



TUCSON INTERNATIONAL AIRPORT 2019 BLUEPRINT

SUN
CORRIDOR INC

September 2019

BLUEPRINT

Tucson International Airport 2019 Economic Blueprint

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Acronyms and Definitions

TUS – Tucson International Airport
TAA – Tucson Airport Authority
RYN – Ryan Airfield
A&D – Aerospace & Defense Industry
CBP – Customs and Border Protection

Airfield Access – TUS properties with direct access to aircraft taxiways and aprons.

TUS Employment Zone – TUS airport-area direct and indirect employment, both on and off-airport property.

TUS Commercial Development – Investment in and marketing of properties owned by TAA to generate non-aeronautical revenue from the private sector.

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Why a TUS Blueprint?

In 2007, Sun Corridor Inc. launched the development of a long-range plan to diversify our economy and closely guide our community's economic development vision for decades to come. The effort involved nearly 6,000 members of the community, led by a diverse, 46-member Steering Committee. The result of this endeavor was the creation of an Economic Blueprint for the Tucson Region. The Blueprint was updated in 2013 and has proven successful in focusing our region on key opportunities and providing a competitive framework for success.

This TUS Blueprint serves as a model for Sun Corridor Inc.'s partnership with the Tucson Airport Authority (TAA). In 2018, Sun Corridor Inc. and TAA joined together in a partnership to advance commercial development around the airport. This three-year partnership is already off to a strong start, but more analysis was needed to develop a series of strategies that can dramatically transform the Tucson International Airport.

The purpose of the 2019 TUS Blueprint is to establish a new vision for commercial development of the Tucson airports (TUS and RYN), incorporating major stakeholder input for asset mapping, gap analysis and new growth strategies/tactics. The topics addressed are:

- Leveraging Airfield Access Opportunities
- Land Use Planning and Developer Partnership Opportunities
- Development of Targeted Industry Sectors that Best Match Airport Assets
- Benchmarking National Best Practices in Airport Economic Development, including Site Visits with Key Stakeholders

Building on our historical success of community involvement, this effort was guided by a high-level Steering Committee of nearly 20 community leaders and influential organizations listed at the end of this document. An online survey and meetings with over 100 employers also generated valuable feedback. We thank these leaders for their time, talent and treasure in leading this effort and providing the guidance and stakeholder involvement needed.

Regards,



Lisa Lovallo
Chair, TUS Blueprint Steering Committee
Chair, Tucson Airport Authority
Market VP, Southern Arizona, Cox Communications



Joe Snell
President & CEO
Sun Corridor Inc.



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Airport Economic Development: The National Landscape

Airports occupy a unique and enviable position in the economy of any community, large or small. Given their designated role by the FAA to transport both passengers and goods in and out of the communities they serve, airports are expected to fund their own maintenance & growth and keep fees low for attraction of airlines and service for citizens.

This balancing act, in the face of years of consolidation by major airlines into a few major hubs across the country, has led many airports to re-examine the role non-aeronautical development and revenue can play in their real estate portfolio. Airports such as Memphis, Atlanta, Charlotte, Denver and many others are aggressively developing plans with key considerations such as:

- *Self-Sustaining: Generation of non-aeronautical revenue that helps fulfill FAA requirements for airport financial self-sufficiency.*
- *Land Re-use: Strategy to put vacant and under-utilized airport property into productive use.*
- *Compatibility: Plan attracts future development appropriate for an airport environment and does not negatively impact aviation.*

(Source: CLT Airport Commercial Development Strategy, 2017)

“The Tucson International Airport is an important gateway for the thousands of students, alumni, business and research collaborators and visitors who make their way to the University of Arizona throughout the year. We want all of them to know that they are coming to a great university that is proud to have Tucson, a dynamic and incredible city, as its home.”

Dr. Robert C. Robbins
President, University of Arizona



Locating near an airport presents a business with many opportunities for growth. Airports around the country are gateways to growing regions and control large tracts of land for development (both on and off-airport).

Airports are natural hubs of activity for many industries: transportation and logistics, air cargo, aerospace manufacturing and many others. Airports have unique land holdings that allow airfield access, as well as access to planes and other cargo carriers who need servicing, repair and maintenance. Airports of any size can play a role for specialized services, such as reliever airports during peak shipping seasons or for the exploding e-commerce space.

Progressive and innovative airports are now diversifying and increasing revenue from non-aeronautical sources. They are also coordinating their master plans with the plans of surrounding cities and counties to ensure that all bodies are in lock-step with each other and funding priorities are aligned.

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Management models and new strategies are being developed, and Southern Arizona must compete with these new realities.

Key Facts to Support Revenue Diversification

- The total cost per passenger for airports (\$13.69) exceeded global aeronautical revenues per passenger (\$9.95) illustrating once again the importance of non-aeronautical revenues for airports' financial sustainability
(<https://aci.aero/news/2019/03/28/aci-economics-report-affirms-the-importance-of-non-aeronautical-revenues-for-airports-financial-sustainability/>)
- Global airport revenues grew 6.2% to reach \$172.2 billion while passenger traffic grew 7.5%. The revenue was comprised of 55.8% aeronautical revenue, 39.9% non-aeronautical revenue and 4.3% non-operating revenue
(<https://aci.aero/news/2019/03/28/aci-economics-report-affirms-the-importance-of-non-aeronautical-revenues-for-airports-financial-sustainability/>)

Why Locate in or Near an Airport?

An on-airport or nearby location benefits businesses who:

- Operate globally
- Need to be closely connected to the metropolitan region
- Dependent on or responsible for just-in-time deliveries of goods or components
- Benefit from a large concentration of people and vehicles nearby
- Dependent on/responsible for e-commerce
- Staff flying to and from offices
- Operate in a leading edge or high-tech industry
- Involved in/dependent on imports or exports
- Involved in/dependent on logistics



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Best Practices

In developing the TUS Blueprint, one of our major initiatives was to conduct a best practices analysis of other airports that have been successful at increasing economic development impact and leveraging commercial development opportunities within its airport system.

As part of a business development sales mission to Los Angeles in June 2018, Sun Corridor Inc. was hosted by the Los Angeles International (LAX) leadership, which provided an overview of current initiatives to grow and service the LAX footprint and plans for the future. The group toured the ports of Los Angeles and Long Beach, as well as Los Angeles Airport Cargo Facility.

Another airport is Rickenbacker, located in Columbus, OH. The Rickenbacker Airport leadership hosted members of the TUS Blueprint Steering Committee in November 2018 for a tour and in-depth discussion on how it has achieved its success.

One of the world's few cargo-dedicated airports, Rickenbacker is a multi-modal logistics hub that includes air freight, rail intermodal (Norfolk Southern with direct connections to major ports on both coasts) and trucking.

Rickenbacker International Airport

By the Numbers

- One of the top 20 fastest-growing cargo airports with 27% growth in 2017
- 75 million square feet of warehouse and distribution space
- 75% of goods arrive by rail
- 60% of value of goods arrive by air
- 40 businesses and government/military operations located off airport

Keys to Success

- High Stakeholder Engagement
- Aggressive Commercial Development Strategy
- Land Use is Well Planned (both inside and outside the fence); Infrastructure Investments Are Set to Meet Demand
- Targeted Industries Well-Defined and Assets Matched

Additional airport systems analyzed included Mesa, AZ; Albany, NY; Baton Rouge, LA; Houston, TX; Pittsburgh, PA; and Tampa, FL, among others.

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Opportunities: What's the Prize?

Every Great City Needs a Great Airport

Its critical to understand the current landscape and key unique selling points at TUS, which set the foundation for this Blueprint.

Did you know?

- TUS ranks in the Top 10 in the U.S. in Total Airport Acreage, at 7,938 acres
- Only Arizona airport with 24/7 CBP processing
- Easy access to both I-10 (one of 3 cross country freeways and the only “all weather” interstate) and I-19 (60 miles to the Mexican border)
- Serves as the key business gateway between Southern Arizona and Mexico
- Although TUS has tenants such as Raytheon, Bombardier and others, large acreage is either vacant or underutilized, presenting opportunity for commercial development

“Airports are much more than places to catch a plane. They are among the largest investments a city or region make.”

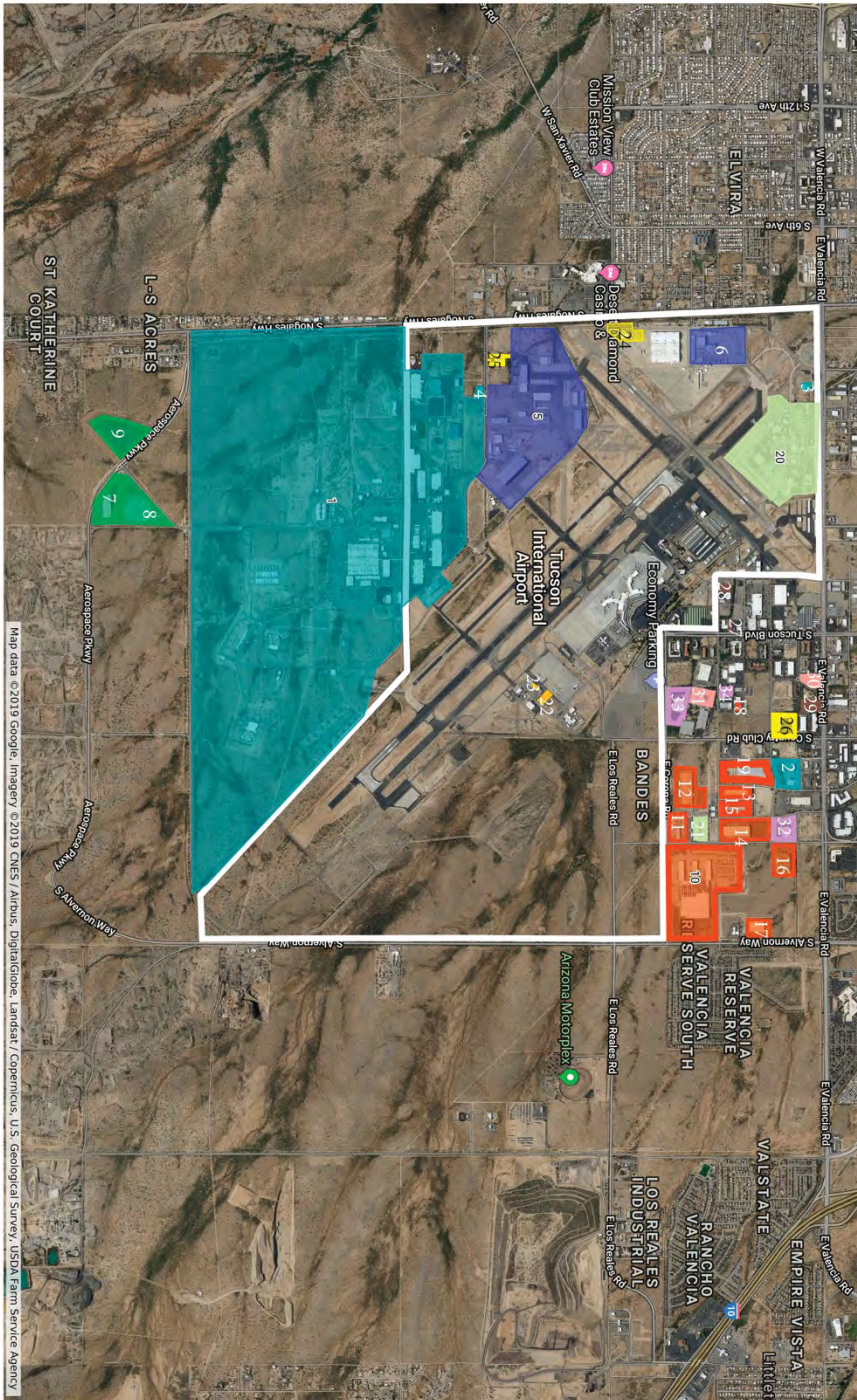
– Richard Florida, head of the Martin Prosperity Institute, University of Toronto



