership development; and visitor services.

Top opportunities for Visit Tucson to enhance economic development in Pima County include:

Branding: Visit Tucson conducted considerable research with local stakeholders and with Tucson visitors in top feeder markets to determine what sets Tucson apart from other potential vacation destinations. Those results, combined with other research about visitors' perceptions about the region were used to develop the "Free Yourself" travel branding campaign that was launched in June 2013. Visit Tucson will promote Pima County's geotourism, attractions, resorts, golf, dining and more as part of its new advertising campaign, which is launching in fall 2013. Top performing zip codes within Tucson's top feeder markets will be targeted.

Meetings: Visit Tucson is partnering with resorts and hotels throughout Pima County to attract more meetings activity. Meetings mean additional spending on group food and beverage, and meeting services, including audio visual and transportation for group excursions.

Mexico Marketing: Visit Tucson, with visitor centers in Hermosillo and Ciudad Obregon, is the only CVB in Arizona with two or more centers in Mexico. More than 9,000 metro Tucson hotel and resort reservations were booked through those centers in 2012 and it's anticipated that the number will grow with the fall 2013 implementation of a new hotel reservations system on Vamos a Tucson. Visit

Tucson's marketing of the region to potential visitors augments Pima County's programs to enhance trade and transportation infrastructure between the County and Mexico.

Sports: Visit Tucson is partnering with Pima County to bring in Major League Soccer teams for spring training activities at Kino Sports Complex in 2014 and beyond. Visit Tucson will also work with the County to evaluate future sports facilities that could serve residents while attracting regional, national and international events.

Film: After failing to pass statewide film incentive legislation, Visit Tucson is partnering with Pima County, City of Tucson, Old Tucson and other entities to explore the potential creation of regional incentives geared toward attracting television series. Television series typically spend several million dollars in the areas where they shoot during multiple-month timeframes.

Visit Tucson will continue to seek input from Pima County to ensure Visit Tucson's programs align with the County's economic development objectives.

6.6 Place-base Planning in the Economic Context

Figure 7 Place-based planning: cultural, heritage and environmental character as major economic development assets in the County and region.

In the past century, most plans determined where buildings could go based chiefly on what they were used for. A "Place-Base Planning" approach can better help shape a vibrant exurban, suburban, and urban areas of the county while meeting the challenges of and capitalizing on 21st century trends. Place-based planning is a way to shape the future by concentrating on the look and feel of places, their form and their character, their connectivity, instead of focusing only on conventional categories of land use.

Most places are made of neighborhoods, districts and corridors – and they will continue to be. Neighborhoods are places with a mix of homes and businesses that share a similar development pattern. Districts are single use areas like shopping centers or campuses where development patterns were created specifically for that use. Corridors are linear connections between neighborhoods created by road, rail, amenities and greenway connections. When examining the long range viability of this region and its economy it is worth examining the health of Pima County's economy with the following factors to measure its wealth: individual, financial, natural etc.

Place-based Cultural Tourism is based on the assumption that cultural travelers want to explore what makes a destination distinctive, authentic, and memorable. They want to experience the essence of the destination – its "place". Through experiencing "place", they are enriched – intellectually and emotionally. Of course, attractions are more than essential; they are critical. That said, attractions are *expressions* of a destination's culture; they are not its embodiment.[20]

In creating places, neighborhoods, districts or major activity nodes, and corridors, whether for cultural tourism or economic development, can have a better sense of place. Keeping this concept in mind, Pima

[20] **Place-based cultural tourism: a new planning paradigm** Steven Thorne, October 23, 2012

Prospers will identify county wide and area specific policy that will help strengthen the sense of place of each planning or character area.

Art Creating Place in the Region

Art is a major shaper of sense of place. A rich tri-cultural heritage, stemming from ancient Native American, Hispanic, and Old West traditions, has helped shape the Pima County region into a vibrant Southwest community. The deepest-running of these roots are those of the desert-dwelling Pima people, the first to inhabit the land that eventually became Pima County. The region is blessed with a long tradition of famous Southwestern artists depicting western and Native American interpretations of the area's heritage inspired by the history, lore and scenic quality and of our region.

Western Art

Ettore "Ted" DeGrazia (June 14, 1909 – September 17, 1982) was an American impressionist, painter, sculptor, composer, actor, director, designer, architect, jeweler, and lithographer. Described as "the world's most reproduced artist", DeGrazia is known for his colorful images of Native American children of the American Southwest and other Western scenes. DeGrazia also painted several series of exhibitions like the Papago Legends, Padre Kino, and Cabeza de Vaca. He was a graduate of the University of Arizona.

Artist Diana Madaras who says painting "fills me with joy" is equally well known for her bold, colorful artwork as for her generous charitable giving. Madaras owns two Southwest art galleries in Tucson, Arizona that feature her work exclusively, and is president of the nonprofit Art for Animals Foundation, a charity she founded in 1999 to help abused, injured and orphaned animals. Madaras is very active in community service and her Southwest art has benefited more than 100 charities.

Native American Art

Thousands of years ago, the Pima people planted the Santa Cruz River floodplains with crops like beans, squash and corn. Today, their Tucson-area descendants (the Tohono O'odham or "Desert People" and Akimel O'odham or "River People") are expert desert-dwellers who continue to grow native crops and harvest local bear grass, yucca, and devil's claw to create beautiful hand-woven basketry.

Arizona State Museum (ASM) is affiliated with the Smithsonian Institution and is the oldest, largest anthropology museum in the American Southwest, established in 1893. ASM introduces visitors to the native cultures of the American Southwest and is renowned for excellence in preserving, interpreting, and presenting the material culture of this region. The museum holds one of the nation's top Navajo textile collections, including one of the largest Navajo rugs ever woven, as well as the world's largest whole-vessel collection of Southwest Indian pottery (20,000 specimens), and more than 150,000 catalogued archaeological and ethnographic artifacts.

Mission San Xavier del Bac

Known as "The White Dove of the Desert," Mission San Xavier del Bac is located nine miles south of downtown Tucson in the Santa Cruz Valley on the Tohono O'odham Reservation. Acclaimed as the finest example of mission architecture in the United States, the San Xavier Mission was sited by the famed Jesuit missionary and explorer Father Eusebio Francisco Kino, who first visited Bac - "place where the water appears" - in 1692. The foundation for the first Bac church, located two miles north of the present Mission, was laid in 1700. The present church - an active parish - was built from 1783-1797.

Depiction of the Region in Books

The Pima County region has produced numerous famous authors. Some are included in the following list:

- Edward Abbey – author
- Jon Anderson - poet
- Michael Blake – author
- Charles Bowden – author
- Ray Bradbury – author
- Erskine Caldwell – playwright
- Max Cannon – author and creator of the comic strip Red Meat (comic)
- Mitch Cullin – author
- Charles G. Finney – author
- Barbara Kingsolver – novelist
- Joseph Wood Krutch – author
- Larry Mc. Murtry – author
- Tom Miller – travel writer
- Stacey Richter - author
- Richard Shelton - poet, author
- Leslie Marmon Silko – author
- Susan Sontag - author
- Luci Tapahonso - poet laureate of the Navajo Nation
- David Foster Wallace – author
- Peter Wild – poet, author, and Professor of English at the University of Arizona
- Ofelia Zepeda - poet laureate of Tucson, author

6.7 Fiscal Viability

The Fiscal Viability appendix is currently under construction and will be provided in appendix format.

Pima Prospers Comprehensive Plan

Appendix A: Background and Current Conditions Additional Maps

This section of Appendix A Includes Additional Maps Created as Part of the Countywide Inventory Not Currently Referenced in Appendix A

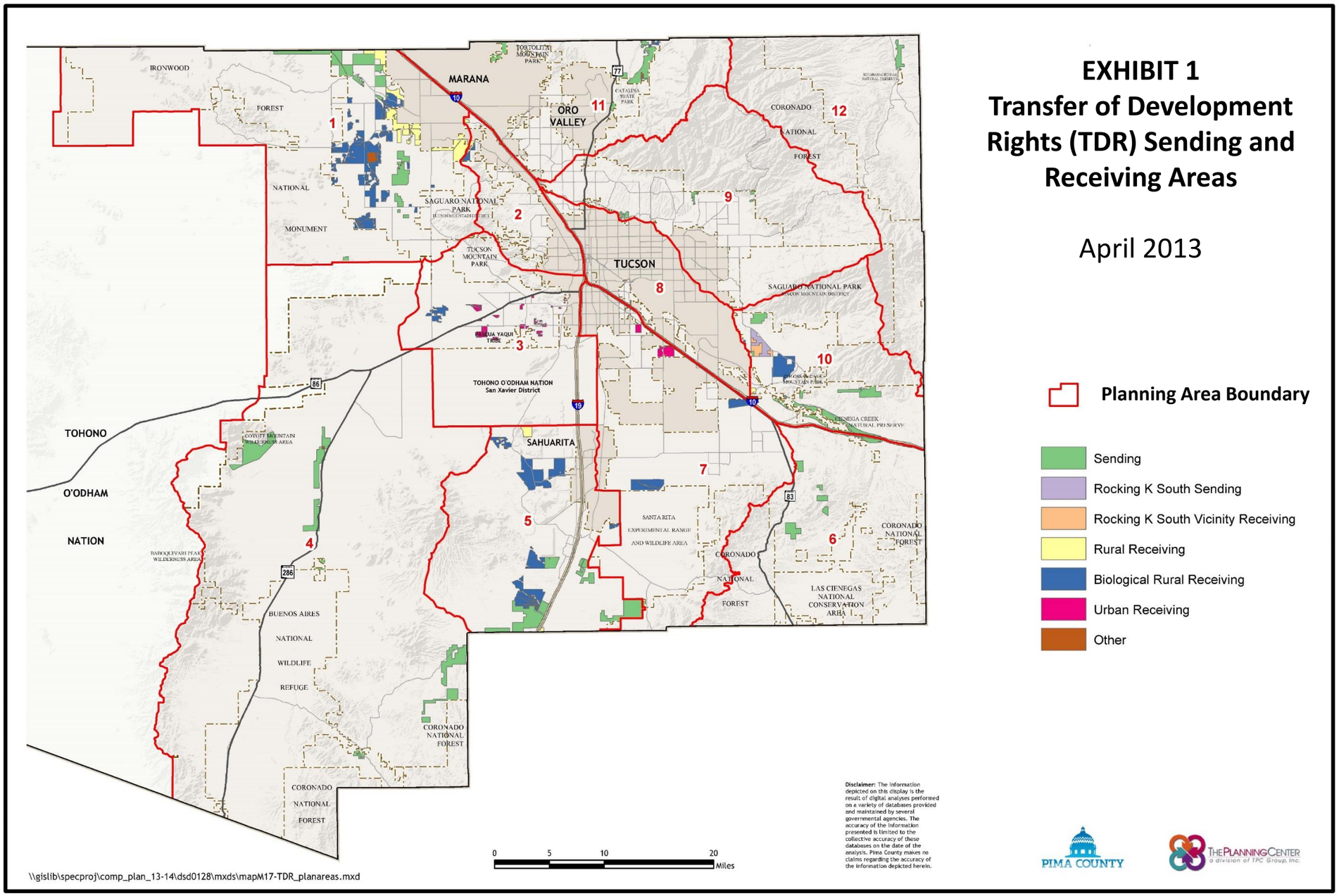


EXHIBIT 1
Transfer of Development Rights (TDR) Sending and Receiving Areas
April 2013
Planning Area Boundary
Sending
Rocking K South Sending
Rocking K South Vicinity Receiving
Rural Receiving
Biological Rural Receiving
Urban Receiving
Other
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
San Xavier District
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
1
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Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.
PIMA COUNTY
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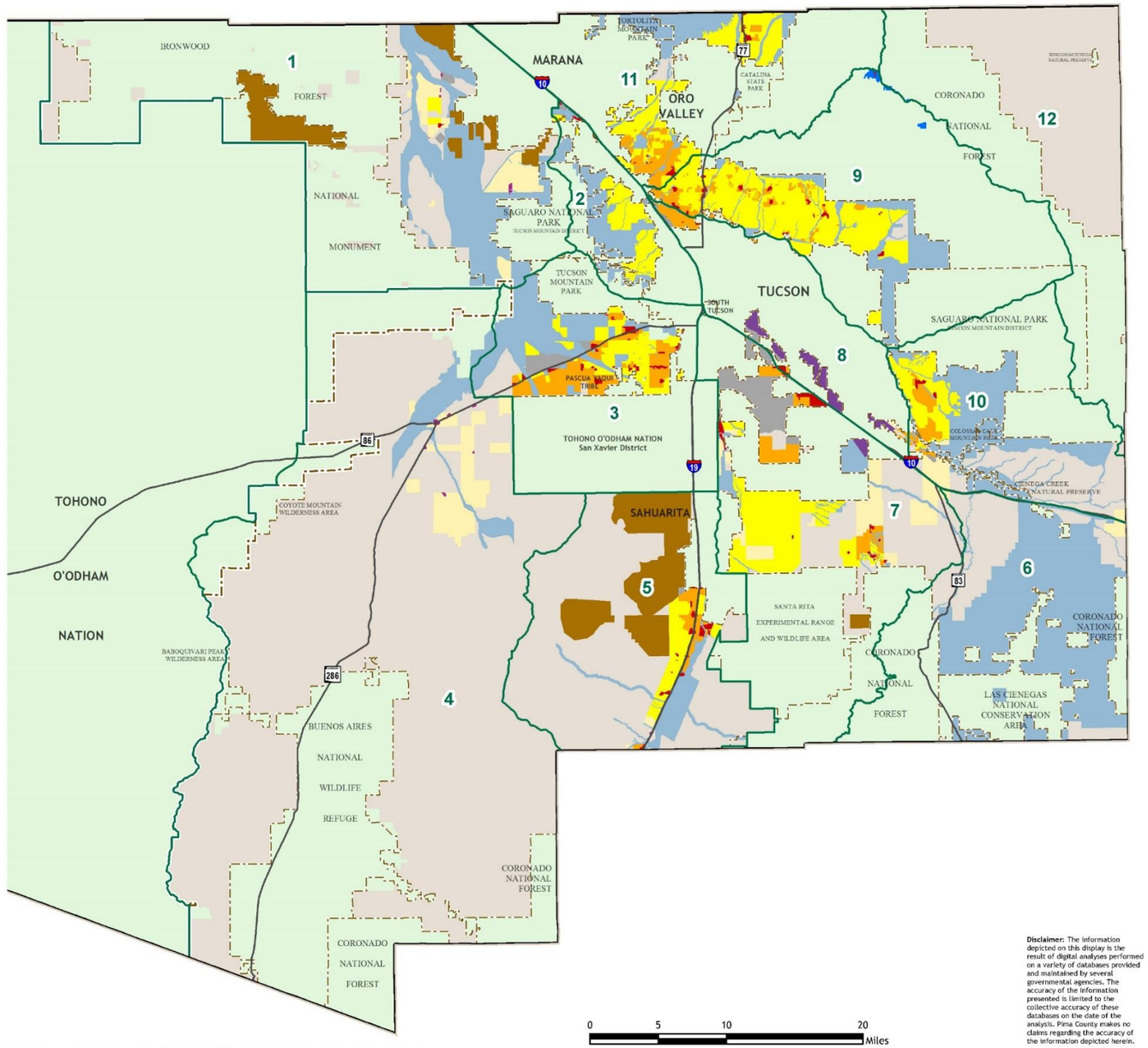

EXHIBIT 2.a
Planned Land Use

April 2013

Planning Area Boundary

- Activity Centers
- Medium/High Intensity Urban
- Low Intensity Urban
- Rural Forest Village
- Rural Activity Centers
- Medium Intensity Rural
- Low Intensity Rural
- Resource Transition
- Resource Productive
- Industrial
- Military
- Other

Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.