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TUS Employment Zone

- Airport Area Employers**
- 1-Raytheon
 - 2-Universal Avionics
 - 3-Aerovation
 - 4-Louides Industries
 - 5-Bombardier
 - 6-Ascent Aviation
 - 7-World View
 - 8-Spaceport Tucson
 - 9-Vector Launch
 - 10-HomeGoods DC
 - 11-Old Dominion Freight
 - 12-Fed Ex Ground
 - 13-Safelite and DHL
 - 14-Supply One
 - 15-Harsco Spec DC
 - 16-Tucson Container Corp.
 - 17-American Tire DC
 - 18-DHL & Mission Foods DC
 - 19-Former Lisa Frank
 - 20-AZANG, 162nd Wing
 - 21-DEA
 - 22-Fed Ex
 - 23-Delta Cargo
 - 24-PCC Aviation Tech Center
 - 25-Flight Safety School
 - 26-PCC Truck Driver Training
 - 27-Quakewrap
 - 28-Glaz Tech Industries
 - 29-Calsak Plastics
 - 30-Cbr - Cord Blood Registry
 - 31-Sion Power
 - 32-Red Cross Call Center
 - 33-Africa Call Center
 - 34-Cyadom Call Center
 - TUS Property Boundary



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Economic Trends

Specific examples of national market and economic trends illustrate what can be gained by Tucson International Airport with aggressive commercial development strategies and plans.

Market & Economic Opportunity	Land Use/Transportation Requirements	The TUS Opportunity
Growth of E-commerce	Large Warehouse Distribution Centers Fast Connections to Major Highways Express Mail and Parcel Delivery Services	E-commerce Distribution & Fulfillment Centers Road & Infrastructure Improvements Expanded Air Cargo Facilities and Warehousing
“Just in Time” Inventory Management in Multiple Sectors	Mid-sized Warehouse Distribution Centers Fast Connections to Major Highways Air Cargo & Express Delivery Integrators	Last Mile and Rapid Delivery Logistics and Distribution Centers Multi-tenant Air Cargo Facilities
Aerospace & Defense Industry Expansion Advanced Manufacturing Growth in US-based Plants	Airfield Access Property Availability Workforce Training Programs in Aviation Technology Office Buildings, R&D Facilities, Supply Chain	Attraction of MROs (Maintenance, Repair and Operations) Expansion of General Aviation Flight Schools Aerospace Manufacturing

“Airports have started to understand the value generated by the vast numbers of people, vehicles, and goods that pass through their lands and buildings, and the revenue potential of developing this real estate for its highest and best use.”

– Rian Burger, Principal, Airports - Terminals, Stantec

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The Next Horizon: Increasing TUS Economic Impact

With Tucson as a popular visitor destination, the Tucson International Airport has historically focused on tourism and passenger traffic. It's an award-winning and nationally recognized airport for being well run, efficient, conveniently located and easy to get in and out of. But commercial opportunities are the next horizon and national market trends must be leveraged. TUS has unique assets in close proximity including:

Existing Employer Base to Build On

- More than 100 tenants in MRO, FBO, Aerospace, Aviation Services and Air Cargo
- Generates a \$7.4 billion economic impact
- 43,000 jobs in area anchored by Raytheon Missile Systems (Southern Arizona's largest private employer at 12,000 jobs), Bombardier, Ascent Aviation, FedEx, and others
- HomeGoods, Target and Amazon all have major distribution centers within minutes of TUS

Pima Community College Aviation Training Program

- Nationally ranked with 90% placement rate of graduates
- Waiting period of more than a year
- \$15 million expansion doubles the number of graduates
- More graduates than comparable programs in Wichita, Phoenix and other locations

Port of Tucson

- Region's only intermodal facility
- Located directly on the Union Pacific rail line
- Provides international ocean container rail service to/from seaports in CA and Mexico
- Avoids delays at California ports

Pima County Aerospace Research Campus

- More than 500 customizable acres with onsite utilities, rail, interstate and air transportation nearby
- Well-suited for aerospace supply chain and companies importing/exporting to Mexico
- New and growing employers include World View Enterprises
- Future transportation infrastructure plans include the Sonoran Corridor, an auxiliary interstate connecting I-10 and I-19

Key Aviation-Related Job Trends

- Economic Modeling Specialists Inc. estimates a 40 percent increase in aviation jobs in Southern Arizona alone, well above the 10 percent national average.
- Pima County represents the largest concentration of aviation occupations in the Southern Arizona region with 1,336 of the total 1,535 jobs reported in 2015.
- Median annual earnings range from \$57,000 for aircraft mechanics to \$65,000 for avionics technicians, not including overtime and shift differential pay.

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Focus Areas: Increasing the Economic Impact of TUS



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Targeted Industries/Opportunities: Leveraging the Value of an Airport Location

Focus Area Goal

To identify targeted industry sectors that leverage Tucson International Airport, Ryan Airfield and other regional assets, and grow the use and attractiveness of TUS properties on a substantial and long-term basis.

Committee Members	Organization
Jean Claude Bernard	Bombardier
Sharon Bronson	Pima County
Brent DeRaad	Visit Tucson
Susan Hyatt Dumon	Sun Corridor Inc.
Mike Hammond	PICOR / Cushman & Wakefield
Lee Lambert	Pima Community College
Mike Levin	Port of Tucson
Taber MacCallum	World View Enterprises Inc.
Gen. Andy MacDonald	Arizona Air National Guard 162 nd Wing
Dennis Minano, Chair	General Motors (ret) / Immediate Past Chair, Sun Corridor Inc.
Ian Roark	Pima Community College
Guillermo “Memo” Valencia	Greater Nogales and Santa Cruz Port Authority
Col. Sandi Wilson	Arizona Air National Guard 162 nd Wing

“Investment, infrastructure and the speed with which decisions are made are the key to the ability of the Tucson Airport Authority to realize its potential.”

**Dennis Minano, General Motors (ret.)
Immediate Past Chair, Sun Corridor Inc.**



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Background

As part of the methodology to determine which industries should be targeted for future growth at both TUS and RYN, the committee reviewed current airport and industry data, consulted with experts throughout the region and utilized a systematic approach for determining which industries should be recommended.

Guidelines

1) *Regional Economic Blueprint Served as the Foundation for Targeted Industries throughout Southern Arizona.*

Sun Corridor Inc. developed a successful Economic Blueprint that identified regional targeted industries in 2007, with an update in 2014. Analysis of targeted industries focused on “traded” economic activities, which are goods and services sold to customers (individuals or businesses) who are not residents of a region. These are also called export, basic, or primary activities. While integral to a regional economy, nontraded activities do not import money into the regional economy. Traded activities drive the regional economy, while nontraded activities respond to the growth occurring in traded activities. (Source: ASU, December 2017)

The original Economic Blueprint identified four key industries, including:

- Aerospace and Defense
- Transportation and Logistics
- Renewable Technology
- Bioscience and Healthcare

Since 2007, these targeted industries have contributed greatly to successful economic development activity observed throughout Southern Arizona. The work for the TUS Blueprint shifted to further refinement of these categories to determine which industries could most benefit from leveraging the significant assets of TUS.

2) *Identify Airport Assets, Location Advantages and Flow of Goods*

Targeted industries recommended for attraction and expansion efforts should benefit from the location on airport-owned property or proximity to the airport(s). The unique assets of the airport, such as runway access, on-site Customs and Border Protection, access and proximity to daily flights are what differentiate airport properties from other commercial properties in the marketplace.

Presentations and current studies analyzed included:

- Arizona Exports and Imports by Greater Nogales Santa Cruz County Port Authority
- Arizona – Mexico Trade and FDI Profile presented by the Arizona Commerce Authority
- Results of interviews of major employers, including existing TUS tenants

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3) *Land Use Decisions and Infrastructure Investments are Critical to Targeted Industry Growth*

The targeted industries Southern Arizona is able to attract will largely be dependent on the land use, infrastructure and existing real estate available to companies.

Establishing the Right Approach

Attracting the recommended industries will be predicated on TAA making a transformational shift in land use plans. These changes may include major modifications to existing land use plans that result in significant changes in availability of land and resources dedicated to making land sites shovel/document ready. This transformational approach may also include the attraction of private investment for the development of speculative buildings. Embracing a transformational shift in land use plans will provide for significant long-term economic growth.

Recommendations

1) *Aerospace & Defense should be the primary targeted industry at both TUS and RYN. Specific subsectors to target include:*

- *Maintenance, Repair, and Overhaul Operations (MROs)*
- *Flight Schools*
- *Aerospace Manufacturing by Companies Specializing in:*
 - *Propulsion*
 - *Space*
 - *Avionics*
 - *Optics/Photonics*

Aerospace & Defense Sector Overview

The Aerospace and Defense (A&D) industry is one of the largest contributors of employment, earnings and wages to the nation's economic baseline. Additionally, the A&D industry represents one of the last pillars of U.S. manufacturing strength.

Tucson and Southern Arizona: Aerospace & Defense Advantages

Tucson and Southern Arizona has deep and diverse assets in the A&D sector that are unmatched by most communities across the U.S. In 2017, PwC ranked Arizona as the number one state in the U.S. for aerospace manufacturing, while highlighting Tucson as leading the way in growth of this sector.

Additionally, Tucson offers one of the highest concentrations of A&D workers in the country with 1 in 5 jobs in the region associated with the sector (*Source: Elliott Pollack*). There are nearly 26,000 workers with average earnings per worker of more than \$95,000, which is nearly 3X the County median wage in 2019 (*Source: ASU Economic Base Study*).

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Key Facts

- The U.S. A&D industry supports 2.4 million U.S. jobs, which represents approximately 2% of the nation's total employment base and 13% of the nation's manufacturing workforce.
- A&D generated \$307 billion in value added products and service, which accounted for 1.8% of U.S. Gross Domestic Product.
- A&D is the nation's leading net exporting industry, accounting for 10% of total U.S. exports, and generating a record trade balance of \$90 billion in 2016.
- The average salary of an employee in the U.S. Aerospace & Defense industry is 44 percent above the national average - \$93,000 in wages and benefits.
- A&D business activity generated \$41.7 billion in Federal tax revenue and \$20.9 billion in state and local tax revenue.

Source: Aerospace Industries Association 2018 Facts & Figures

Tucson is home to more than 200 aerospace companies. These companies span a variety of industries, but Tucson and Southern Arizona's strengths are companies with a NAICS code of 33641 and the associated sub-clusters. This cluster is described as:

33641 - Aerospace product and parts manufacturing

This industry comprises establishments primarily engaged in manufacturing aircraft, missiles, space vehicles and their engines, propulsion units, auxiliary equipment, and parts thereof.

Additionally, Southern Arizona's nearly 300 days of sunshine annually and dry climate have attracted aerospace related businesses since the early 1900s. The weather and climate are what established Southern Arizona as key region in the U.S. for military operations.

Davis-Monthan Air Force Base, founded in 1925, is the fourth-largest employer in Pima County and the third-largest installation in air combat command. The 355th Wing is the host unit at the base and provides medical, logistical and operational support to all associate units. According to a recent Davis-Monthan Economic Impact Analysis Report, the Base continues to be a major driver for economic prosperity throughout Southern Arizona. Last year alone, the economic impact of Davis-Monthan Air Force Base included:

- \$1.5 billion overall to the local Tucson economy
- 19,487 military retirees in the local community with an annual retirement pay of \$521.6 million
- An estimated 4,598 indirect jobs with an approximate annual dollar value of \$195.6 million (*Source: dm50.org/economic-impact*)

Also, Morris Air National Guard (ANG) Base is the nation's premier F-16 training base and the home of the 162nd Wing. Morris ANG Base is the second largest Air National Guard Base in the country and employs nearly 1,900 airmen and civilian personnel. Their diverse missions include

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F-16 pilot training for U.S. and partner nations, Intelligence, Surveillance, and Reconnaissance missions (ISR), an Aerospace Control Alert Detachment, and domestic operations response capabilities. The 162nd contributes \$383 million annually to the Tucson community and spends over \$94 million in annual payroll.

With the rich and diverse history of aerospace and defense in Southern Arizona that includes both commercial and military applications, as well as industry leaders such as Raytheon Missile Systems and Bombardier Aerospace on site at TUS, there are opportunities to further develop the supply chain for these and other aerospace and defense related companies.

Existing Southern Arizona Aerospace & Defense Employers



Educational Assets Support for Aerospace & Defense Sector

Tucson and Southern Arizona has access to tremendous educational institutions that have a long history of collaborating with and supporting the A&D sector. The University of Arizona, Arizona State University and Pima Community College have not only served as the workforce pipeline to A&D companies, but also have been partners in research that has resulted in world-class innovation in the industry.

The University of Arizona is home to a number of programs that support the Aerospace & Defense industry. Two programs that are critical to continuously supporting the pipeline of employees to the industry in Tucson and Southern Arizona are the College of Engineering and College of Optical Sciences.

The College of Engineering and Department of Aerospace and Mechanical Engineering (AME) offer both undergraduate and graduate students the opportunity to learn from and work alongside professors internationally renowned for their research in hypersonic flight, space situational awareness, heat transfer, tissue engineering and robotics. Additionally, AME offers ABET accreditation in both aerospace and mechanical engineering. ABET accredits college and university programs in applied and natural science, computing, engineering and engineering technology. With ABET accreditation, employers can be confident that a program meets the quality standards that produce graduates prepared to enter a global workforce.

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Additionally, the College of Optical Sciences is one of the premier educational and research institutions in optics and photonics worldwide. Throughout its 50-year history, OSC has stood on the forefront of the field; today it educates more students in optics than any institution in the U.S. The research programs at OSC span the breadth of the optical sciences, including optical engineering, optical physics, photonics and image science.

The Ira A. Fulton Schools of Engineering at Arizona State University is the largest engineering program in the U.S. with more than 22,400 students and 4,200 degrees granted in 2017-18. The Fulton Schools had \$104 million in research expenditures in 2018, along with 143 patents and 21 startups in the last three years. Fulton Schools offers 25 undergraduate and 44 graduate degree programs, including aerospace engineering, aeronautical management technology and aviation management/human factors. ASU is among five university research teams that are funded by NASA's Aeronautics University Leadership Initiative to explore improving aviation. *U.S. News and World Report* ranked ASU #1 in Engineering Innovation.

Pima Community College's (PCC) Aviation Technology Center (ATC) is home to one of the leading programs of its kind in the U.S. and Arizona's only large-transport-focused aviation maintenance and repair program concentrating on large commercial aircraft. The program routinely places 100% of its graduates in high-paying jobs. The ATC is one of only a few Aviation Maintenance Technician Schools (AMTS) nationwide that offers training on Boeing transport category aircraft, making the program unique as it provides real-world experience on both commercial and general aviation aircraft. The program also offers training for experienced mechanics via their Part 65 course, which focuses on providing the knowledge and skills needed to earn an FAA mechanics certification.

PCC offers an extensive Advanced Manufacturing program aligned to the needs of local industry partners. Students can earn an associate degree in Applied Science with specializations in Machine Tool Technology, Welding and Fabrication and Computer Aided Design, among others. The newly launched Automated Industrial Technology (Mechatronics) Program, as well as the Machining Program, are aligned to standards developed by the National Institute of Metalworking Skills (NIMS) and its industry partners.

Working in close partnership with business, industry and community partners, PCC is making a significant investment in Centers for Excellence (CfE) in various academic areas of the College. Nearly \$50 million has been allocated for the CfE for Applied Technology at Downtown Campus, which is slated to be completed by the Fall of 2021. The center will feature the most up-to-date facilities, equipment and curriculum and provide students with increased opportunities for hands-on application, as well as expanding PCC's training capacity for employers' needs. The CfE is designed to allow for flexibility, high-touch/high-tech training and innovative learning. It will meet the high standards and expectations of area employers, and further Pima Community College's role as a key player in regional economic development.

Did You Know?

In May 2019, the Arizona Legislature appropriated \$15 million toward the expansion of the PCC Aviation Technology Program, doubling its size and increasing Southern Arizona's competitiveness and ability to attract new MROs, as well as other aviation companies.

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2) Transportation and Logistics companies benefitting from access and proximity to TUS should be a secondary targeted industry.

Transportation & Logistics Sector Overview

Transportation is fundamental to the U.S. economy. The transportation system moves people and goods, employs millions of workers, generates revenue and consumes resources and services provided by other sectors.

The U.S. Department of Transportation defines transport as “the movement of products and people from one point to another via air, sea, road, and rail.” They define logistics as “the cost-effective process of planning, implementing and controlling the efficient movement and storage of goods from the point of origin to the end-user.” Transportation and logistics have become an integral part of how businesses operate and run their supply chain today.

The value generated by transportation services in moving goods and people on the transportation system is 8.8 percent of the U.S. Gross Domestic Product (GDP), which has increased by 76% in the last ten years. That growth points to the significant changes the industry is experiencing.

Key Trends in Transportation & Logistics

1. **Advances in Technology** – Key among technologies having the greatest impact on the industry are: IoT/telematics, artificial intelligence/machine learning, blockchain, safety enhancements (lane control, automatic braking, etc.), drones and driverless vehicles.
2. **Surging U.S. Economy** – Nearly half of respondents, 48%, say they are experiencing the need to reevaluate warehouse locations due to shifting trade patterns resulting from changes in the U.S. economy: taxes, tariffs and, to some degree, the return of manufacturing.
3. **Shifting Warehouse Points and the “Amazon Effect”** – Again, for nearly half of respondents, the so-called “Amazon effect” is having a dramatic impact on more than their logistics, supply chain and transportation operations. Amazon’s business model has created heightened expectations for immediate delivery. But the Amazon effect runs even deeper. The final mile for delivery is being redefined rapidly, as loads that used to see two or three touches are now receiving eight or nine touches to move product through the network quickly to the end consumer.

Source: Forbes Insights and Penske, September 2018

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Tucson and Southern Arizona: Transportation and Logistics Advantages

Tucson benefits from strong transportation infrastructure, including interstate highway, railroad and air freight connections. Interstate 10 is one of three cross-country, coast to coast freeways and Interstate 19 is the gateway to Mexico.

Additionally, Southern Arizona is home to the Port of Tucson (POT), the only inland port in Arizona. The POT is located directly on the Union Pacific main line and provides international ocean container rail service to and from seaports in California and Mexico. With over 150 transportation and logistics providers, Tucson area businesses can serve over 34 million people within a 500-mile radius and over 55 million people within a 1,000-mile radius.

The Transportation and Logistics industry in Tucson employs nearly 7,000 people with average earnings per worker of \$59,538. Employment is anticipated to grow significantly as new fulfillment centers open and existing facilities continue to add new employees.

Existing Southern Arizona Transportation & Logistics Employers



CHAMBERLAIN®



Although air cargo is not a significant portion of the air service at TUS, it does have air cargo operations. One benefit of the air cargo operations at TUS is the location on-site of US Customs and Border Protection with daily inspection services Monday through Friday 8 – 4:30pm.

Current air cargo tenants include:

- American Airlines Cargo
- Delta Air Lines Cargo
- Federal Express
- Matheson Flight Extenders
- Southwest Cargo

Air cargo in the U.S. has started increasing, after several years of decline, with the proliferation of e-commerce and demand for perishable goods (*Source: IATA*). However, in order to increase the demand for air cargo at TUS, companies must be identified that have a strategic reason to use air cargo and experience a competitive advantage by locating in Tucson and Southern Arizona.

Tucson and Southern Arizona are poised to capitalize on the disruption occurring within the industry. It will be critical that we position our key transportation assets, particularly TUS, to embrace the changes occurring with this industry.

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Educational Assets Support for Transportation & Logistics Sector

The University of Arizona Retailing and Consumer Sciences (RCSC) program, an Academic Program of the John and Doris Norton School of Family and Consumer Sciences, is consistently ranked among the top three programs in the U.S. Its mission is to provide world-class education on the business of retailing by integrating excellent instruction with cutting-edge research on consumer behavior and retail management. RCSC aspires to be the program of choice globally among the few institutions that offer both undergraduate and graduate degrees focused exclusively on the study of consumers and the business of retailing.

Additionally, Arizona State University's W. P. Carey School of Business, Department of Supply Chain Management is consistently ranked Top 5 nationally for undergraduate and graduate programs by *U.S. News & World Report*. ASU's research advances knowledge in global supply chain management while focusing on issues of practical importance. ASU's faculty is globally recognized for expertise in procurement, supply management, operations management, logistics and supply chain performance optimization. Annually, ASU awards nearly 800 supply chain management related degrees.