PIMA COUNTY

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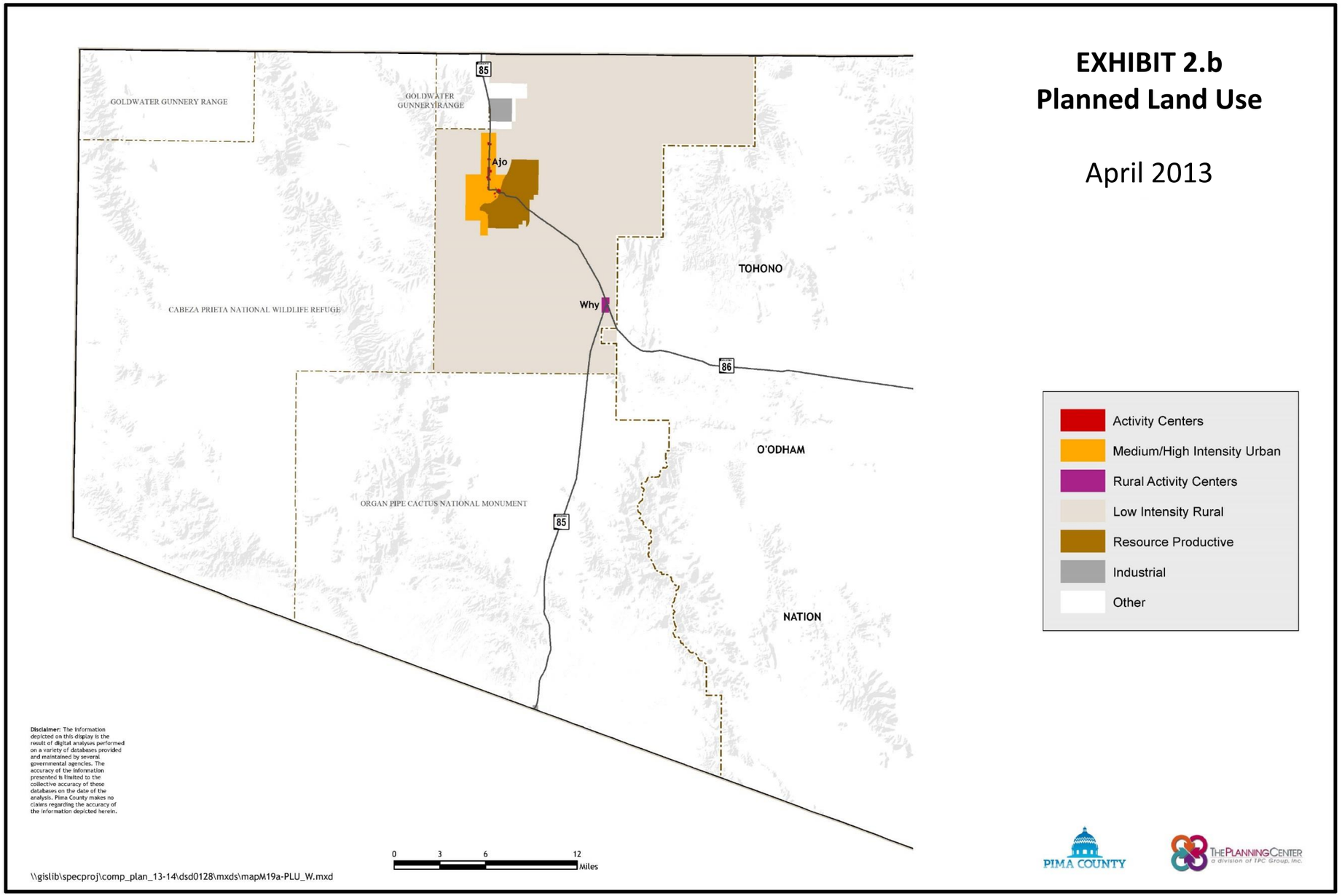
EXHIBIT 2.b
Planned Land Use
April 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
TOHONO
O'ODHAM
NATION
Ajo
Why
85
86
Activity Centers
Medium/High Intensity Urban
Rural Activity Centers
Low Intensity Rural
Resource Productive
Industrial
Other
Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.
0 3 6 12 Miles
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PIMA COUNTY
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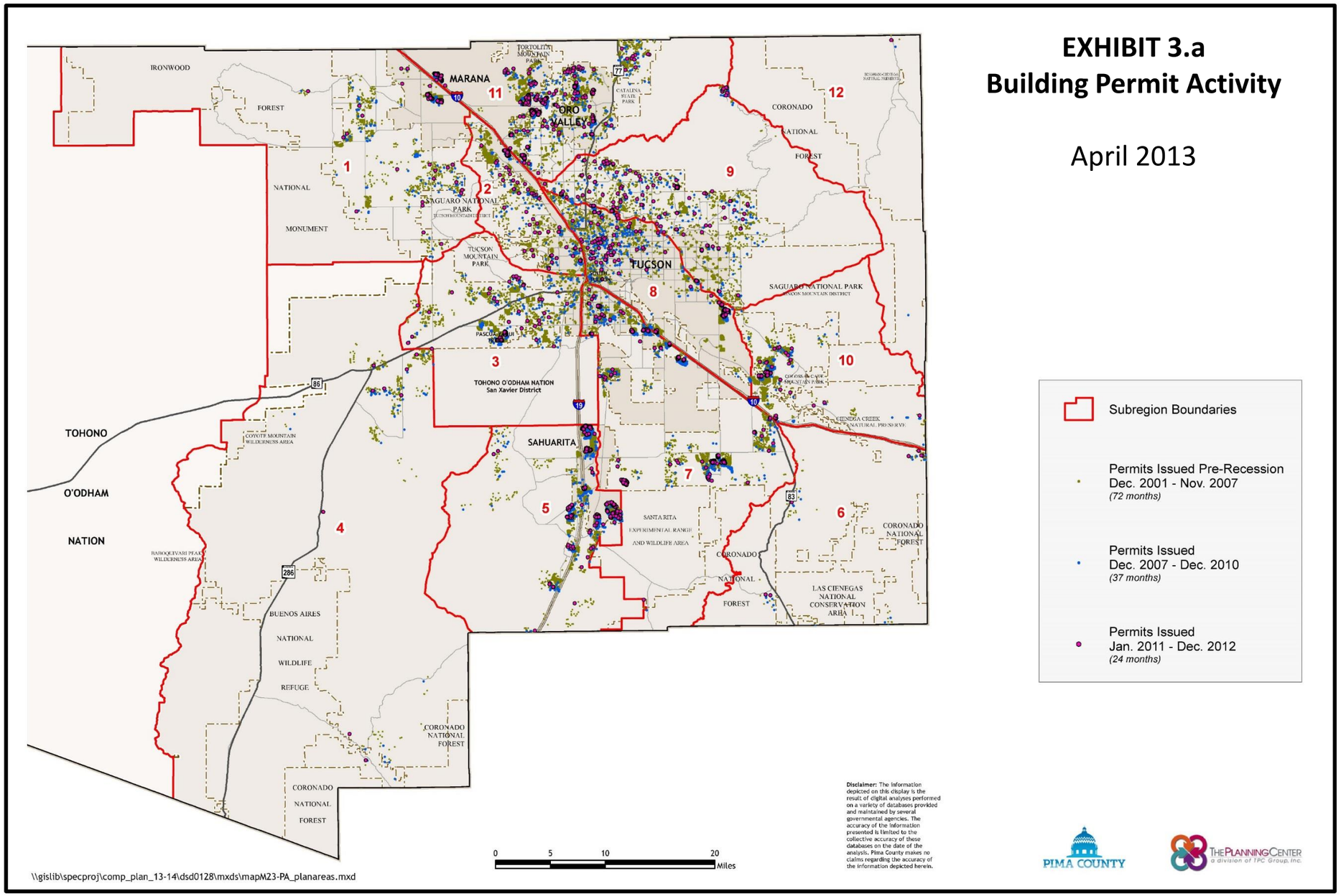
EXHIBIT 3.a
Building Permit Activity
April 2013
Subregion Boundaries
Permits Issued Pre-Recession
Dec. 2001 - Nov. 2007
(72 months)
Permits Issued
Dec. 2007 - Dec. 2010
(37 months)
Permits Issued
Jan. 2011 - Dec. 2012
(24 months)
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO
NATIONAL
FOREST
LAS CIENEGAS NATIONAL CONSERVATION AREA
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
TOHONO O'ODHAM NATION
1
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12
0 5 10 20 Miles
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PIMA COUNTY
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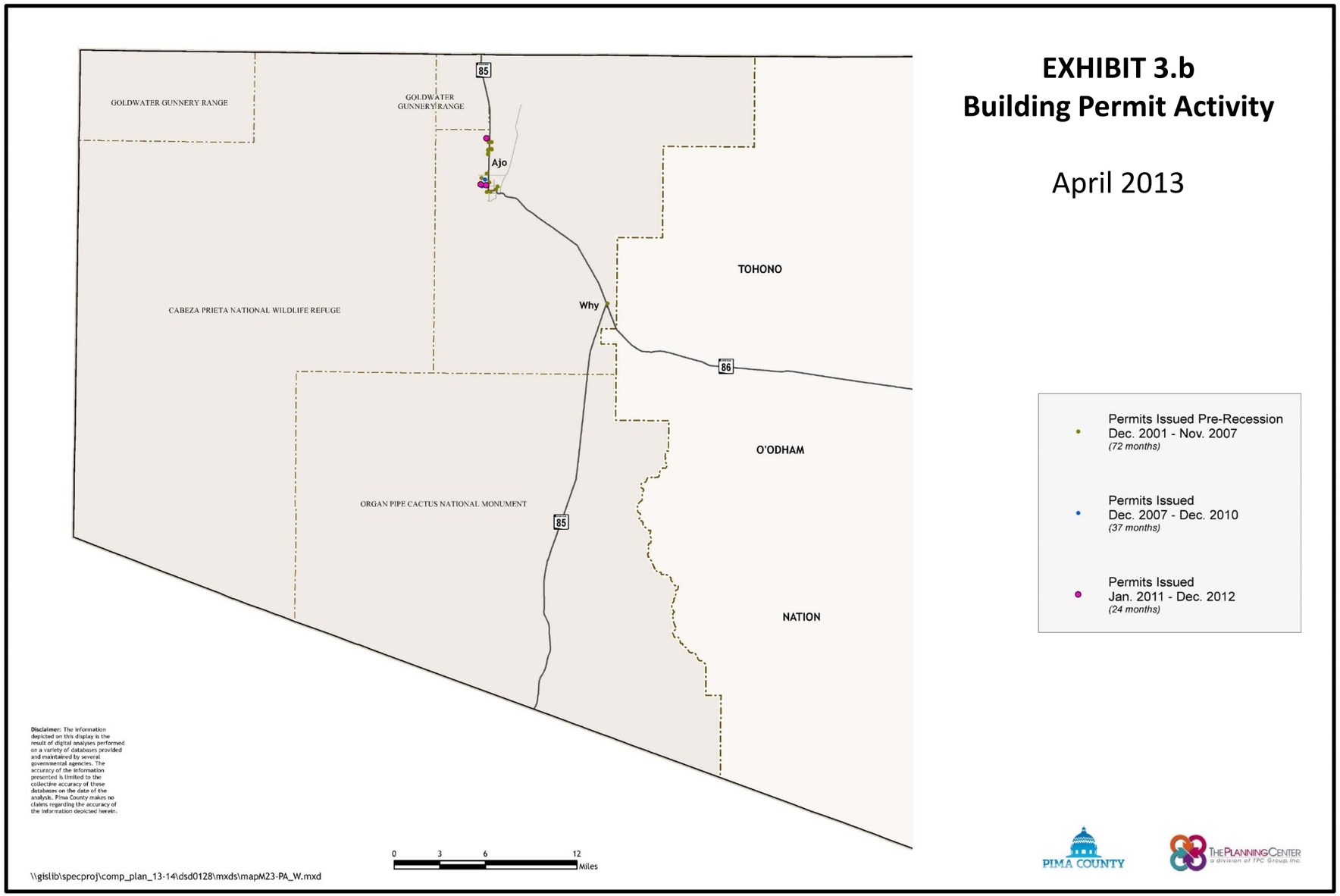
EXHIBIT 3.b
Building Permit Activity
April 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
TOHONO
O'ODHAM
NATION
Ajo
Why
85
86
85
Permits Issued Pre-Recession
Dec. 2001 - Nov. 2007
(72 months)
Permits Issued
Dec. 2007 - Dec. 2010
(37 months)
Permits Issued
Jan. 2011 - Dec. 2012
(24 months)
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0 3 6 12
Miles
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PIMA COUNTY
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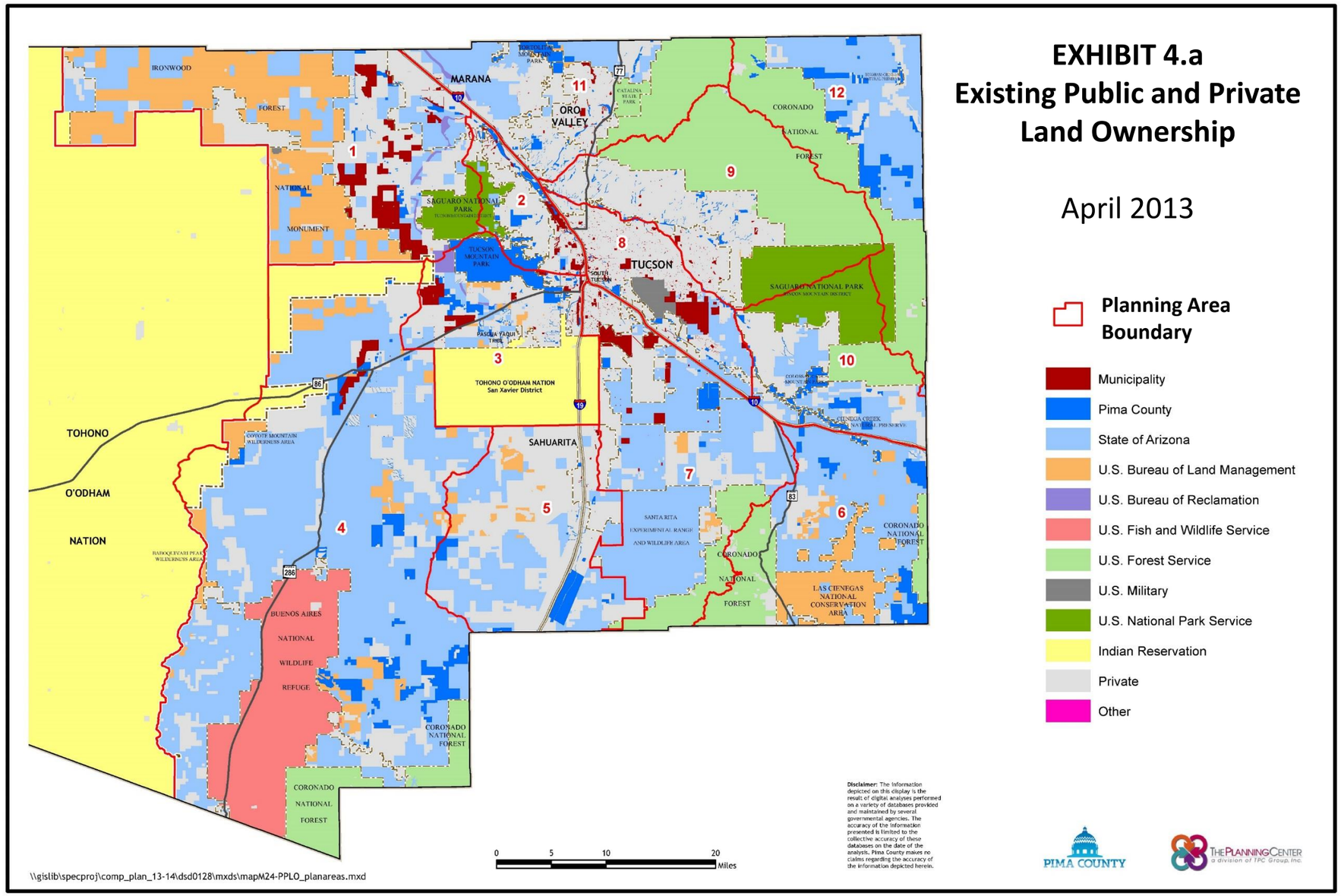
EXHIBIT 4.a
Existing Public and Private Land Ownership
April 2013
Planning Area Boundary
Municipality
Pima County
State of Arizona
U.S. Bureau of Land Management
U.S. Bureau of Reclamation
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Military
U.S. National Park Service
Indian Reservation
Private
Other
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
TOHONO O'ODHAM NATION
IRONWOOD FOREST NATIONAL MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