Pima Community College (PCC) currently offers a variety of transportation related degrees and certificates including:

- Logistics and Supply Chain Management Associate of Applied Science
- Basic Logistics and Supply Chain Management certificate
- Automotive Technology Associate of Applied Science
- Automotive Mechanic Technician certificate
- Autonomous Vehicle Driver and Operations Specialist certificate

PCC's logistics curriculum focuses on the core components of logistics and supply chain management that have been identified as important for regional employment by local industry partners, including warehouse management, inventory control, transportation and traffic management, freight claims, contract negotiations, purchasing and procurement, international logistics and an internship requirement that supports experiential learning.

The Center for Transportation Training provides training for the Class A and coach/transit bus operation (Class B with a passenger endorsement) commercial driver's license. The Center can provide the practical components for the CDL permit, as well as train and administer the State exam for Class A, B and C commercial vehicles.

In June 2019, PCC announced a new partnership with TuSimple, creating the first of its kind in the nation 'Autonomous Vehicle Driver and Operations Specialist' certificate program. This new program will teach experienced truck drivers how to operate and work with autonomous trucks. The training will prepare individuals for jobs such as training the autonomous system as test drivers, operating the vehicle in situations where autonomous driving is not suitable and to remotely monitor the system from a command center.

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3) Establish a Foreign Trade Zone at TUS.

Foreign Trade Zone Overview

Foreign Trade Zones (FTZs) are designated areas licensed by the Foreign Trade Zone Board at which special customs procedures may be used. The FTZ program was established to encourage and expedite U.S. participation in international trade by serving as a mechanism for companies to manage duty payments. FTZs are considered outside the U.S. Customs territory, so goods received into FTZs are generally not subject to duties, tariffs or quotas until, and if, they leave the zone. In Arizona, companies in an FTZ may receive up to a 75% reduction in real and personal property taxes for activated FTZs.

Competitive Differentiation

The Aerospace & Defense industry, as well as Transportation & Logistics companies, could benefit from the Foreign Trade Zone program. Each competitive advantage we can create at TUS will further economic development efforts. Designating the airport and airport owned lands as FTZ could help compete with locations that already have designated FTZs, such as:

- Huntsville-Madison County Airport Authority
- Greater Orlando Aviation Authority
- Jacksonville Port Authority
- Canaveral Port Authority
- Manatee County Port Authority
- Sebring Airport Authority
- City of Albuquerque Aviation Dept.
- Phoenix Mesa Gateway Airport
- Columbus Regional Airport Authority
- Miami International Airport
- Indianapolis International Airport
- Rickenbacker International Airport
- Columbia, SC Metropolitan Airport
- DFW International Airport
- Tampa International Airport

The tax benefits associated with FTZs are among some of the best incentives in the U.S., as noted by several Site Selection Guild members at their national conference in March 2019. Creating an FTZ at TUS would help market the airport and make it more competitive among peers.

4) Leverage and promote Opportunity Zone designation at TUS.

Opportunity Zones are an economic development tool created in 2017 to spur economic development and job creation by encouraging investors to reinvest their unrealized capital gains into dedicated Opportunity Funds. Investors who reinvest capital gains monies in Opportunity Zone funds will receive reductions on capital gains taxes relative to the years of their investment. There are three incentives for investment:

Temporary deferral: A temporary deferral of inclusion in taxable income for capital gains reinvested into an Opportunity Fund. The deferred gain must be recognized on the earlier of the date on which the Opportunity Zone investment is disposed of or December 31, 2026.

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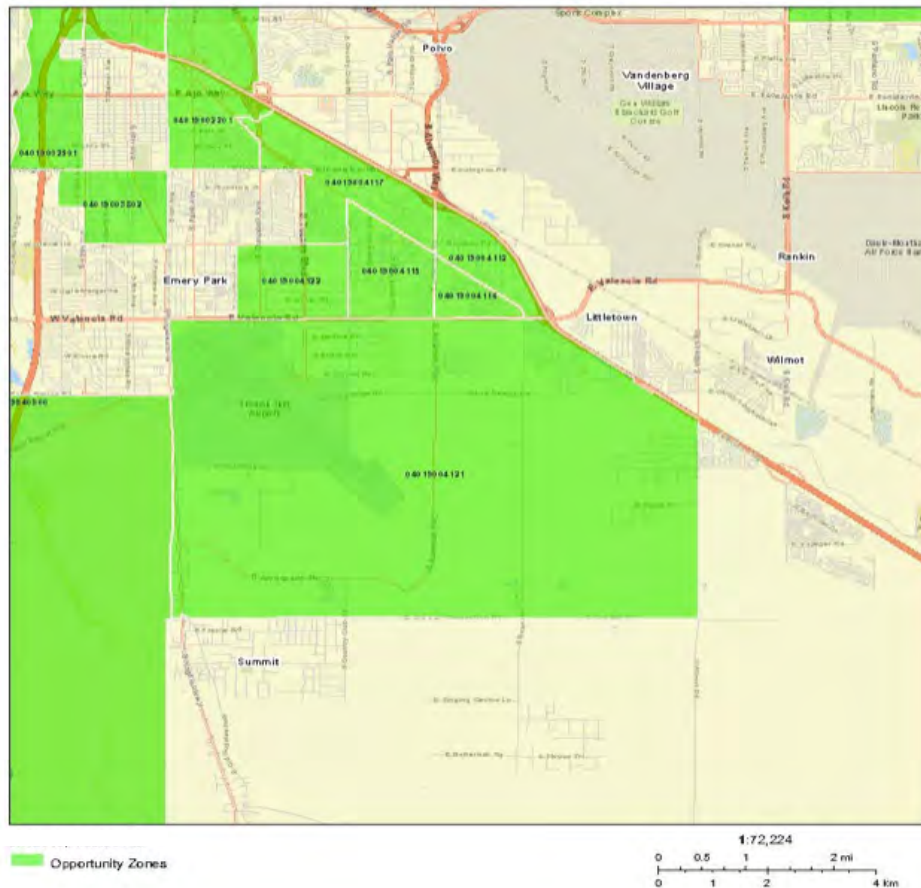
Step-up in basis: A step-up in basis for the deferred capital gains reinvested in an Opportunity Fund. The basis is increased by 10% if the investment in the Opportunity Fund is held by the taxpayer for at least 5 years and by an additional 5% if held for at least 7 years, thereby excluding up to 15% of the original deferred gain from taxation.

Permanent exclusion: A permanent exclusion from taxable income of capital gains from the sale or exchange of an investment in an Opportunity Fund if the investment is held for at least 10 years. This exclusion only applies to gains accrued on investments made through an Opportunity Fund. There is no permanent exclusion possible for the initially deferred gain.

(Source: Economic Innovation Group)

This new source of risk capital will seed new startups, accelerate business expansions, create jobs, increase and improve housing options and revitalize the built environment in distressed communities across the country.

Nearly all of the property owned by the airport is located in an Opportunity Zone, which could help attract new investment.



TUS Area Opportunity Zones

Tucson International Airport 2019 Economic Blueprint

“Caterpillar has great need for a strong airport to serve its customers, suppliers, employees and mining partners. We’re thrilled to see a strong commercial development plan emerge to advance the economic impact of the entire TUS Employment Zone.”

**Jean Savage, Vice President, Caterpillar
Surface Mining & Technology Division**



Tucson International Airport 2019 Economic Blueprint

Targeted Industries/Opportunities: Leveraging the Value of an Airport Location

Summary of Recommendations

- 1) ***Aerospace & Defense should be the primary targeted industry at both TUS and RYN. Specific subsectors to target include:***
 - a. Maintenance, Repair, and Overhaul Operations (MROs)
 - b. Flight Schools
 - c. Aerospace Manufacturing by Companies Specializing in:
 - i. Propulsion
 - ii. Space
 - iii. Avionics
 - iv. Optics/Photonics

- 2) ***Transportation and Logistics companies benefitting from access and proximity to TUS should be a secondary targeted industry.***

- 3) ***Establish a Foreign Trade Zone at TUS.***

- 4) ***Leverage and promote Opportunity Zone designation at TUS.***

Tucson International Airport 2019 Economic Blueprint

Land Use/Infrastructure: A Path for Economic Growth

Focus Area Goal:
Further define TAA strategy for commercial development and building/property enhancements at both TUS and RYN.

Committee Members	Organization
Bonnie Allin	Tucson Airport Authority
Chuck Huckelberry	Pima County
Dave Hutchens	Tucson Electric Power
Farhad Moghimi	Pima Association of Governments/Regional Transportation Authority
Tom Murphy	Town of Sahuarita
Mike Ortega	City of Tucson
Keri Silvyn	Lazarus, Silvyn and Bangs
John Voorhees, Chair	Pima County
David Welsh	Sun Corridor Inc.

“We recommend an “all hands on deck” approach to economic development at Tucson International Airport. This synergistic approach will be critical to leverage the community’s resources to accommodate greater commercial development around TUS.”

**John Voorhees, Assistant County Administrator
Director, Aerospace & Defense Initiatives
Pima County**



Background

As part of the methodology to determine and advance a strong commercial development strategy to support the targeted industries identified for TUS, the committee reviewed current airport and industry data, consulted with experts throughout the region and utilized a systematic approach for determining what actions could be taken to leverage TUS land and surrounding infrastructure.

The University of Arizona-sponsored Deloitte Study of the Southern Arizona Space Ecosystem boasts the region’s primacy in the aerospace industry and defines sectors of business that

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2019 Economic Blueprint

complement the talent pool in Tucson¹. The 2014 Economic Blueprint update identified TUS as a vital component to the economic success of the region². It also conveyed the sentiment that a well-planned infrastructure is key to supporting this success.

Guidelines

1. *Develop a land use plan that leverages the location of infrastructure and targets the specific industrial character of the available land parcels.*
2. *Create a joint comprehensive strategy to build the public infrastructure and appropriate zoning in areas of anticipated industrial development.*
3. *Facilitate an intermodal transportation network that enhances efficiency for the growing logistics and distribution industry.*

These goals generally complement TAA's planned growth as expressed in the 2014 TUS Airport Master Plan³. The prescribed strategies will require further deliberation to accommodate the needs of the growing airport as well as the expected development of commerce in the region.

Recommendations

- 1) ***The community must devise a strategy to develop TUS available land to a shovel ready status.***

TUS boasts a large amount of available land. The airport terminal and aerodrome surfaces occupy approximately 3500 acres (roughly the same as Los Angeles International Airport). TUS also possesses about 4500 acres of open land. Not all of this land is available and even less is shovel ready.

Over the years, TAA has acquired a substantial amount of land through various means and for various purposes. TUS currently consists of about 8300 acres. Of that, about 2400 acres is currently actively being used for aeronautical purposes. Not all of the remaining land is available for commercial development.

Additional vacant land was acquired with FAA funds for noise mitigation purposes⁴. Land purchased for this purpose (and all land purchased with FAA grant funds) is heavily regulated by the FAA. Though recent regulatory changes have reduced the FAA's influence in land transactions, the community should expect the FAA to weigh in on land transactions purchased with the agency's funds.