1
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0 5 10 20 Miles
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PIMA COUNTY
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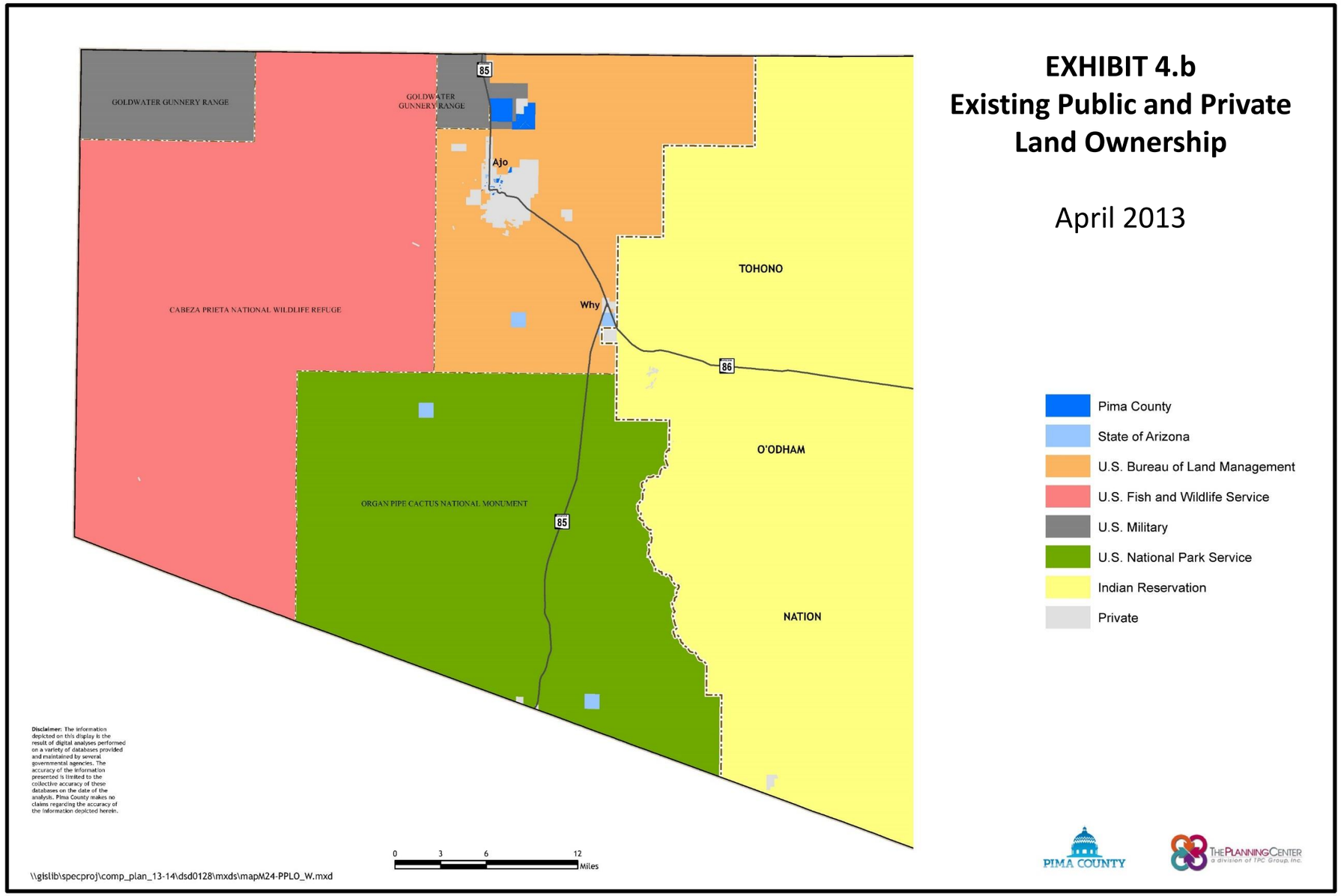
EXHIBIT 4.b
Existing Public and Private Land Ownership
April 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
Ajo
Why
85
86
85
TOHONO
O'ODHAM
NATION
Pima County
State of Arizona
U.S. Bureau of Land Management
U.S. Fish and Wildlife Service
U.S. Military
U.S. National Park Service
Indian Reservation
Private
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0 3 6 12 Miles
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PIMA COUNTY
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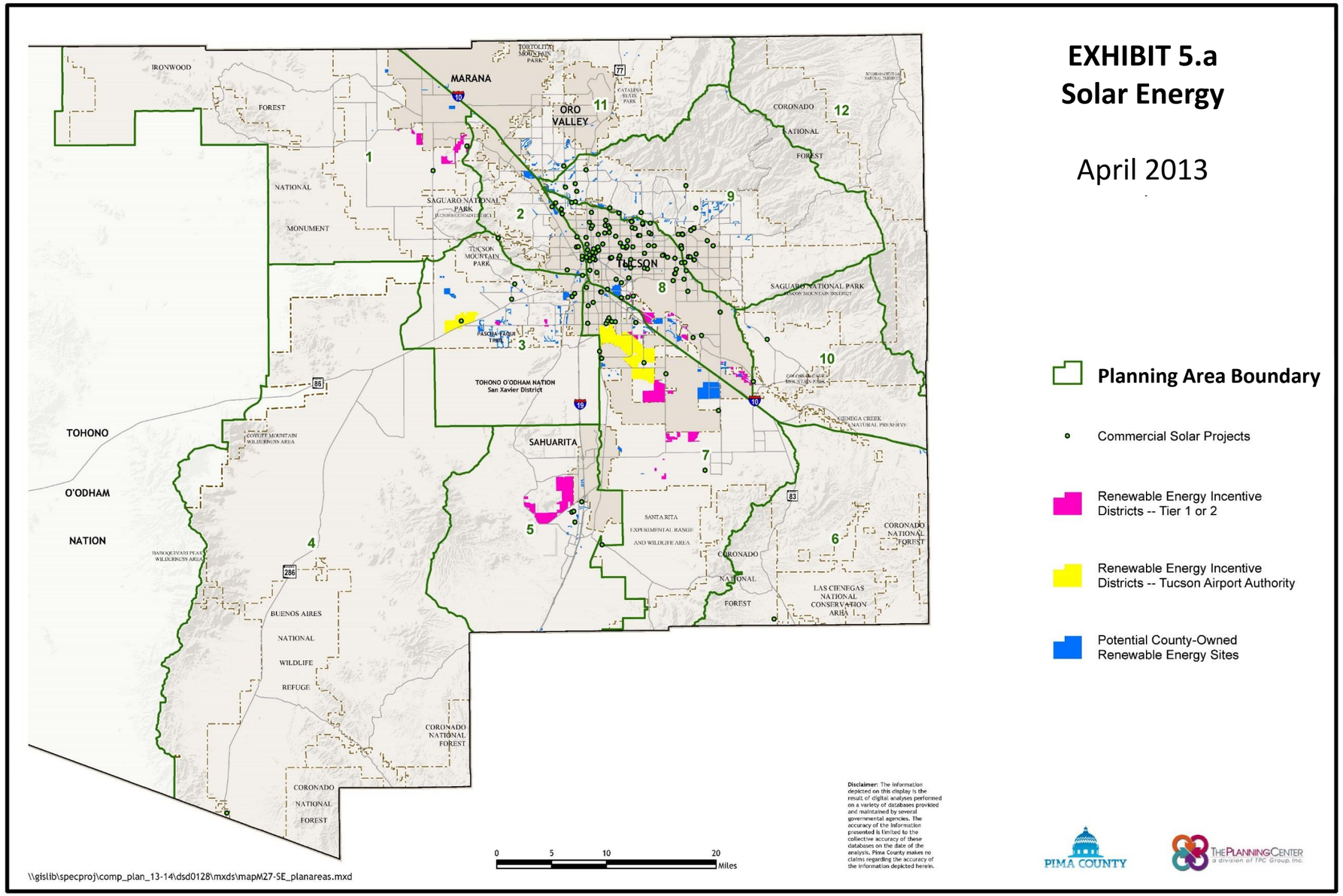
EXHIBIT 5.a
Solar Energy
April 2013
Planning Area Boundary
Commercial Solar Projects
Renewable Energy Incentive Districts -- Tier 1 or 2
Renewable Energy Incentive Districts -- Tucson Airport Authority
Potential County-Owned Renewable Energy Sites
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO
O'ODHAM
NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
TOHONO O'ODHAM NATION
San Xavier District
CORONADO
NATIONAL
FOREST
SAGUARO NATIONAL PARK
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
CORONADO NATIONAL FOREST
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Miles
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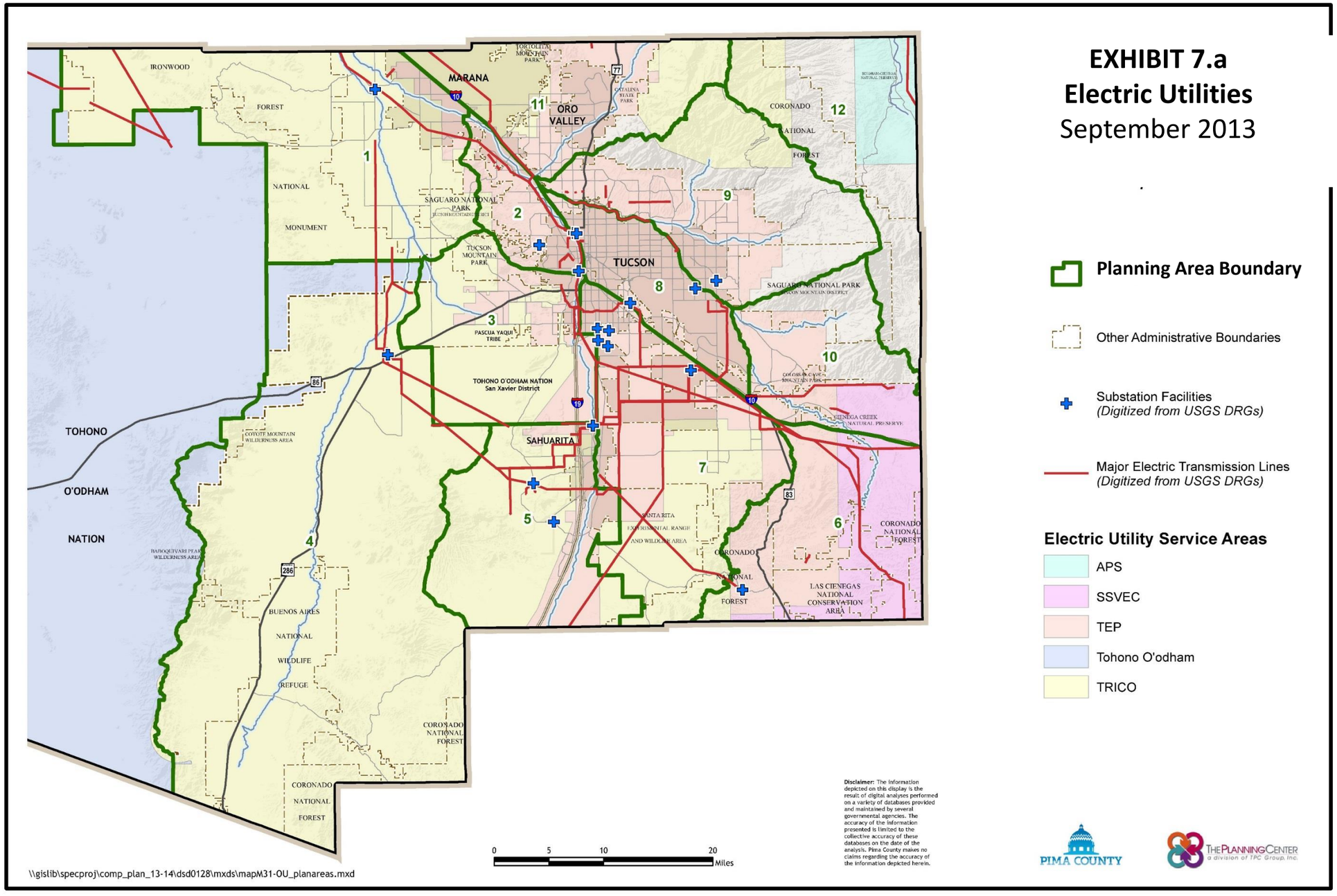
EXHIBIT 7.a
Electric Utilities
September 2013
Planning Area Boundary
Other Administrative Boundaries
Substation Facilities
(Digitized from USGS DRGs)
Major Electric Transmission Lines
(Digitized from USGS DRGs)
Electric Utility Service Areas
APS
SSVEC
TEP
Tohono O'odham
TRICO
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
TOHONO O'ODHAM NATION
IRONWOOD FOREST NATIONAL MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
CORONADO NATIONAL FOREST
BUENOS AIRES NATIONAL WILDLIFE REFUGE
LAS CIENEGAS NATIONAL CONSERVATION AREA
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0 5 10 20 Miles
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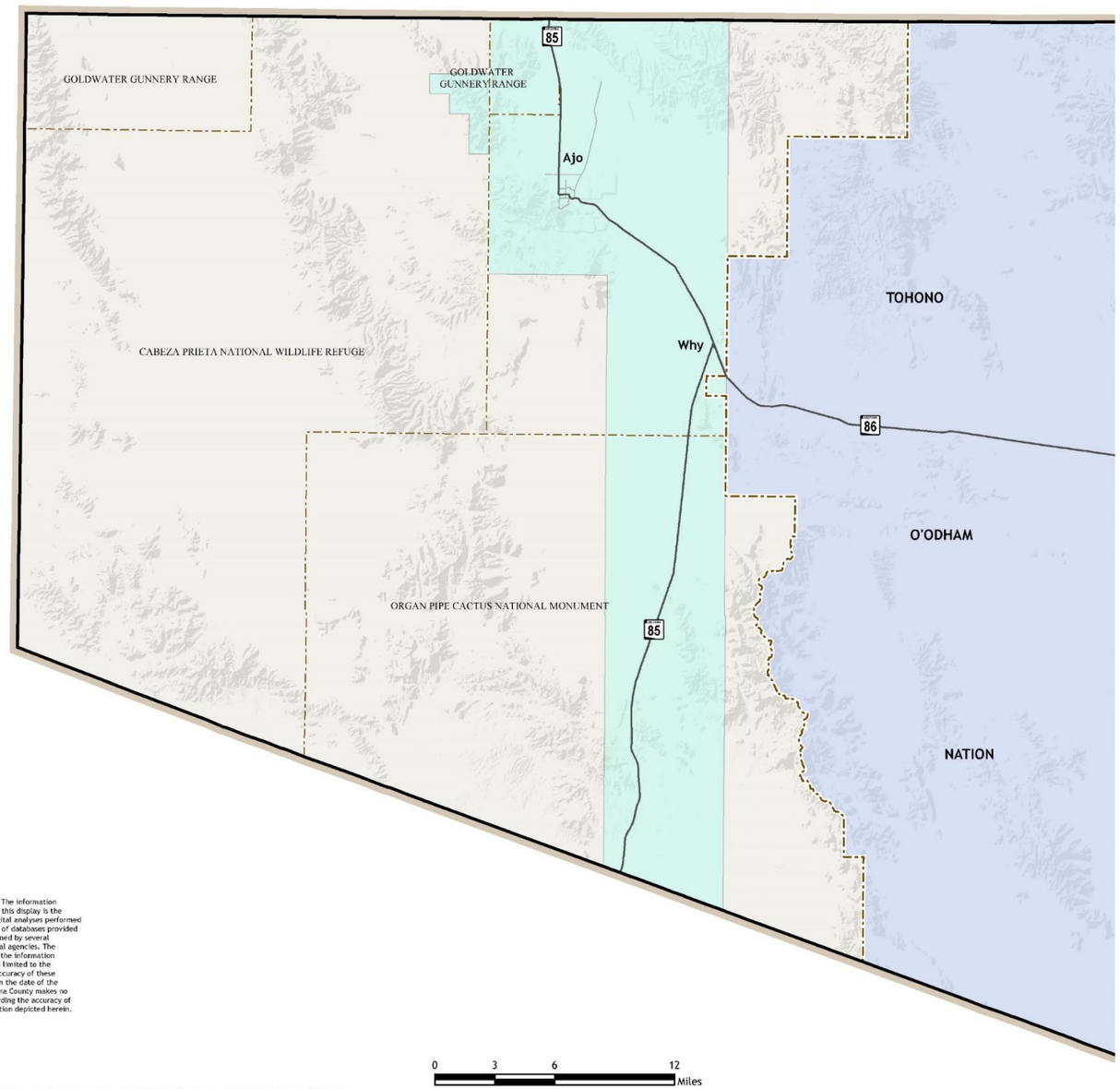

EXHIBIT 7.b
Electric Utilities

September 2013

Administrative Boundaries

Electric Utility Service Areas

APS

Tohono O'odham

PIMA COUNTY

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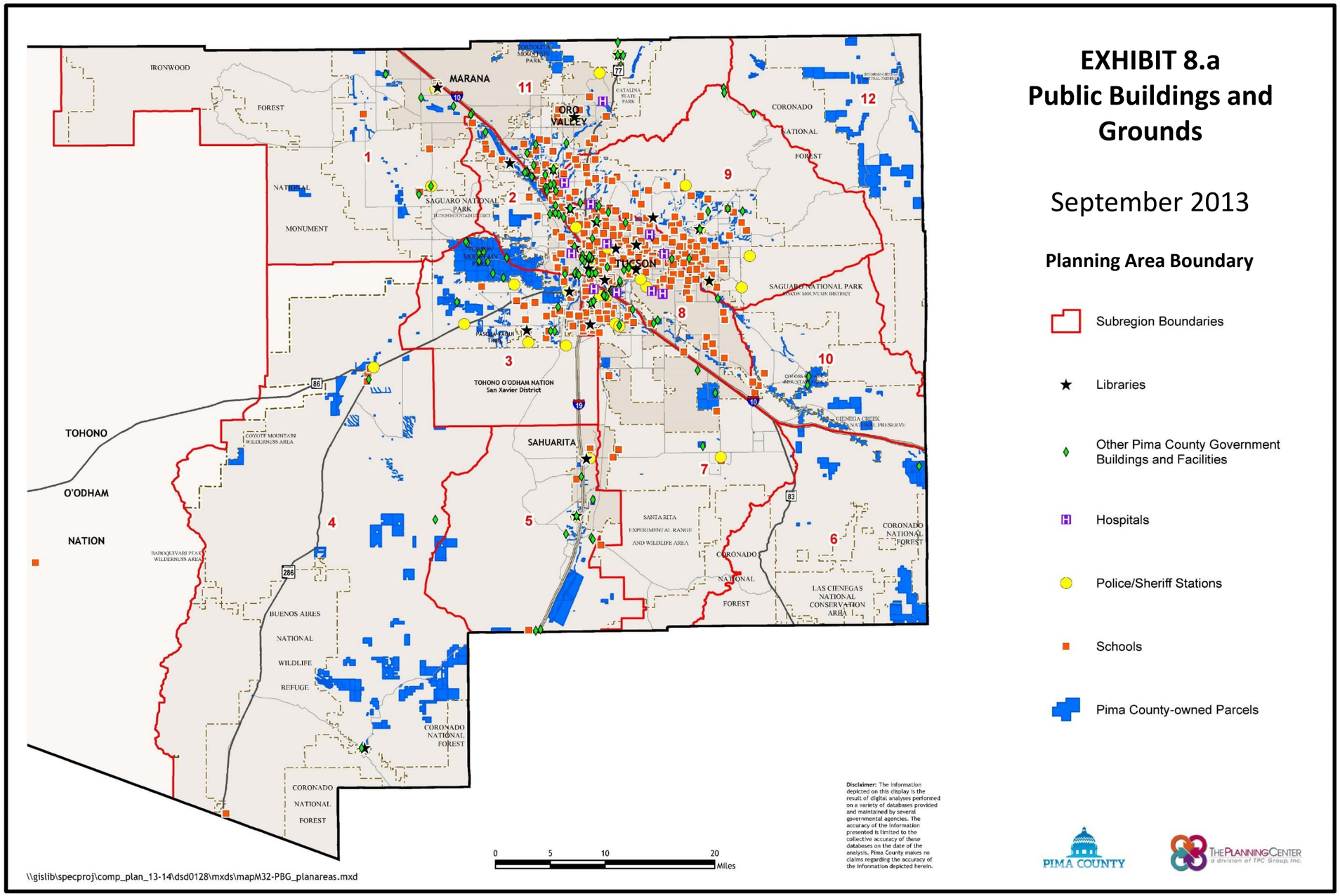
EXHIBIT 8.a
Public Buildings and Grounds
September 2013
Planning Area Boundary
Subregion Boundaries
Libraries
Other Pima County Government Buildings and Facilities
Hospitals
Police/Sheriff Stations
Schools
Pima County-owned Parcels
IRONWOOD
FOREST
NATIONAL
MONUMENT
MARANA
ORO VALLEY
TUCSON
SAHUARITA
CORONADO
NATIONAL
FOREST
SAGUARO NATIONAL PARK
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES
NATIONAL
WILDLIFE
REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
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0 5 10 20 Miles
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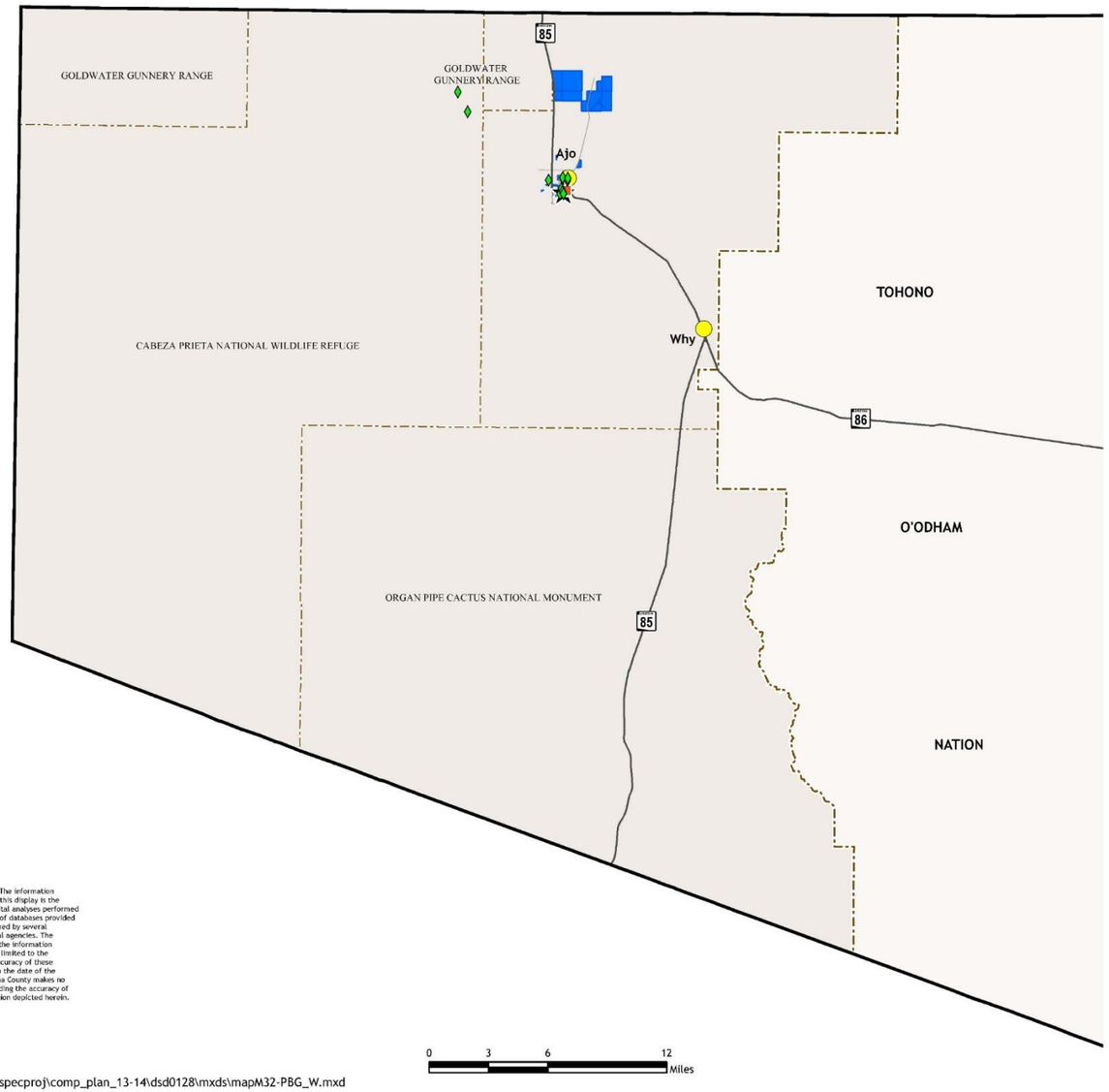

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EXHIBIT 8.b
Public Buildings and Grounds

September 2013

- ★ Libraries
- Other Pima County Government Buildings and Facilities
- Police/Sheriff Stations
- Schools
- Pima County-owned Parcels