¹ Deloitte Inc., Southern Arizona Space Ecosystem Feasibility Study, August 2018

² Tucson Regional Economic Opportunities, 2014 Economic Blueprint Update

³ HNTB, Tucson International Airport Master Plan Update, August 2014.

⁴ HNTB Corporation, Airport Layout Plan Set Tucson International Airport, June 2, 2014

Tucson International Airport 2019 Economic Blueprint



Figure 1: TUS Parcels for Development

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Commercial Development Opportunities

There are three major parcels for commercial opportunity. Each parcel offers unique business opportunities based on anticipated growth of commerce and infrastructure in the region. These parcels were evaluated for potential business, restrictions on development and cost to become shovel ready.

Priority 1: Phased TAA investment in the “South Aerospace Parkway”

Potential: A&D Manufacturing

About 550 acres reside near the Raytheon Missile Systems campus along the Aerospace Parkway. Pima County owns a 300-acre parcel to the west, planned for aerospace and defense-related businesses. This parcel, in a phased approach, should be developed into a shovel ready condition and marketed for large-scale tech industry expansion in the region. Once developed, the land could become a hub for aerospace and space manufacturing as well as supply chain operations for the high-tech community.

The land is a former mine and will require significant cost to rehabilitate. According to a 2017 engineering report, it would take over \$10 million to develop the entire parcel into a shovel ready status. TAA is encouraged to establish an affordable, systematic process and take a proactive stance to develop this land in phases, starting from the west, in anticipation of prospective aerospace business interest. Utilities are located in the vicinity and have the capacity to expand, thus infrastructure does not present a significant challenge for development.

Priority 2: Secure long-term lease for “The South Acreage”

Potential: Logistics and Distribution

TAA purchased this 1400-acre parcel to mitigate noise from air traffic departing to the south of the airport. The land is near the Aerospace Parkway and the potential locations of the Sonoran Corridor (SR-410). This area has the potential to become a key site for logistics and distribution businesses.

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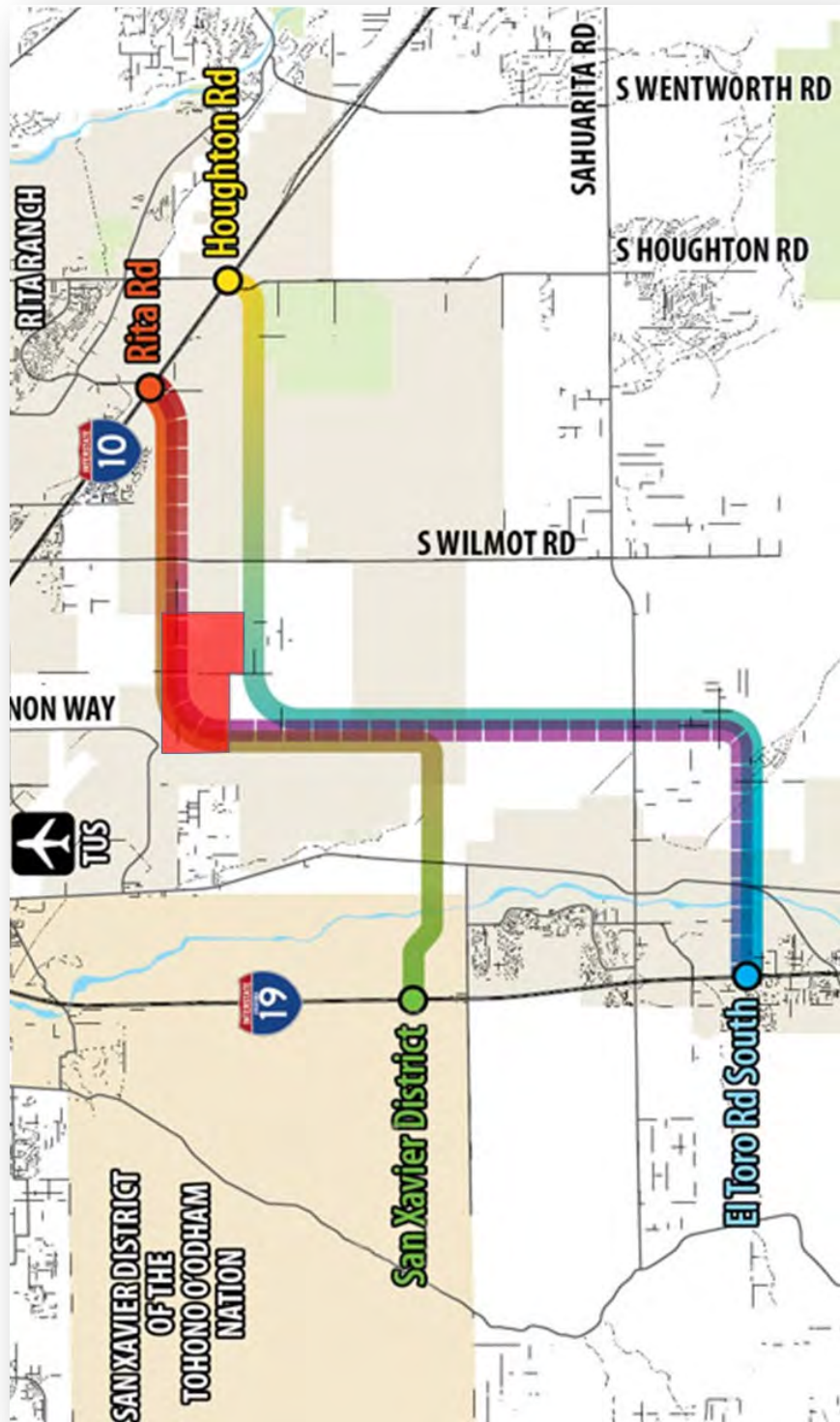


Figure 2: ADOT Proposed Sonoran Corridor Alternatives with TAA South Acceage Overlay⁵

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The “South Acreage” intersects the Sonoran Corridor alternatives just as the proposed highway bends to the south. Pima County would likely connect the SR 410 to the Aerospace Parkway to the north. This would offer much needed high-speed connectivity for business traffic on the south end of the airport (most notably Raytheon Missile Systems employee and business traffic). The property in this area would become very attractive to logistics and distribution companies wishing to expand in the region.

Because TAA purchased the parcel for noise abatement, the FAA would have to approve the disposal of land to prospective business owners. As an alternative, TAA could offer an attractive long-term lease plan for the acreage. Either way, this acreage is a development priority as the plans for the Sonoran Corridor take shape. Like the South Aerospace parkway parcel, this land should be developed systematically as compatible businesses express interest in the region.

Priority 3: Reassess needs for “The 600-acre Parcel”; consider Distribution Warehouse opportunities or expanded airside facilities

Potential: Logistics and Distribution

This land is located on the northeastern side of TUS. Alvernon Way borders it to the east, Los Reales Road to the north and the TUS airfield to the west and south. The parcel is prime real estate for the area. It is near major roads that already host the growing distribution warehouse business sector and utility infrastructure surrounds the property. The land abuts the airfield and has potential for use as an airside and landside business park.

The 2014 TUS Master Plan designates this property as a “Special Planning Area”⁵. TAA intends to build a third parallel runway and new passenger terminal on the land when the time and conditions permit. Based on 2019 FAA estimates, construction of the third parallel runway will not occur until after 2045. Even that estimate is ambitious and largely based on regional population estimates that are no longer valid. TAA also anticipates TUS will require a new commercial passenger terminal, ramp and associated infrastructure within the next 20 years partly due to airline aircraft that can no longer readily be accommodated at the existing terminal; and to keep pace with technology and infrastructure improvements are becoming cost-prohibitive to install in the existing facility.

⁵ HNTB, Tucson International Airport Master Plan Update, August 2014, page 259/7-35.

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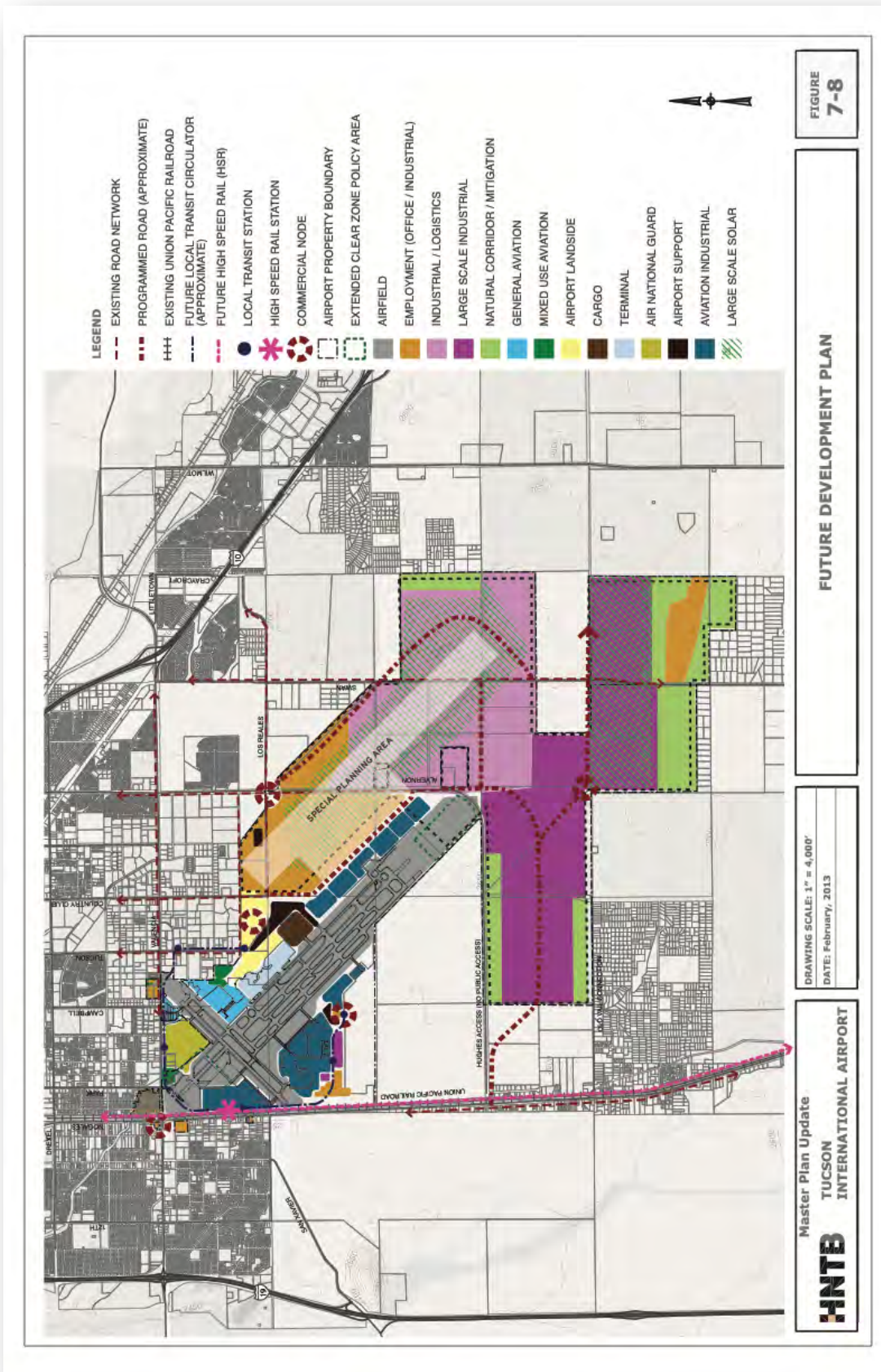


Figure 3: TUS Master Plan "Special Planning Area"

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In consideration for use in the interim, TAA's 2014 Master Plan recommends a temporary business solution that is reversible at low cost. Distribution warehouses could be constructed in a manner that would permit the land to be reverted to its original state when needed. TAA anticipates the next update to the TUS Master Plan will take place around 2025, after it completes the major airfield safety enhancement project currently underway. At that time, TAA will likely include an update to determine if it anticipates the need for the third parallel runway.

Because this parcel also abuts the airfield and is planned for airport operations, TAA could divide the parcel for use by both flying and non-flying commercial interests.

2) The community, led by TAA, must determine a sustainable way to commit the resources necessary to expand airside land availability, either locally or through a P3 partnership.

While airside (on airport with runway access) land is at a premium, there is potential for significant growth at TUS. TAA has anticipated the need for airside growth in particular for the burgeoning MRO business sector. TAA made a considerable investment to develop airside land for potential MRO operations. The airport's leadership designated a site on the southeast section of the airport as a future MRO campus. Currently 50 acres are ready for development by MRO businesses – complete with perimeter roads and utilities. As demand increases, TAA intends to extend the MRO campus to parallel Runway 11L with the potential for adding up to 200 acres. TUS positioned itself well to accommodate moderate growth in the high-demand aircraft maintenance industry.

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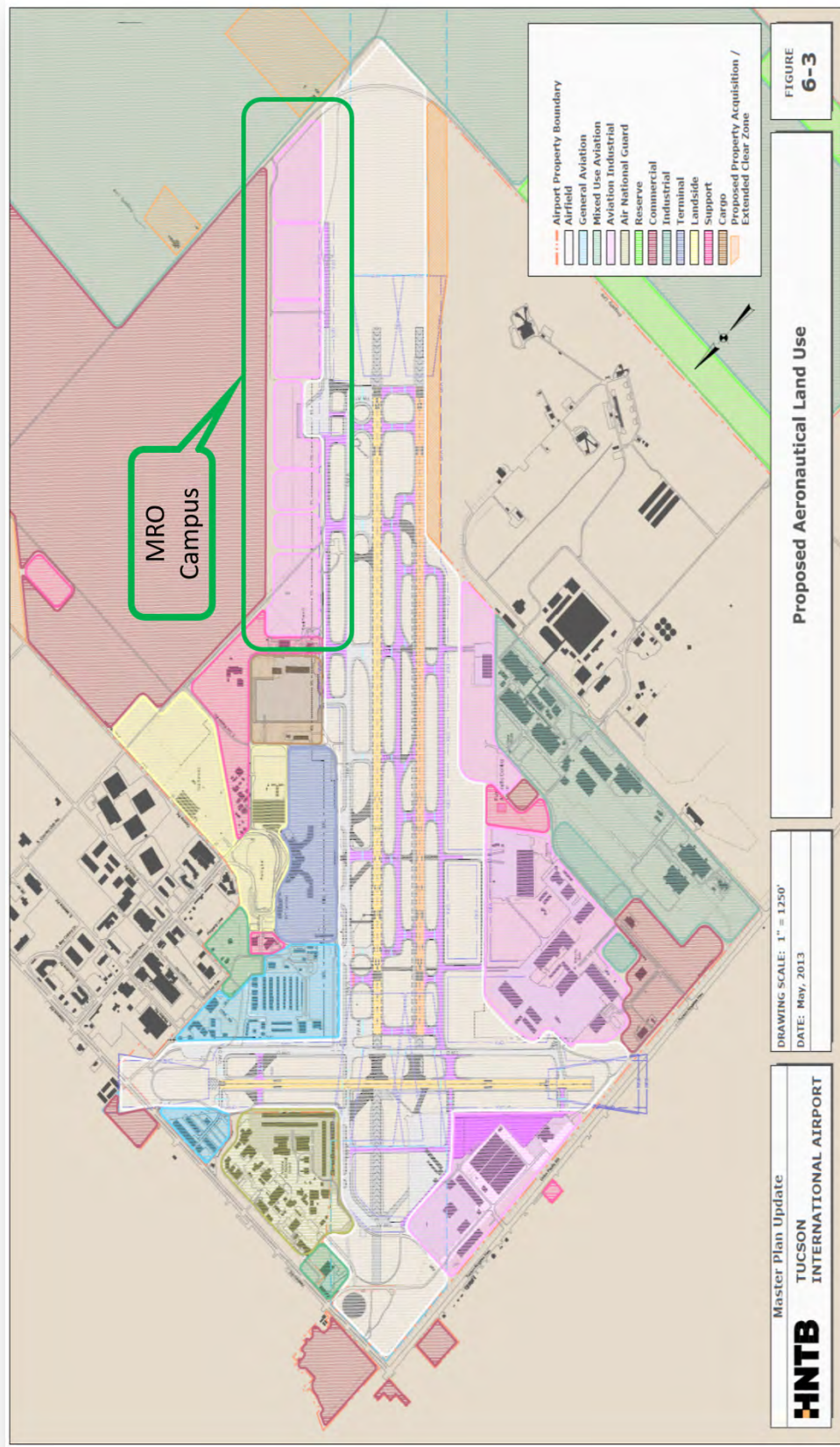


Figure 4: TUS MRO Campus

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Pima Community College (PCC) Aviation Training Program operates on the west side of the airfield. With the State of Arizona \$15 million grant to expand its aviation program capacity to meet the needs of the industry⁶, PCC will double its footprint at the airport. Ascent Aviation also operates a major MRO facility in the same location.

PCC will benefit from airport plans to renovate its west campus. As part of the comprehensive Airfield Safety Enhancement Project (ASEP), TAA will demolish three World War II-era hangars, install a new taxiway and remediate a Superfund site located on the premises. The cascading affect will be a streamlined west-side campus with available space to accommodate the future plans of PCC and Ascent Aviation.

Like the aforementioned plan, TAA should continue to expand airside land by developing strategies to more efficiently use space on the airfield as well as develop available land to a shovel ready status.

3) The community should establish a unified vision for road improvements in the region.

Overall evaluation of TUS land and commercial development opportunities cannot occur without addressing the transportation needs of the entire region. The road and rail connectivity in the airport environment is adequate. However, there is room for improvement in order to make travel through the region efficient and pleasant.

Existing Utilities and Infrastructure

The existing infrastructure around the airport is sufficient for the planned operations as explained in the 2014 TUS Master Plan. TAA has forecasted areas of potential growth and directed infrastructure investment to those areas. As a result, TAA is postured to accommodate the forecasted expansion of the airport in accordance with the 2014 TUS Master Plan.

Planning staff considered potential scenarios for growth that either exceeded the forecasted expansion or redirected the growth pattern around the TUS Employment Zone. Pima County Geographical Information Systems analysts and Pima County Public Works Project Management staff created a notional model of business expansion around the airport based on a more aggressive economic development model in the region. In order to simulate moderate growth in the region, the staff was given the task to “develop” the land around the airport in 30-acre parcels per year with at least one major (100+-acre parcel) developed every 7 years.

Figure 5 features a snapshot of the notional development of land and infrastructure in the airport environs. Pima County staff developed this product in cooperation with the region’s local utilities.

The 30-year growth model revealed that even in a period of accelerated economic growth in the region, the expansion of utilities and infrastructure could develop at a comparable rate to meet

⁶ Pima prepares for Aviation Tech expansion , following funding for new facilities
<https://pima.edu/press-room/news-releases/2019/201906-aviation.html>, (accessed June 4, 2019).

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the needs of the expansion. This assuaged the concern that economic development could outpace the expansion of utilities in the region.

All of the TAA-owned land is zoned for appropriate industrial or commercial uses. With the recent annexation of the majority of TUS property by the City of Tucson, there have been a few code/zoning issues identified that have or will impede future development. The City and TAA continue to work towards both short- and long-term solutions to resolve the zoning/code discrepancies, including Pima County as appropriate.

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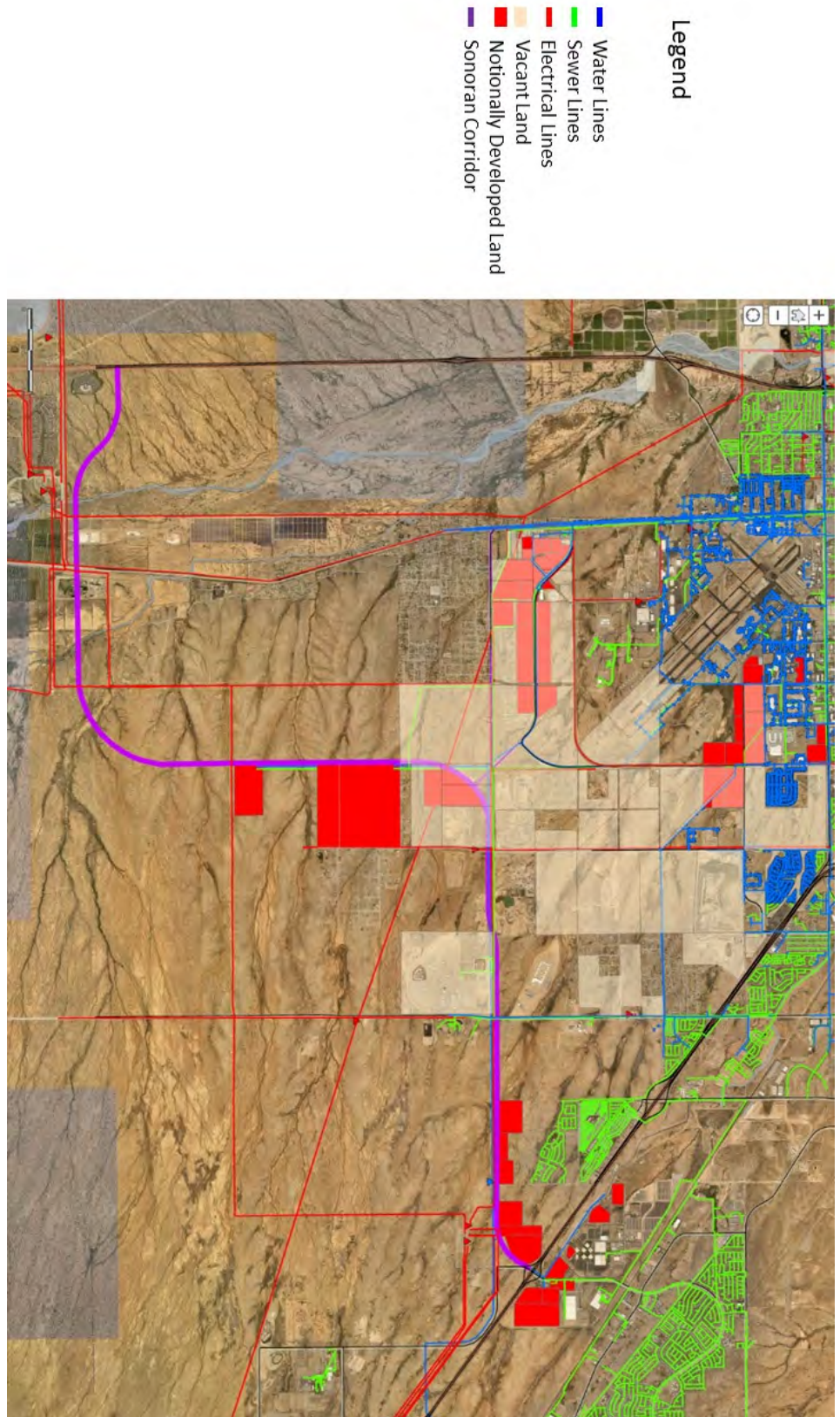