PIMA COUNTY

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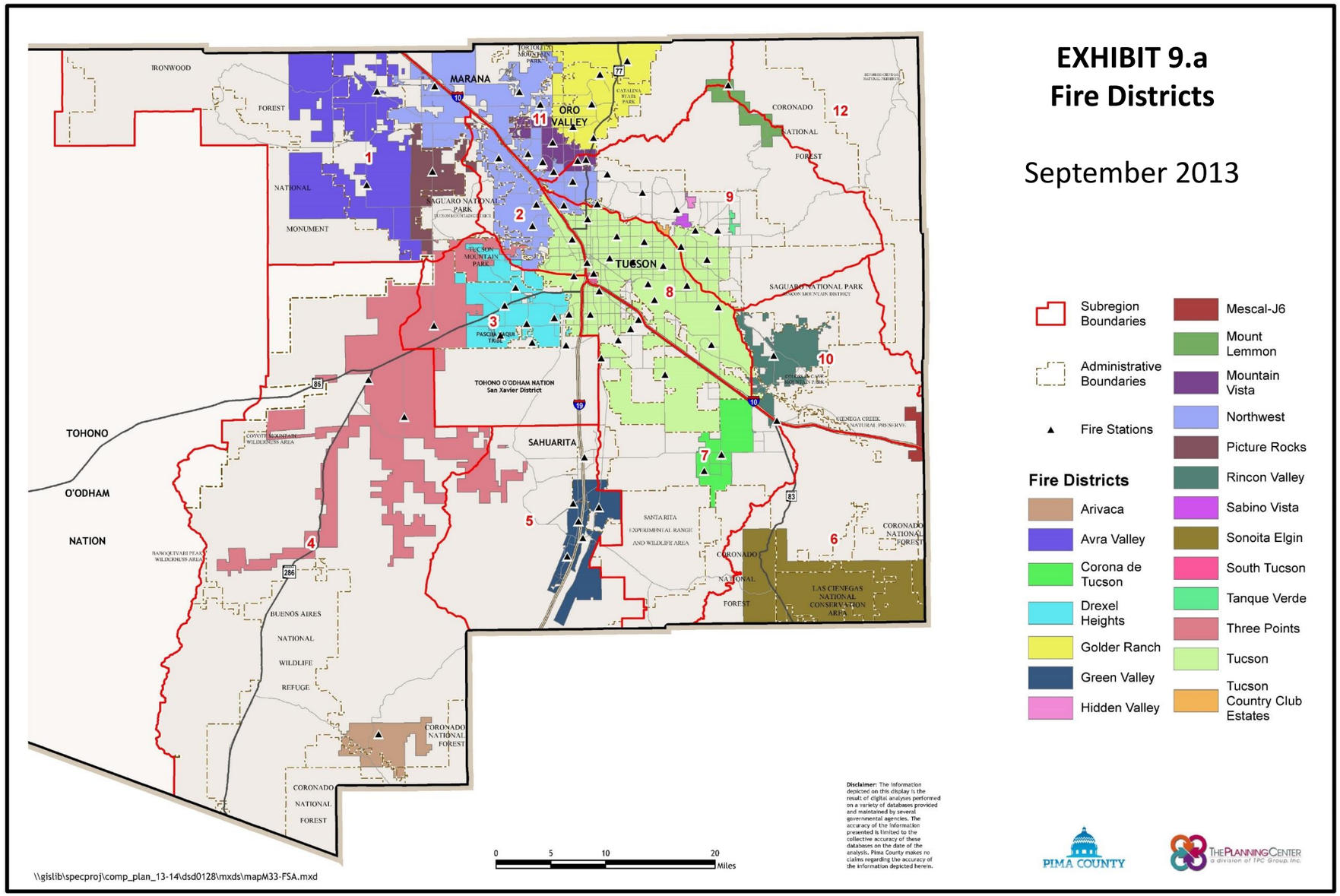
EXHIBIT 9.a
Fire Districts
September 2013
Subregion Boundaries
Administrative Boundaries
Fire Stations
Fire Districts
Arivaca
Avra Valley
Corona de Tucson
Drexel Heights
Golder Ranch
Green Valley
Hidden Valley
Mescal-J6
Mount Lemmon
Mountain Vista
Northwest
Picture Rocks
Rincon Valley
Sabino Vista
Sonoita Elgin
South Tucson
Tanque Verde
Three Points
Tucson
Tucson Country Club Estates
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
CORONADO
NATIONAL
FOREST
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
0 5 10 20 Miles
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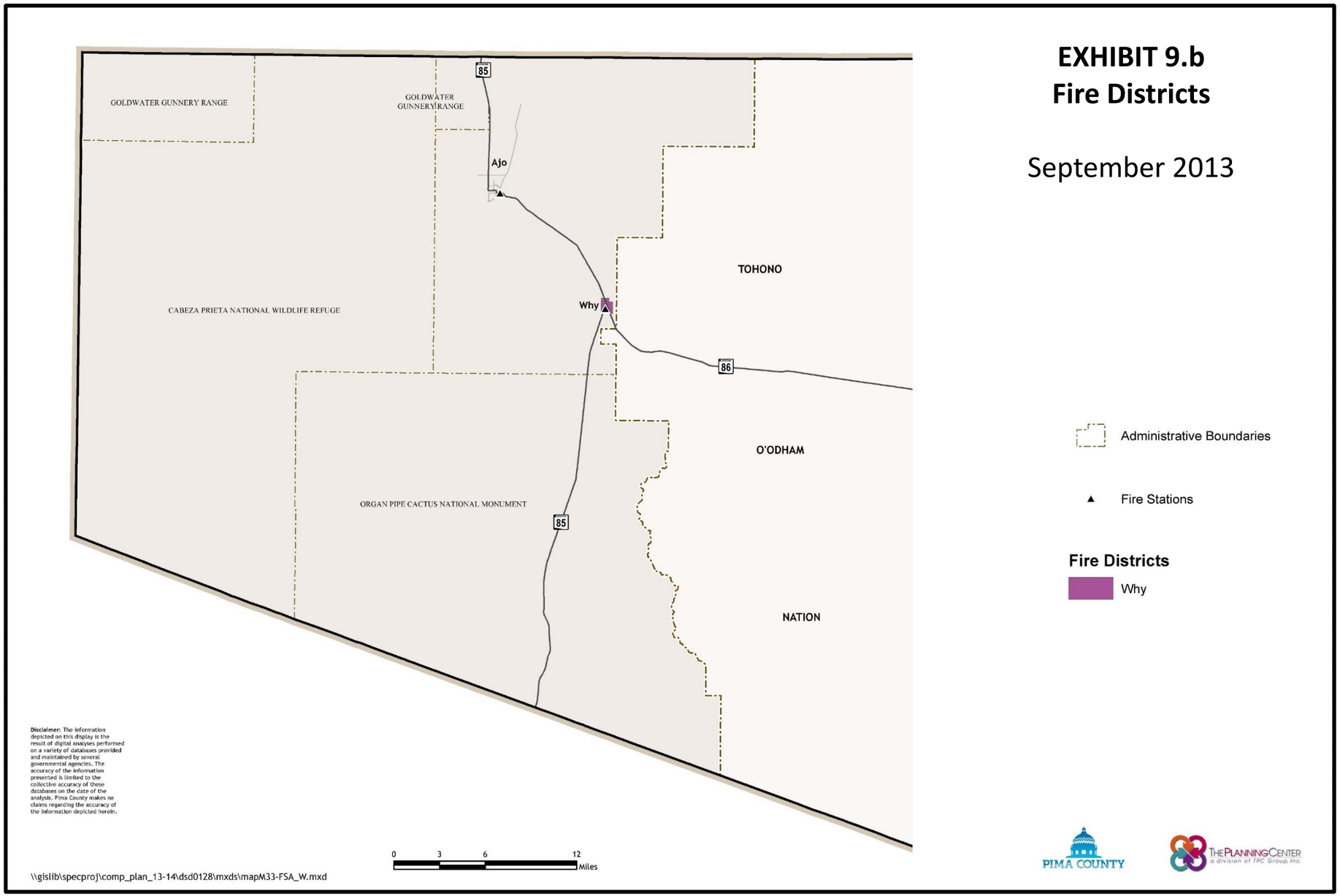
EXHIBIT 9.b
Fire Districts
September 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
Ajo
Why
85
86
85
TOHONO
O'ODHAM
NATION
Administrative Boundaries
Fire Stations
Fire Districts
Why
Disclaimer: The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. Pima County makes no claims regarding the accuracy of the information depicted herein.
0 3 6 12 Miles
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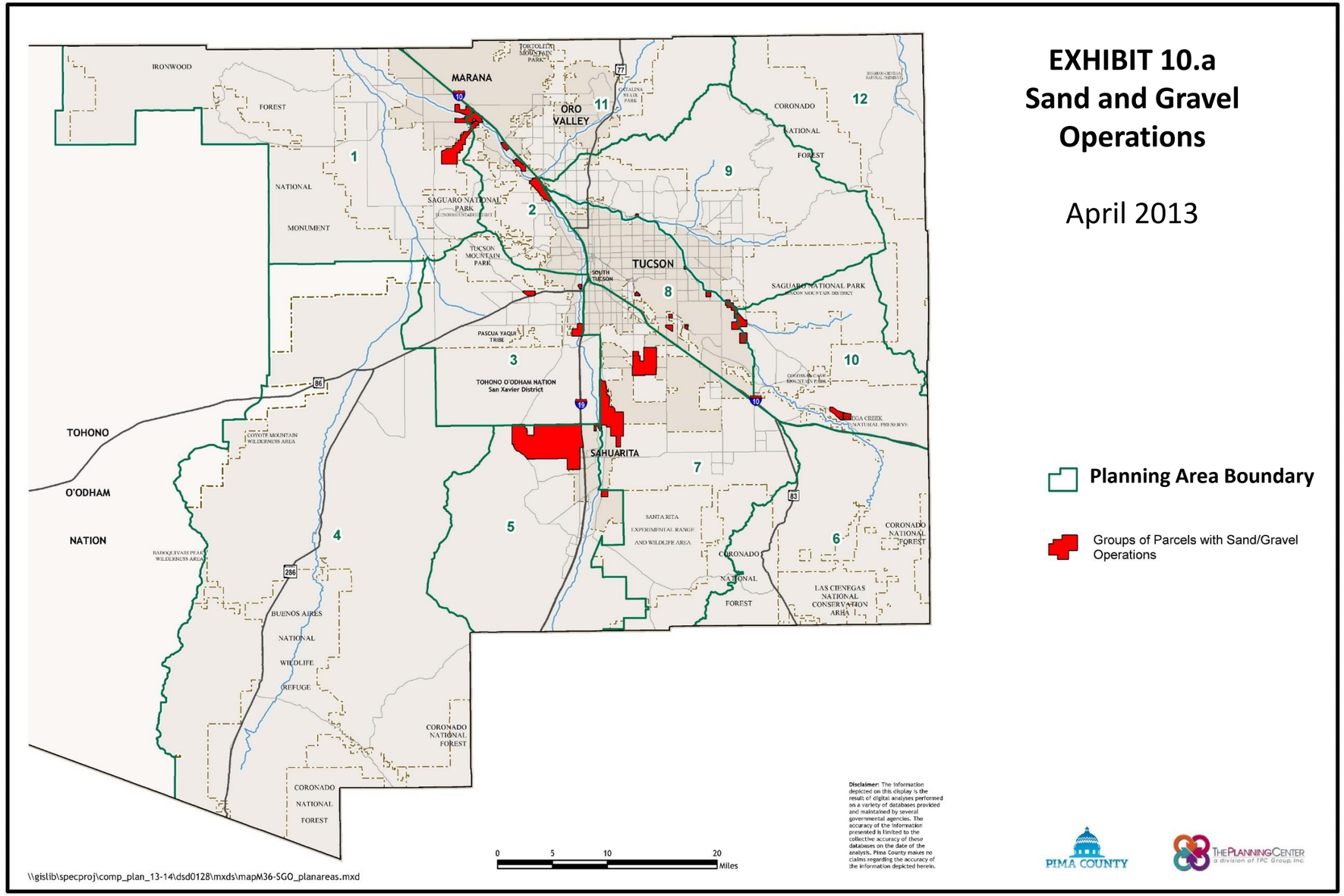
EXHIBIT 10.a
Sand and Gravel Operations
April 2013
Planning Area Boundary
Groups of Parcels with Sand/Gravel Operations
MARANA
ORO VALLEY
TUCSON
SAHUARITA
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
CORONADO NATIONAL FOREST
BUENOS AIRES NATIONAL WILDLIFE REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
1
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12
0 5 10 20 Miles
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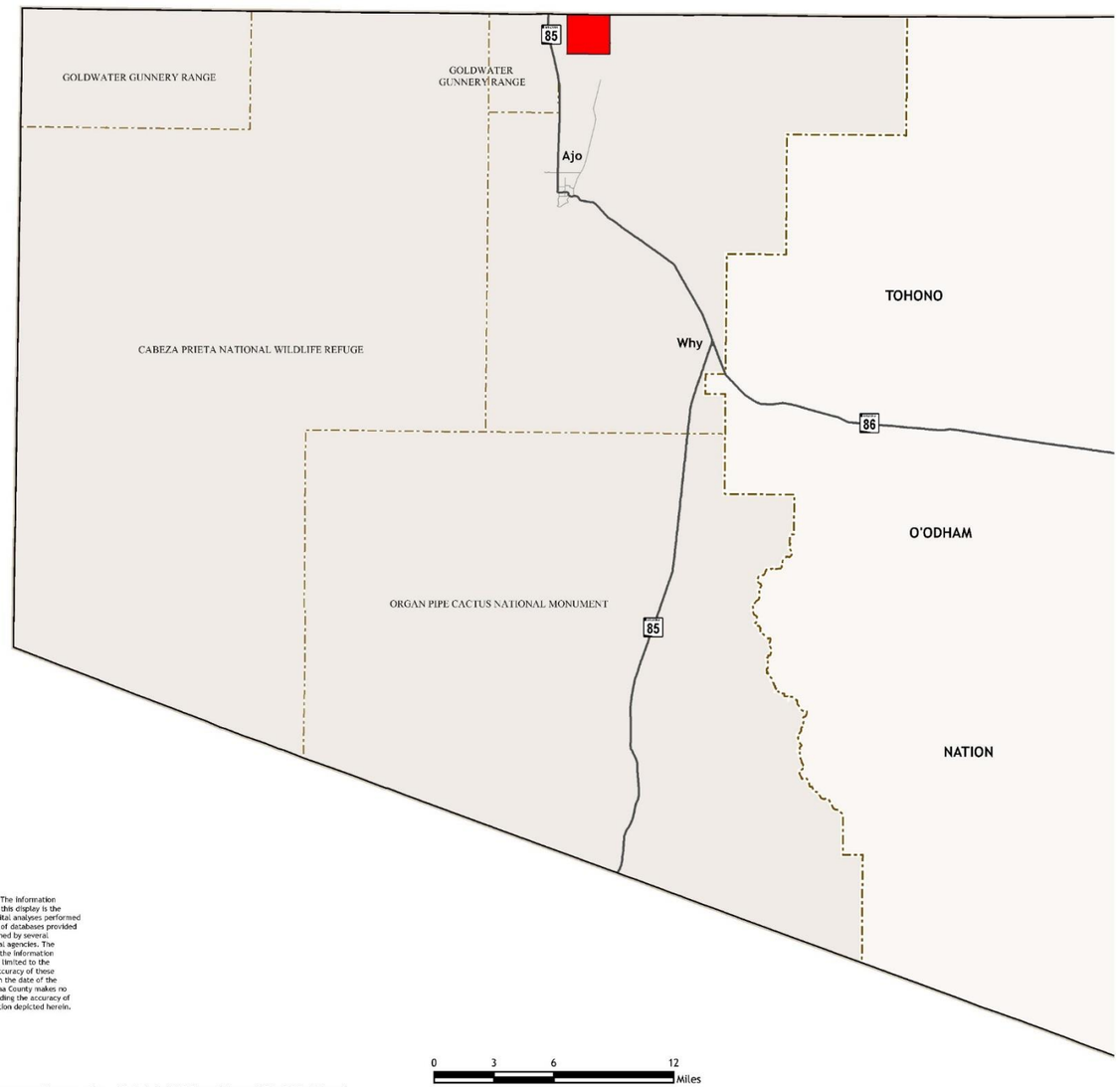

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EXHIBIT 10.b
Sand and Gravel Operations

April 2013

Parcels with Sand/Gravel Operations

PIMA COUNTY

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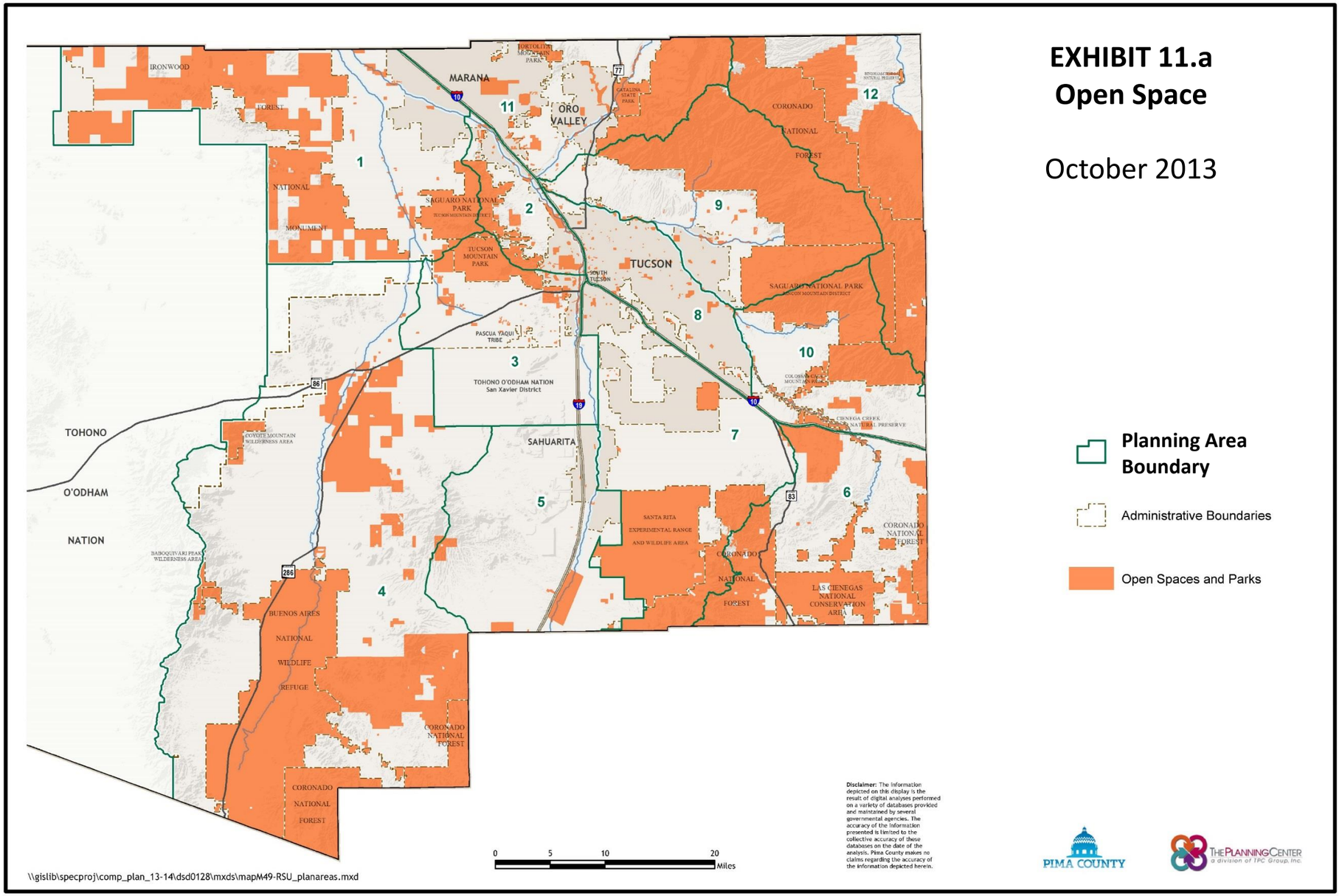
EXHIBIT 11.a
Open Space
October 2013
Planning Area Boundary
Administrative Boundaries
Open Spaces and Parks
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION San Xavier District
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
SAGUARO NATIONAL PARK
CIENEGA CREEK NATURAL PRESERVE
1
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12
0 5 10 20 Miles
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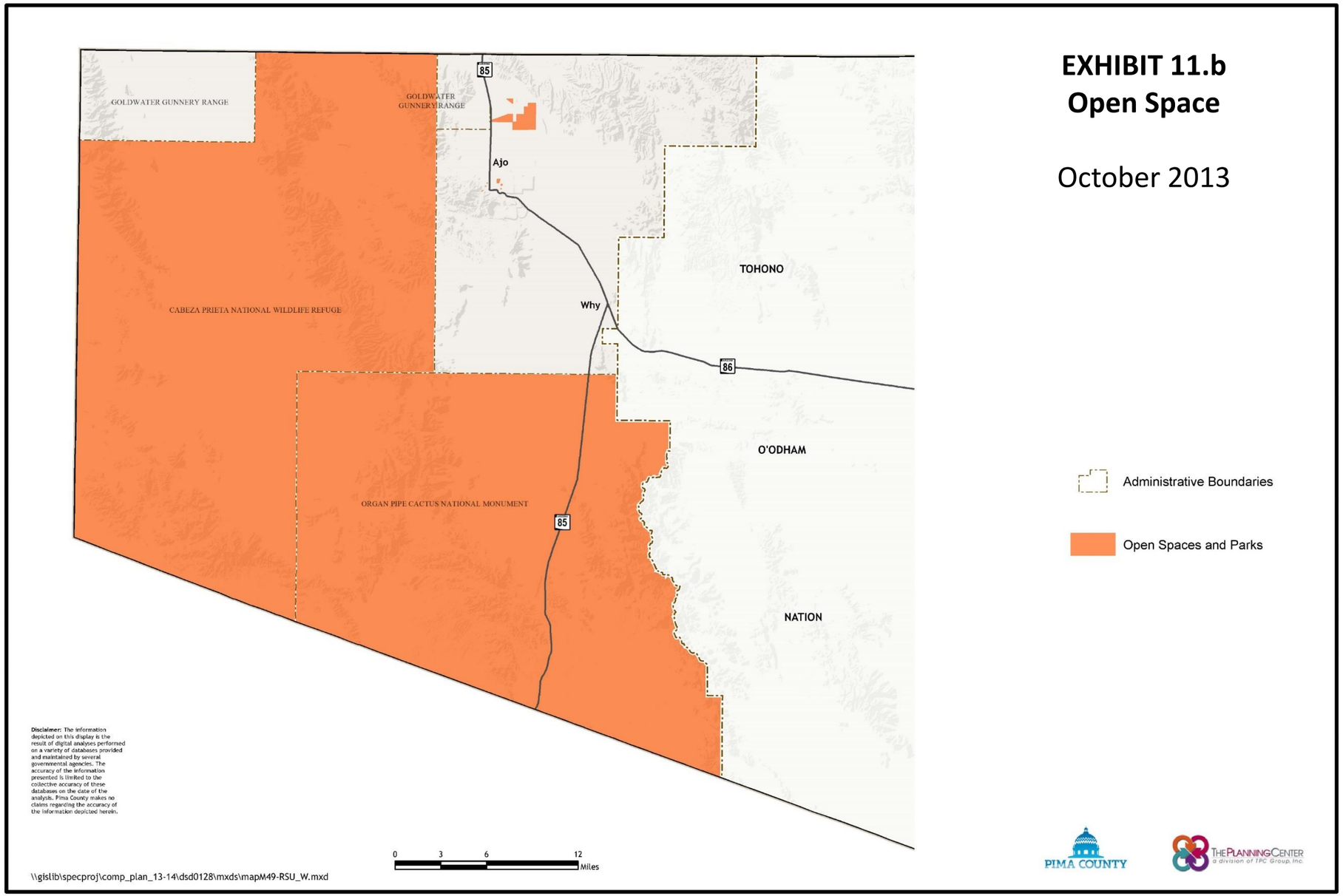
EXHIBIT 11.b
Open Space
October 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
Ajo
Why
TOHONO
O'ODHAM
NATION
85
86
Administrative Boundaries
Open Spaces and Parks
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0 3 6 12 Miles
\\gislib\specproj\comp_plan_13-14\dsd0128\mxds\mapM49-RSU_W.mxd
PIMA COUNTY
THE PLANNING CENTER
a division of TPC Group, Inc.