Figure 5: National Land development around TUS

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State of Arizona Growth Projections

The Arizona Department of Transportation (ADOT) anticipates considerable growth along the I-10 corridor. Some projections estimate that traffic volumes will increase 50% by 2045 in Tucson⁷. As a result, ADOT programmed funding for the following projects:

ADOT Program: Pima County Region⁸

- Interstate 10: Ina Road to Ruthrauff Road: \$109 million allocated from FY 2020 to FY 2022 to widen the freeway between Ina and Ruthrauff roads.
- Interstate 10: Ruthrauff Road traffic interchange: \$102 million allocated from FY 2019 to FY 2021 for this reconstruction project.
- Interstate 10: Houghton Road traffic interchange: \$46 million allocated from FY 2019 to FY 2021 for this construction project.
- Interstate 19: Ajo Way traffic interchange: \$36 million is allocated in FY 2019 for the second phase of this reconstruction project.

Local Road Improvements

As with much of the region, the condition of the roads is an issue for the growth of the airport environment. The City of Tucson and Pima County have taken deliberate steps to repair the existing road infrastructure and ADOT has programmed funds for numerous projects in the area.

TAA maintains roadways on airport property, including portions of Tucson Boulevard, Plumer Avenue and Country Club/Los Reales Road in the terminal area and Aero Park Boulevard and portions of Park Avenue on the west side of TUS. All of these roadway projects play a vital role in the development and growth of commerce around the airport.

⁷ ADOT, Transportation Studies Interstate 10 / Houghton Traffic Interchange Study, <https://www.azdot.gov/planning/transportation-studies/i-10-houghton-traffic-interchange-study>, (accessed May 25, 2019).

⁸ ADOT, Transportation Programming Current Five-Year Program, <https://www.azdot.gov/planning/transportation-programming/current-program>, (accessed May 28, 2019).

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Because the airport environment is increasingly commercial, large trucks traverse the city streets around the airport. Valencia Road, Country Club Road, and Alvernon Way all have experienced increased commercial truck traffic as businesses either ship their products through the airport or travel across the region to access the major highways. These roads were not designed to accommodate long-term heavy traffic. Road studies are underway by local transportation planning officials, but an increased focus on the effects of economic development in the region should weigh heavily on the conclusions that planning staff determine as they make recommendations for future construction/remediation projects. As the Port of Tucson continues to grow, heavy logistics traffic to and through the airport environment could place unanticipated stress on the local arterial roads.

With limited resources to repair roads, the community must embrace a ‘whole of government’ approach to resolve the local tributary issues that might erupt from a robust business growth cycle. This concept is not new to the area. The City of Tucson and Pima County have cooperated on regional road repair strategies. The City and County information technology (IT) departments have signed an IGA to share fiber and network infrastructure. The two departments have worked to standardize conduit placement in construction projects and work with their respective transportation departments to add IT infrastructure to the scope of most road projects in anticipation of the future technology need.

Agencies such as the Pima Association of Governments (PAG) must take a leadership role to strategize road and infrastructure growth alongside municipal and county transportation staffs. PAG should place particular emphasis on the cascading effects of increased commercial traffic in the airport employment area due to robust economic development. They should develop strategies to mitigate road damage and advocate for state funding of community project priorities. PAG should form a regional working group focused primarily in the TUS employment zone that examines traffic and business growth and plans road improvements/expansions with an eye to the commercial development of the airport environment. Their inputs would inform the development of the Airport Master Plan as well as local transportation plans for the affected municipalities.

Sonoran Corridor

The proposed Sonoran Corridor will be a critical cog in the region’s economic growth. Businesses will desire locations along the thoroughfare. More importantly, the road will open a high-speed path between the region’s two interstate highways. This would likely alleviate some of the stress on the local roads as commercial trucks divert to the more expeditious route. Further, by connecting the Sonoran Corridor to the Aerospace Parkway, the road will become a key route for non-commercial traffic from the University of Arizona Tech Park and Rita Ranch areas into the businesses around the airport.

ADOT executed a Tier1 Environmental Impact Statement for the roadway but it has not identified a funding source for the Tier 2 study. There are multiple alternative routes envisioned for the highway project (see Figure 2). This TUS Blueprint does not take a position on any one alternative. However, it would be prudent for the community to advocate for an expeditious study and immediate funding for the construction of State Route 410, the Sonoran Corridor.

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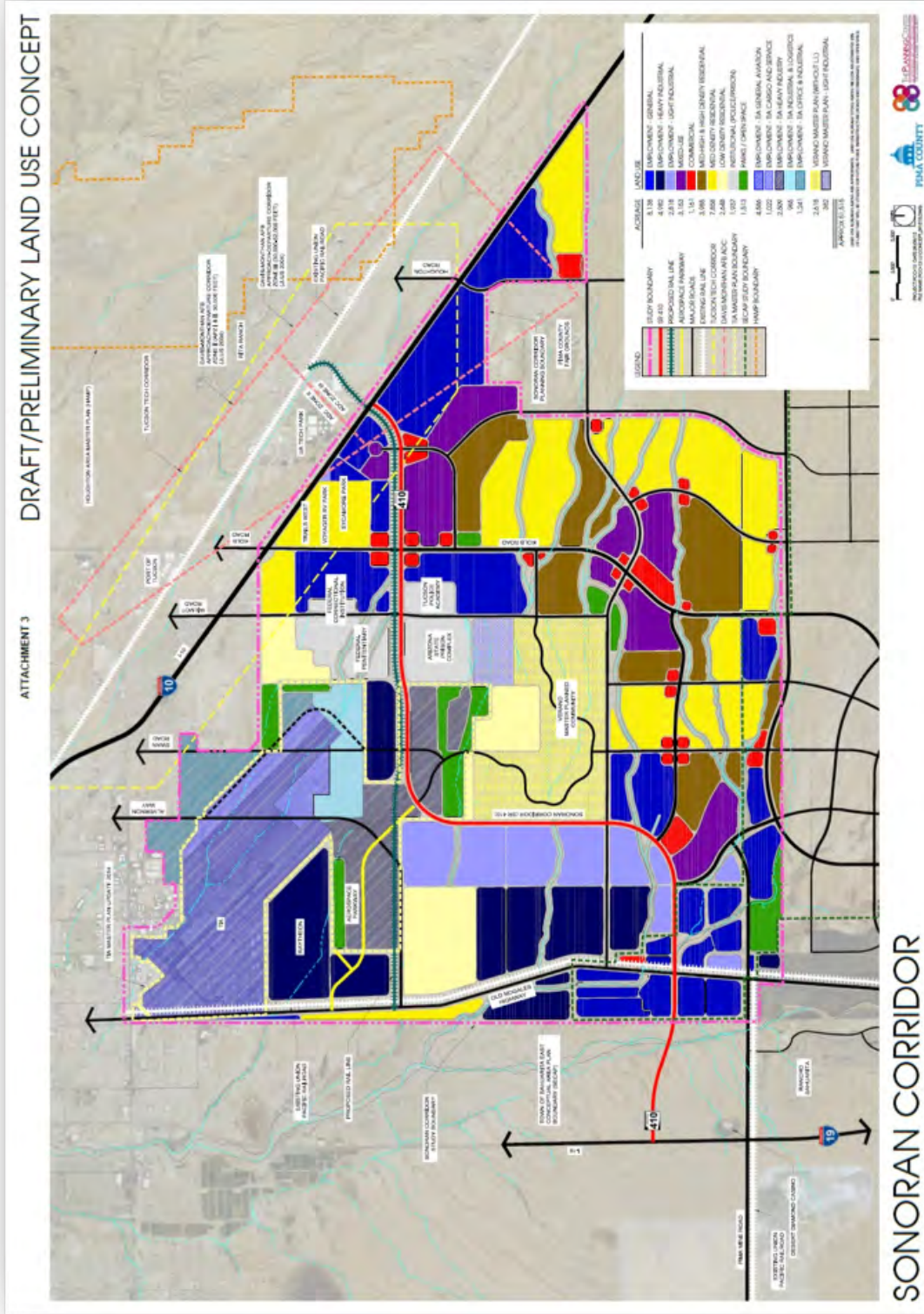


Figure 6: Land Use Master Plan including new rail line

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I-10/Country Club Interchange

ADOT has several highway interchange projects in the planning stage. The I-10/Country Club interchange project is designed to alleviate congestion along the southern portion of the transportation corridor and to provide direct access to the projected new passenger terminal location for TUS. Though no funding has been programmed, regional planners have identified the benefit of an interstate exit that leads directly to the airport.

However, there are limitations to the improvements that can be done to Country Club road. The thoroughfare is located in a heavily developed industrial area. The road cannot be widened or significantly altered without uprooting the businesses along its right of way. Because of its industrial location, beautification efforts would also be limited.

Though the new terminal will likely be located on the parcel of land that abuts Country Club road, planners should evaluate more effective alternatives for access to the facility. One proposed alternative is to repurpose Alvernon Way as a high-speed transit route from State Route 210 (Aviation Parkway) to the proposed State Route 410 (Sonoran Corridor).

SR-210 to SR-410 proposal

Pima County has advocated for a new alignment of State Route 210 that would connect with I-10. The new section would improve traffic flow from downtown and along I-10. ADOT has programmed \$20M for right of way and construction design in FY 2022. The current plan is to establish a highway connection between SR-210 and I-10 utilizing Alvernon Way to connect both highways.