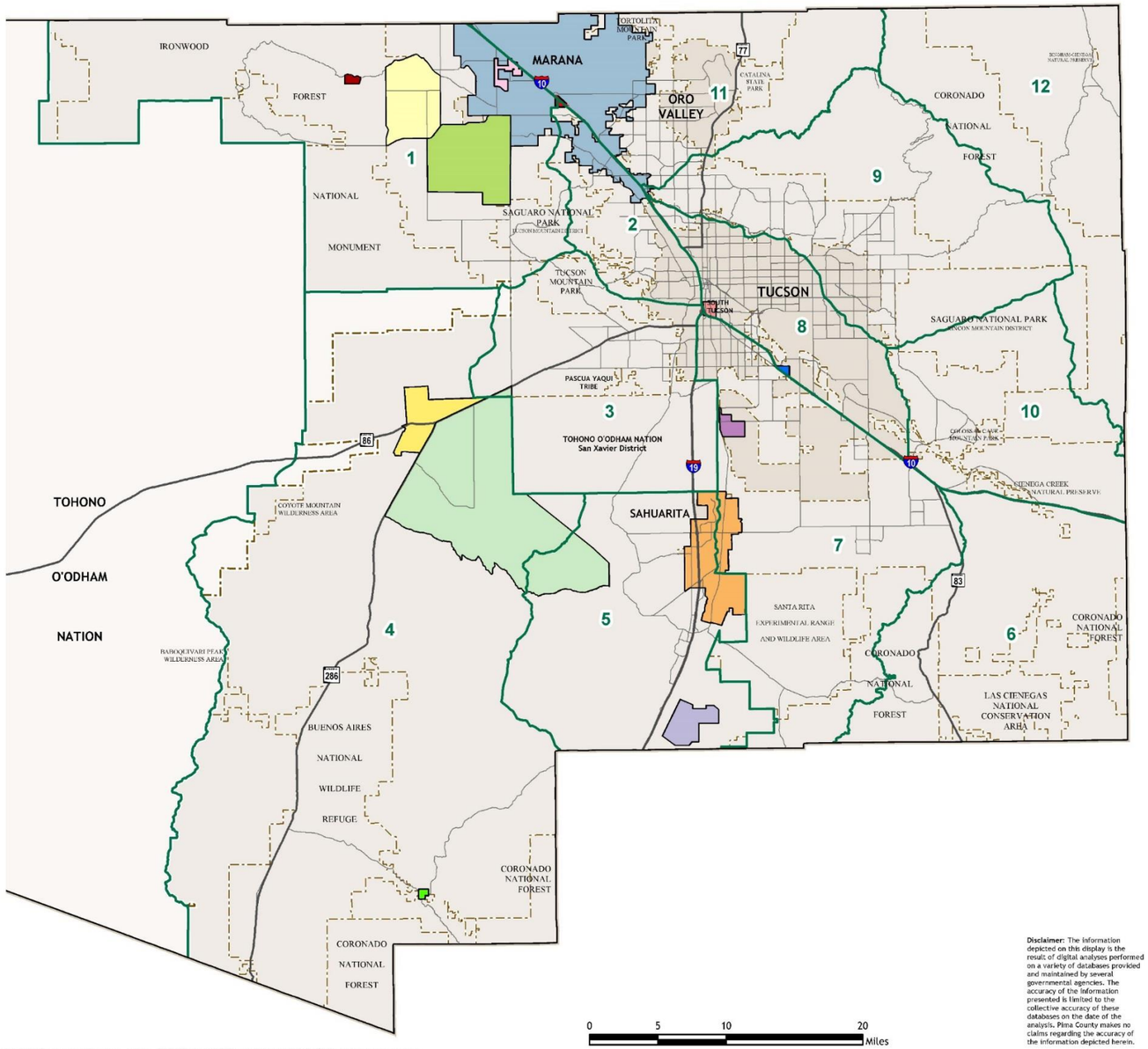

EXHIBIT 12.a
County Designated Colonias

October 2013

Planning Area Boundary

- Arivaca
- Avra Valley Water Co
- Elephant Head
- Littletown
- Marana Town
- Marana Water District
- Old Nogales Highway
- Rancho del Conejo
- Red Hill Water Coop
- Rillito
- Sahuarita Town
- Sierrita Mountain
- South Tucson
- Three Points

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PIMA COUNTY

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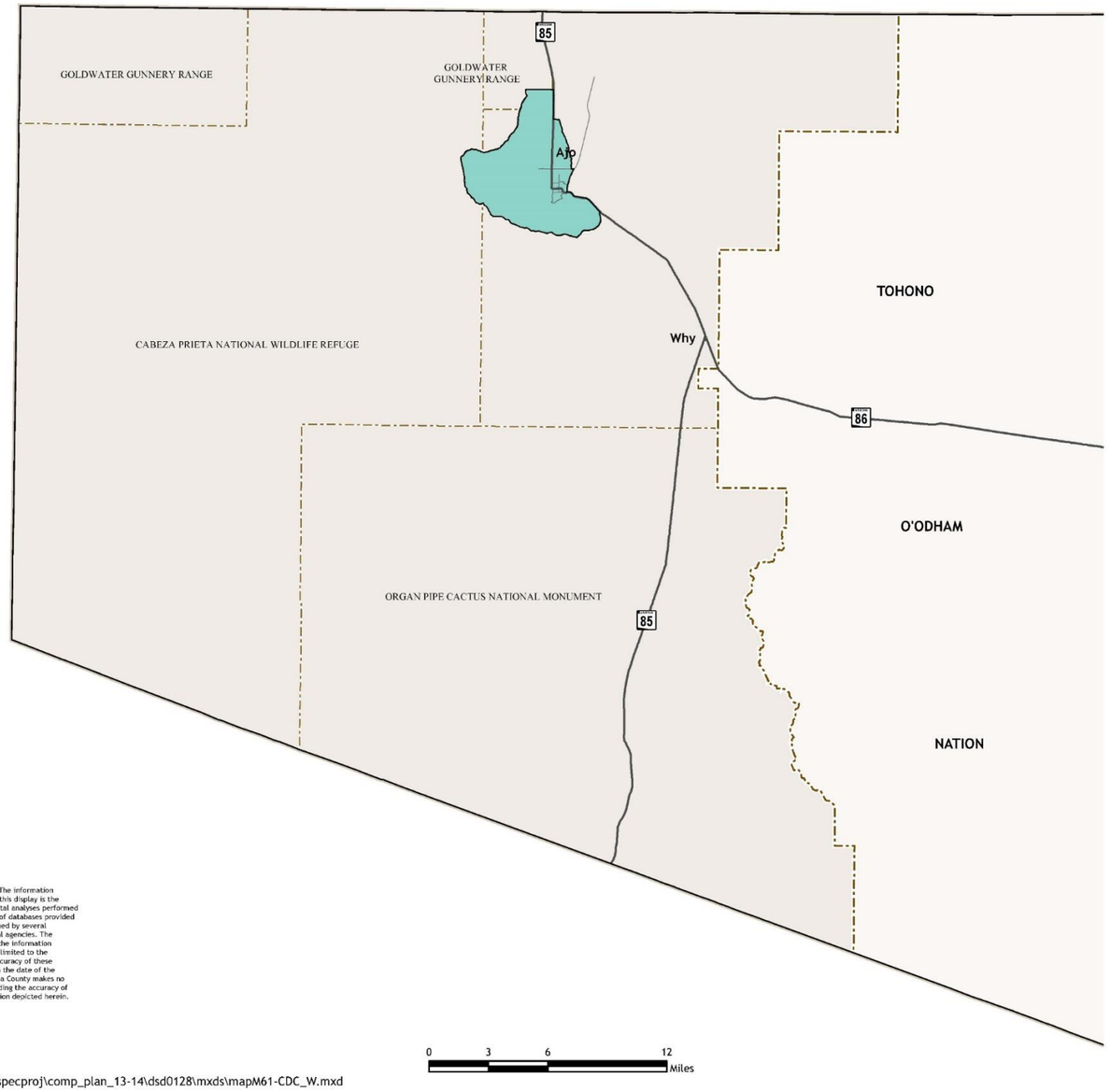

EXHIBIT 12.b
County Designated Colonias

October 2013

Ajo

PIMA COUNTY

THE PLANNING CENTER a division of TPC Group, Inc.

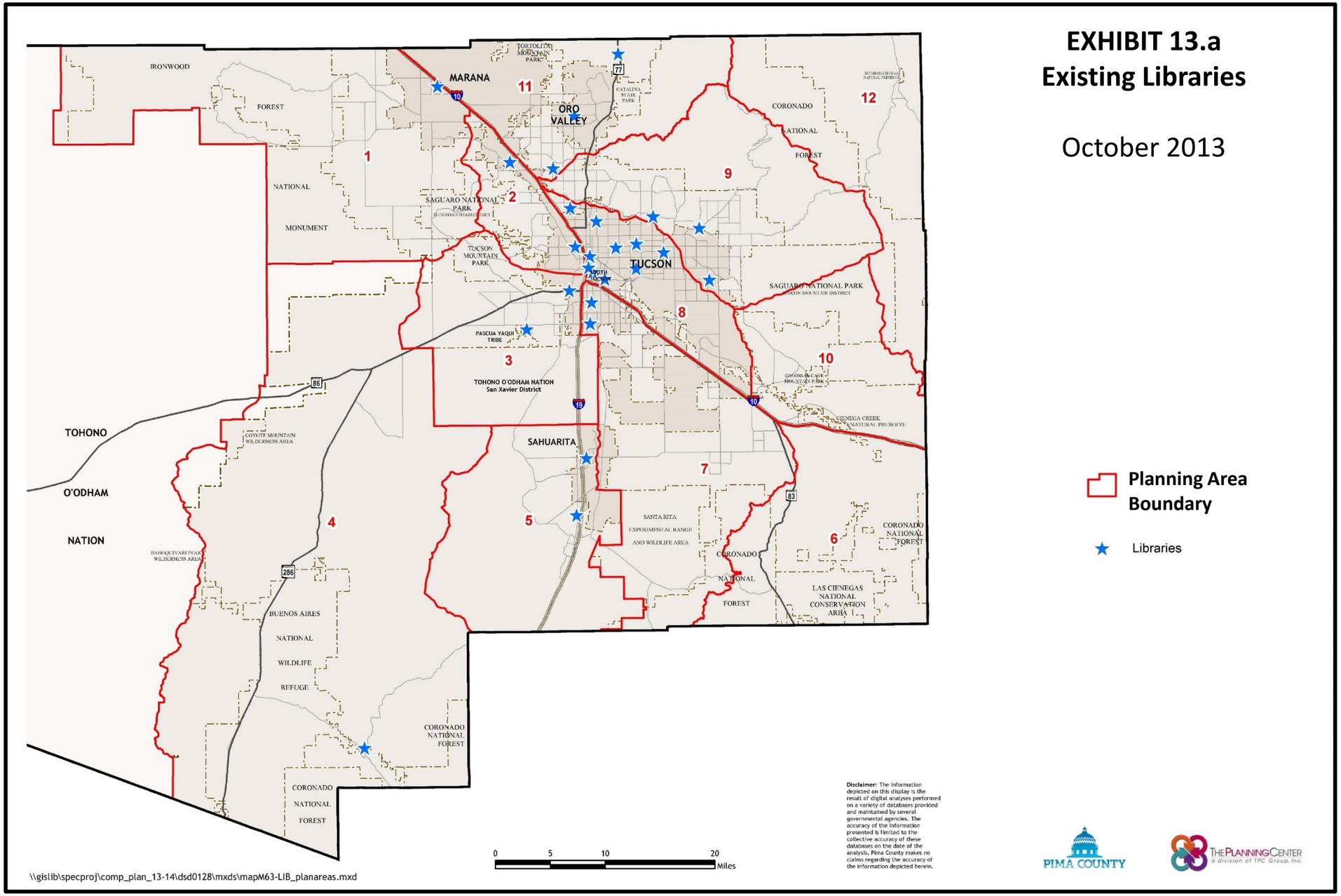
EXHIBIT 13.a
Existing Libraries
October 2013
Planning Area Boundary
Libraries
MARANA
ORO VALLEY
TUCSON
SAHUARITA
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO
NATIONAL
FOREST
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
COYOTE MOUNTAIN WILDERNESS AREA
BARQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES
NATIONAL
WILDLIFE
REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
CIENEGA CREEK NATURAL PRESERVE
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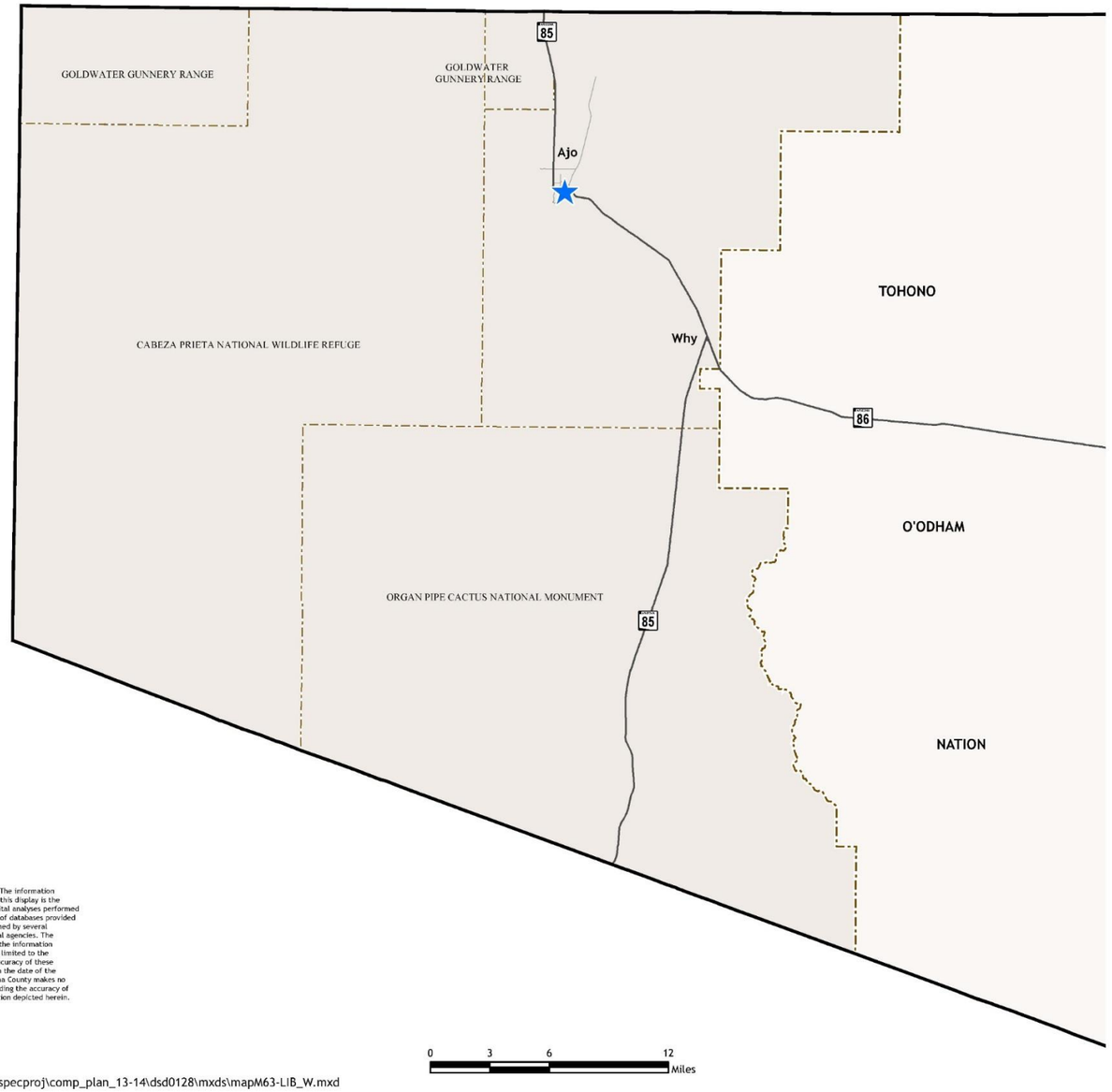

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EXHIBIT 13.b
Existing Libraries

October 2013

★ Libraries

PIMA COUNTY

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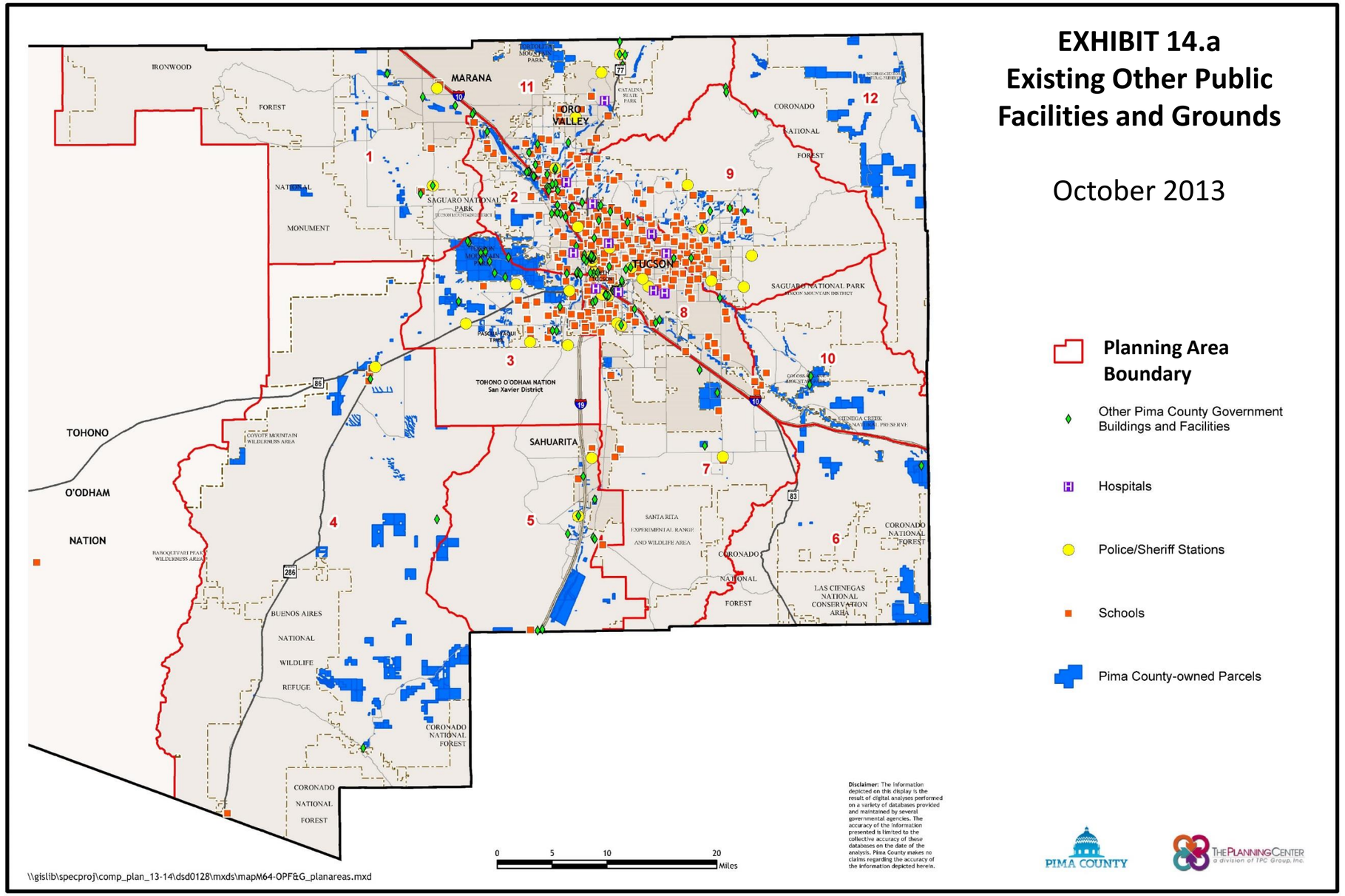
EXHIBIT 14.a
Existing Other Public Facilities and Grounds
October 2013
Planning Area Boundary
Other Pima County Government Buildings and Facilities
Hospitals
Police/Sheriff Stations
Schools
Pima County-owned Parcels
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
CORONADO
NATIONAL
FOREST
SAGUARO NATIONAL PARK
TOHONO O'ODHAM NATION San Xavier District
COYOTE MOUNTAIN WILDERNESS AREA
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
CORONADO NATIONAL FOREST
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
CORONADO NATIONAL FOREST
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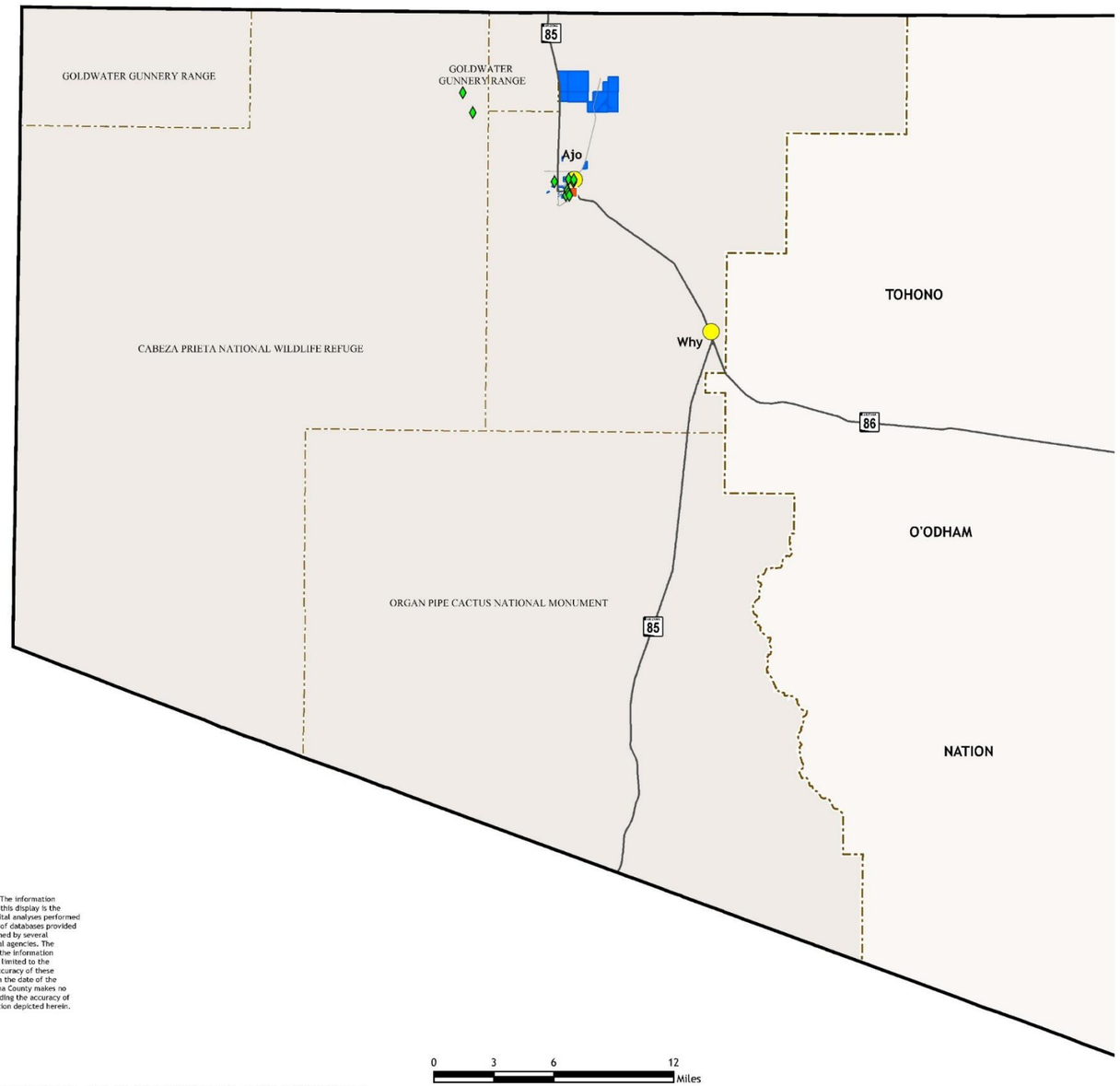
EXHIBIT 14.c
Existing Other Public Facilities and Grounds

October 2013



Pima County Government Buildings and Facilities (excl. Libraries)

Police/Sheriff Stations

Schools

Pima County-owned Parcels

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PIMA COUNTY

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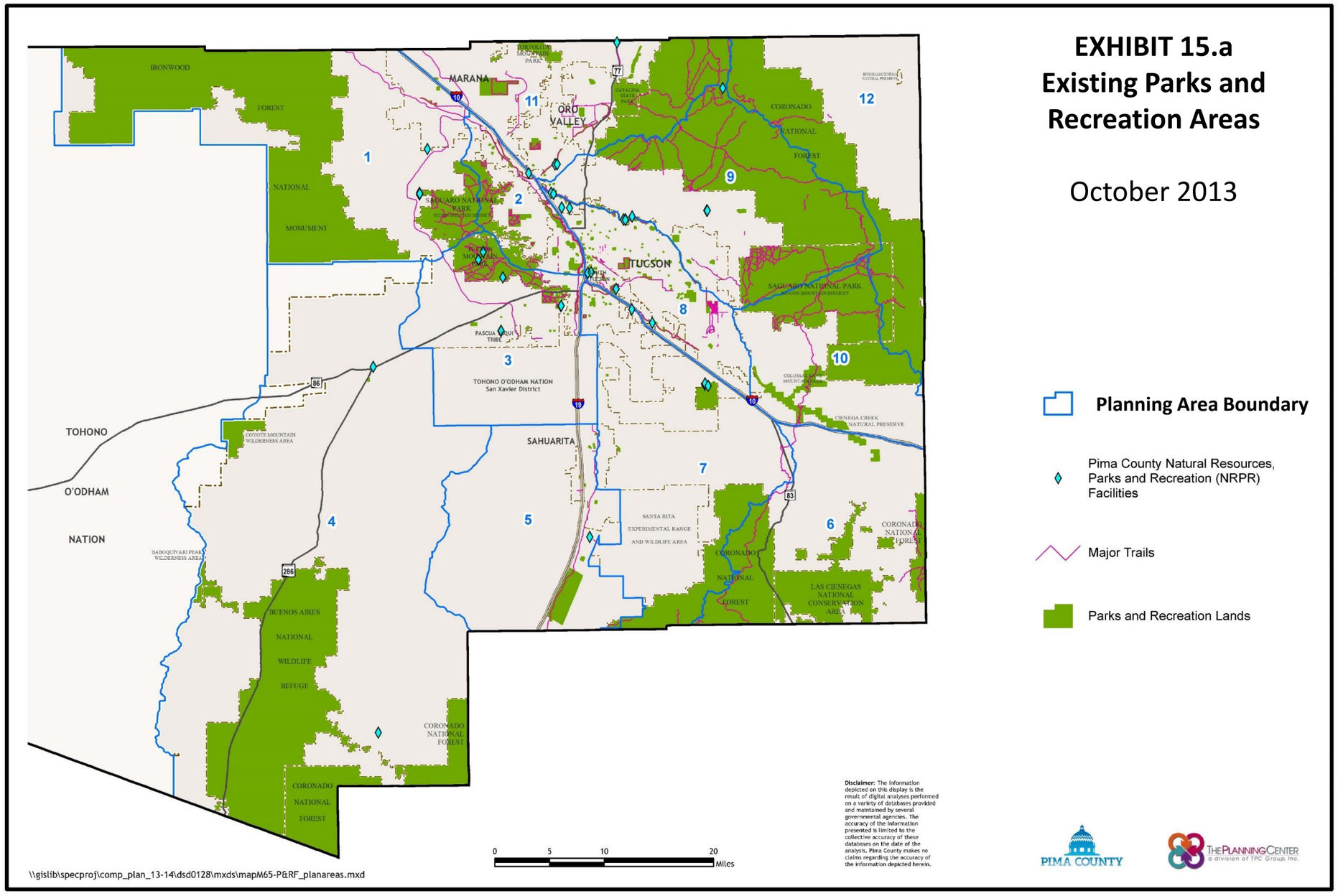
EXHIBIT 15.a
Existing Parks and Recreation Areas
October 2013
Planning Area Boundary
Pima County Natural Resources, Parks and Recreation (NRPR) Facilities
Major Trails
Parks and Recreation Lands
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
San Xavier District
PASCUA YAQUI TRIBE
SAGUARO NATIONAL PARK
CORONADO NATIONAL FOREST
IRONWOOD NATIONAL MONUMENT
BUENOS AIRES NATIONAL WILDLIFE REFUGE
LAS CIENEGAS NATIONAL CONSERVATION AREA
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
COYOTE MOUNTAIN WILDERNESS AREA
BABOQUIVARI PEAK WILDERNESS AREA
CIENEGA CREEK NATURAL PRESERVE
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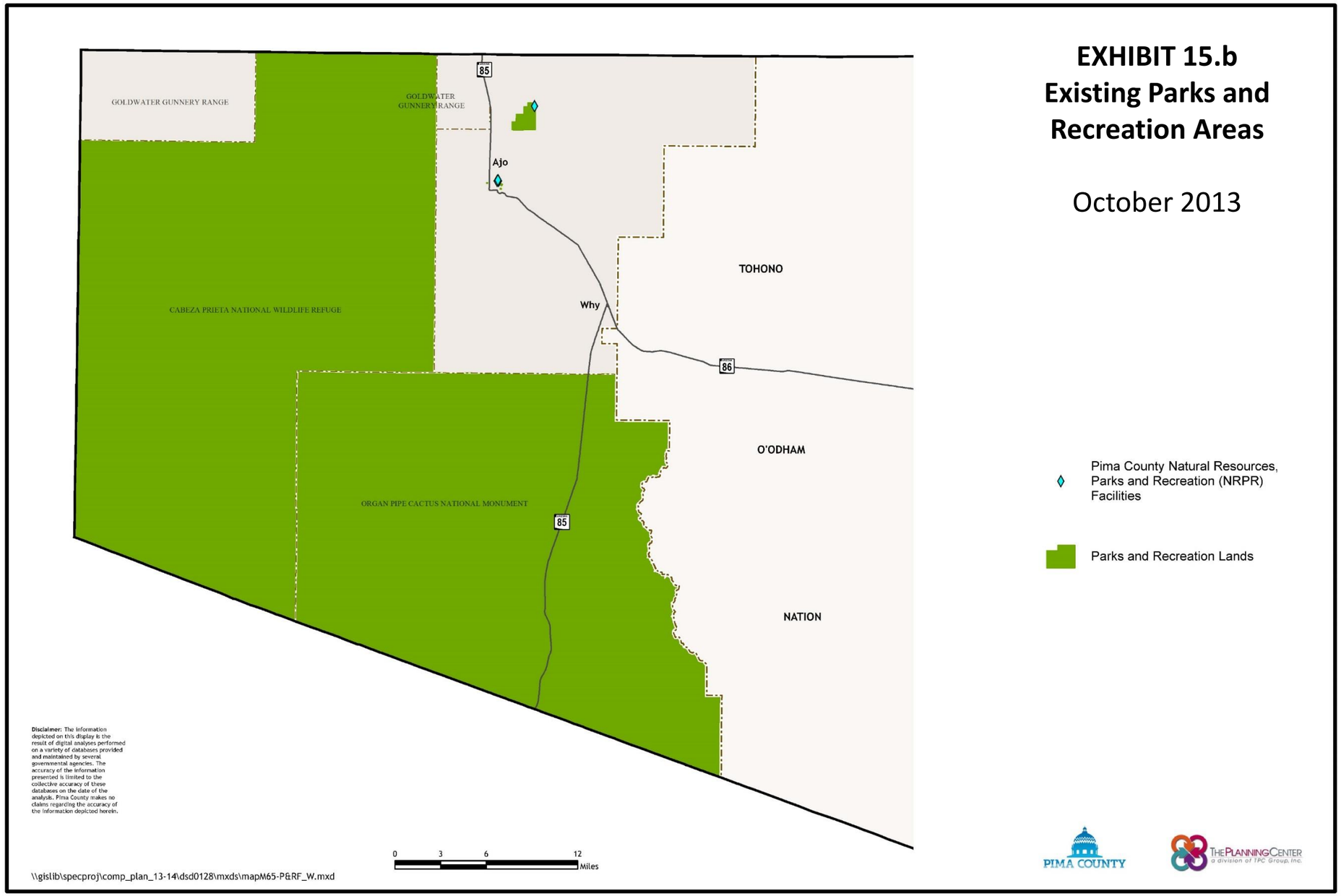
EXHIBIT 15.b
Existing Parks and Recreation Areas
October 2013
GOLDWATER GUNNERY RANGE
GOLDWATER GUNNERY RANGE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
ORGAN PIPE CACTUS NATIONAL MONUMENT
Ajo
Why
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85
TOHONO
O'ODHAM
NATION
Pima County Natural Resources, Parks and Recreation (NRPR) Facilities
Parks and Recreation Lands
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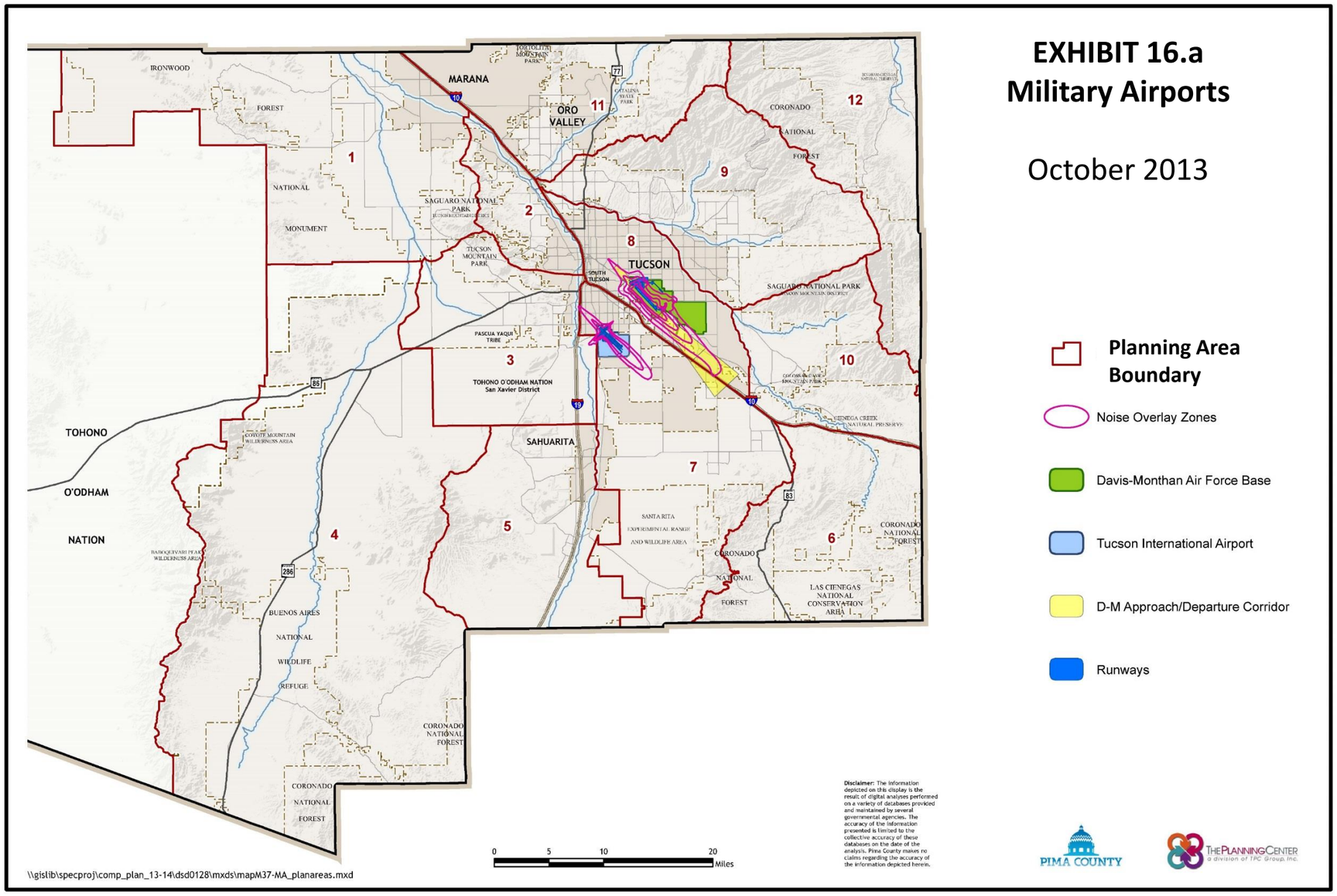
EXHIBIT 16.a
Military Airports
October 2013
Planning Area Boundary
Noise Overlay Zones
Davis-Monthan Air Force Base
Tucson International Airport
D-M Approach/Departure Corridor
Runways
MARANA
ORO VALLEY
TUCSON
SAHUARITA
TOHONO O'ODHAM NATION
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION San Xavier District
CORONADO NATIONAL FOREST
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
BUENOS AIRES NATIONAL WILDLIFE REFUGE
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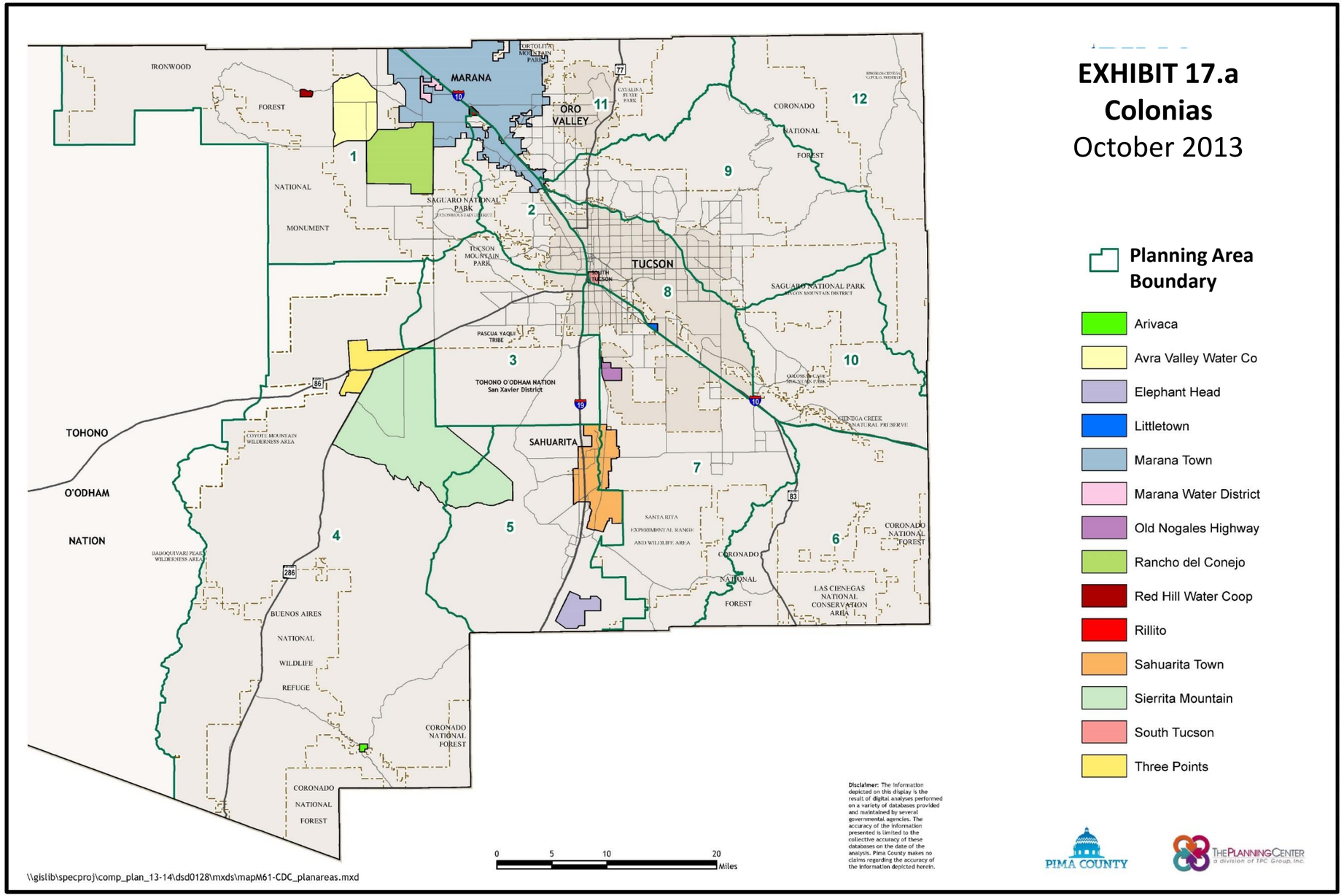
EXHIBIT 17.a
Colonias
October 2013
Planning Area Boundary
Arivaca
Avra Valley Water Co
Elephant Head
Littletown
Marana Town
Marana Water District
Old Nogales Highway
Rancho del Conejo
Red Hill Water Coop
Rillito
Sahuarita Town
Sierrita Mountain
South Tucson
Three Points
MARANA
ORO VALLEY
TUCSON
SAHUARITA
IRONWOOD
FOREST
NATIONAL
MONUMENT
SAGUARO NATIONAL PARK
TUCSON MOUNTAIN PARK
CORONADO
NATIONAL
FOREST
PASCUA YAQUI TRIBE
TOHONO O'ODHAM NATION
San Xavier District
TOHONO
O'ODHAM
NATION
COYOTE MOUNTAIN WILDERNESS AREA
BADOQUIVARI PEAK WILDERNESS AREA
BUENOS AIRES
NATIONAL
WILDLIFE
REFUGE
SANTA RITA EXPERIMENTAL RANGE AND WILDLIFE AREA
LAS CIENEGAS NATIONAL CONSERVATION AREA
CIENEGA CREEK NATURAL PRESERVE
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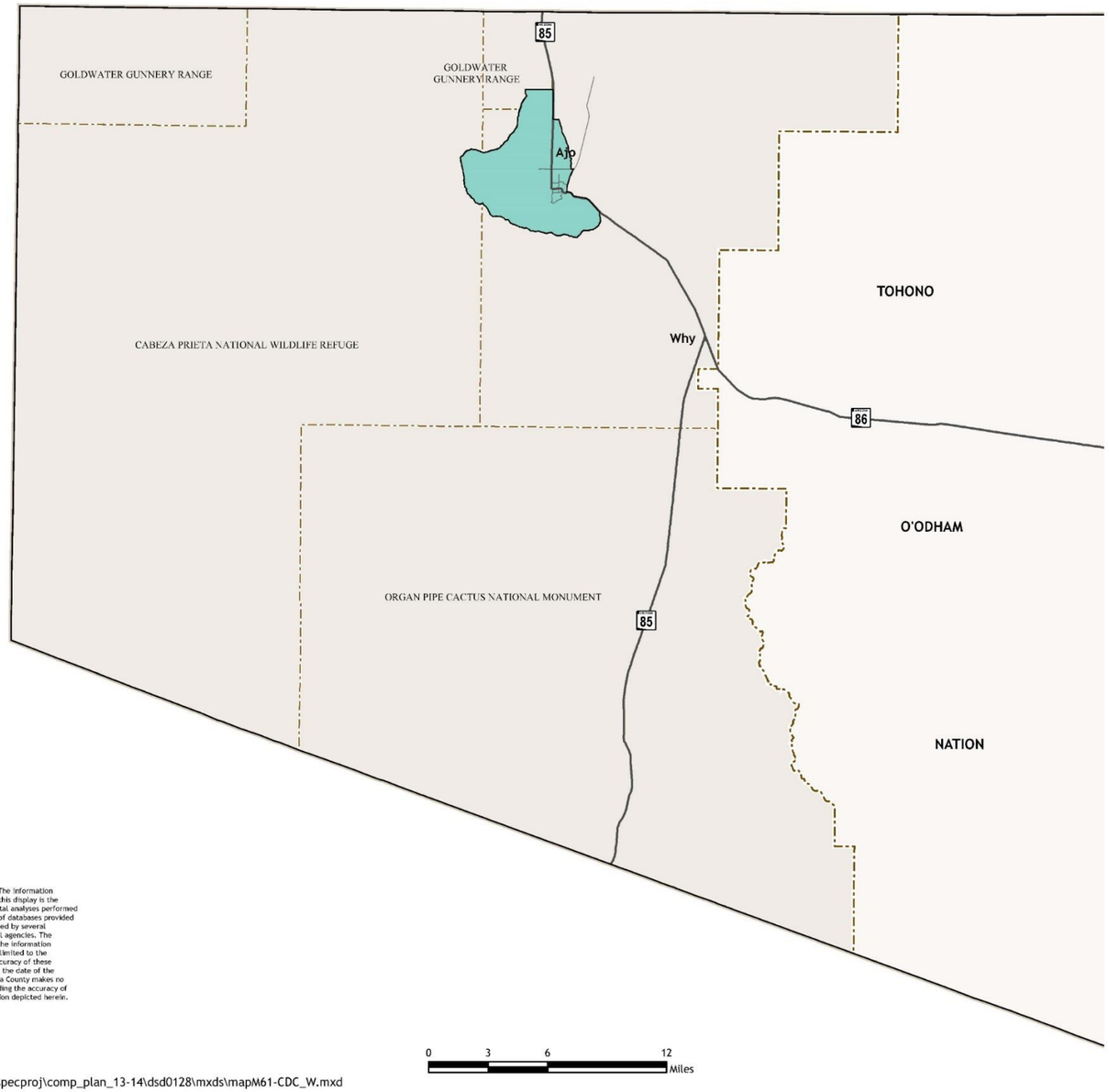

EXHIBIT 17.b
Colonias
October 2013

Ajo