Pima County has advocated taking the concept even further and extending SR-210 south of I-10 along Alvernon Way. Alvernon would become a highway with a direct connection to the proposed Sonoran Corridor (SR-410).

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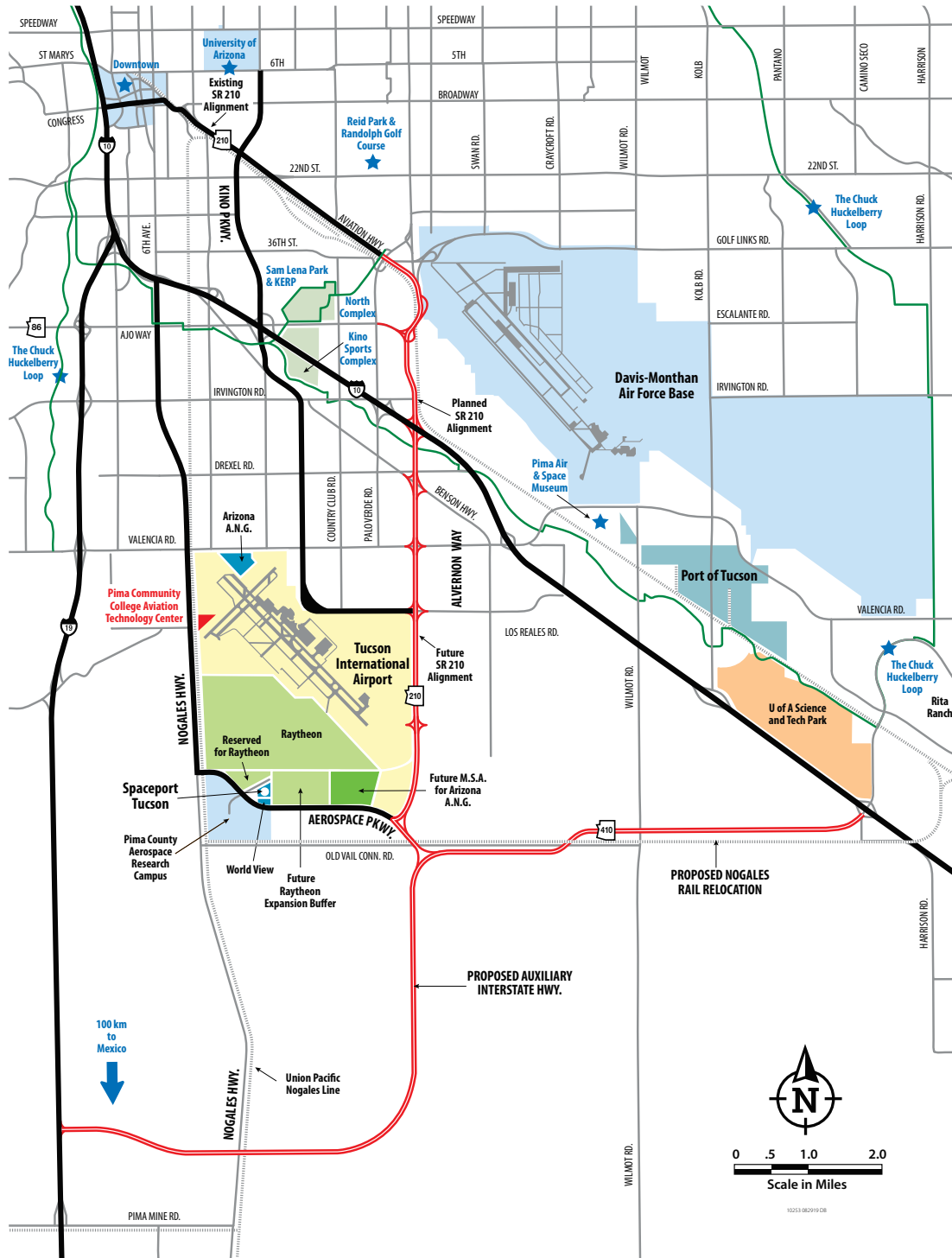


Figure 7: SR-210 to SR-410 Proposal

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Under this proposal, TUS would have a dedicated exit from the highway at Los Reales Road. Because the area is largely undeveloped, the community has the opportunity to control access and to add the road to the airport's beautification plans. Alvernon, south of I-10, is a wide road with sufficient available land to develop a highway with a frontage road system to serve the businesses and communities that have already built in the area. The concept would also provide a high-speed transit path for business and consumer traffic from the south and southeast areas of the region. The open parcels near the highway are fertile ground for the growing distribution and logistics business sector in the area.

The TUS Master plan designates the open land in the area as the 'Special Planning Area' for the airport. The strategic view is to relocate the airport's main passenger terminal and airside operations near Alvernon Way. With focused community effort, the region can realize the full potential of the land without sacrificing any plans the airport may have for expansion and development.

A Southern Entry Into the Airport

There is no convenient route to transit the airport environment from south to north. The current road infrastructure is congested or in a poor state of repair. There are relatively few improved roads between South Nogales Highway and I-10 to connect travelers from the south to the north. PAG, with the input of the local municipalities, should evaluate the best method to increase north-south traffic throughput.

As noted previously, Pima County has advocated the southern extension of Alvernon Way to the Aerospace Parkway, which on the surface conflicts with the airport's 2014 Master Plan that proposes realigning Alvernon Way around a proposed third parallel runway. Pima County's plan would further connect the Aerospace Parkway to the Sonoran Corridor.

"Pima County recognizes its role in advancing infrastructure and investment around the Tucson International Airport. We've made significant investments in the Aerospace Research Campus, the Aerospace Parkway and many other areas. We'll continue this trajectory to contribute to bold commercial development strategies at TUS."

**Chuck Huckelberry, Administrator
Pima County**



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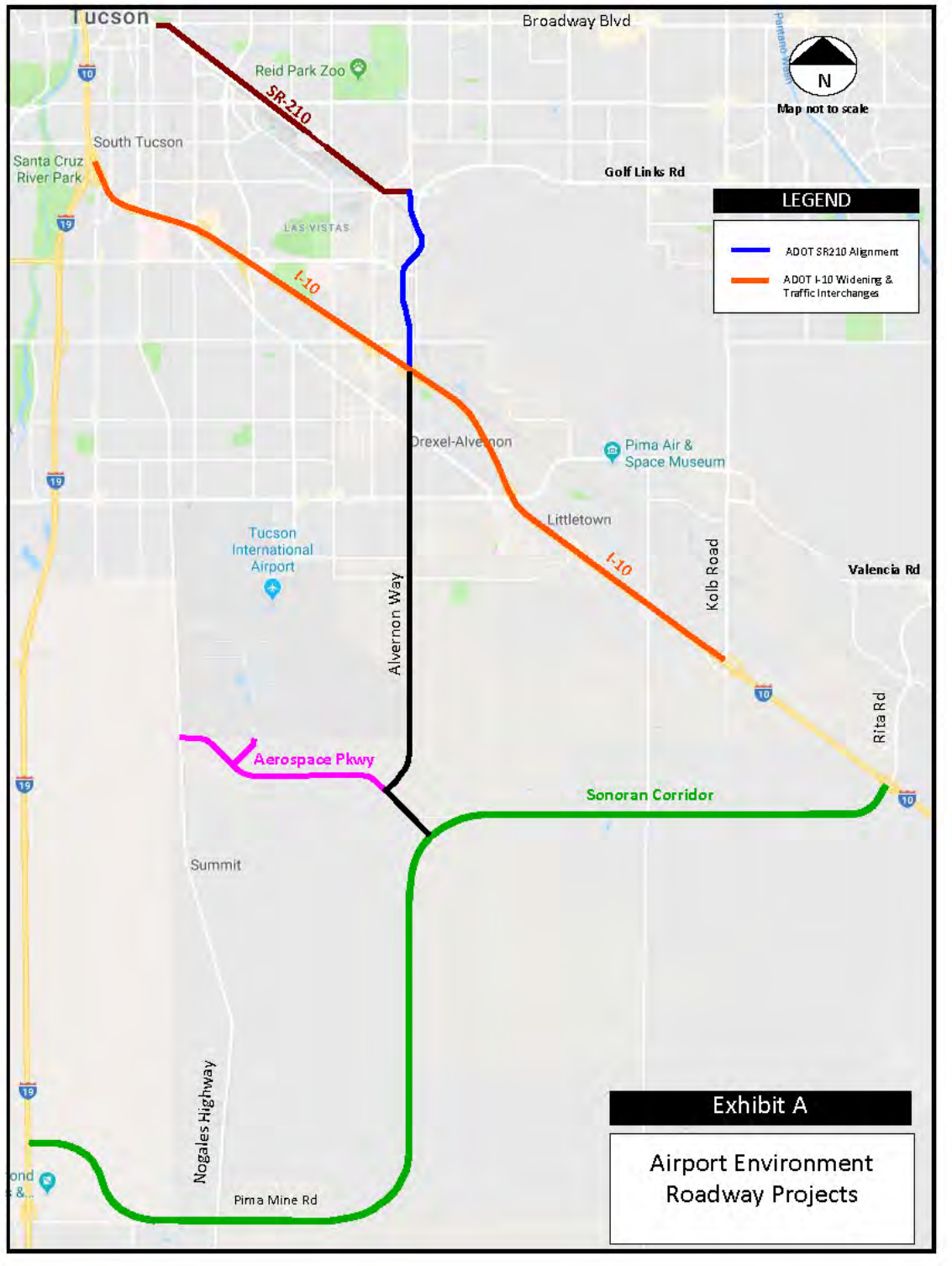


Figure 8: SR210-Alvernon Way-Sonoran Corridor Connection

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Within the next 20 years, the community could see a high-speed distribution corridor develop between the Port of Tucson and the Sonoran Corridor/I-19 interchange with a direct route into the airport. This has the potential to dramatically change in the economic success of the airport environment. Coming to a mutually beneficial resolution to this conflict could solve the issue of a southern entry to the airport while also expanding an already growing distribution center/logistics area.

Mass Transit

The City of Tucson has initiated the development of the Mobility Masterplan (MMP). The MMP will focus on the City's transportation network and how all modes work to build a balanced system. This plan will look at the continuation of the streetcar and how the City can build a mass transportation mode that is supportive of land use and economic development opportunities applying smart growth practices. This includes consideration of connecting TUS to the current downtown loop. The City of Tucson should coordinate this plan with the ongoing efforts of the community to rehabilitate the transportation system of the region.

4) The community should evaluate the efficacy of an east-west rail line to connect the open land south of the airport to the Port of Tucson.

As commerce expands into the South Aerospace Parkway and South Acreage parcels, businesses will seek more efficient transportation options to distribute goods. The construction of the Sonoran Corridor (SR-410) will solve most of those concerns. There is also a plan to include an east to west rail line to parallel the Old Vail Connection Road. Installing this rail line and connecting it north to the Port of Tucson would enhance the efficiency of travel in the region and be an attractive feature to accommodate the anticipated supply chain and logistics commerce needs in the area.

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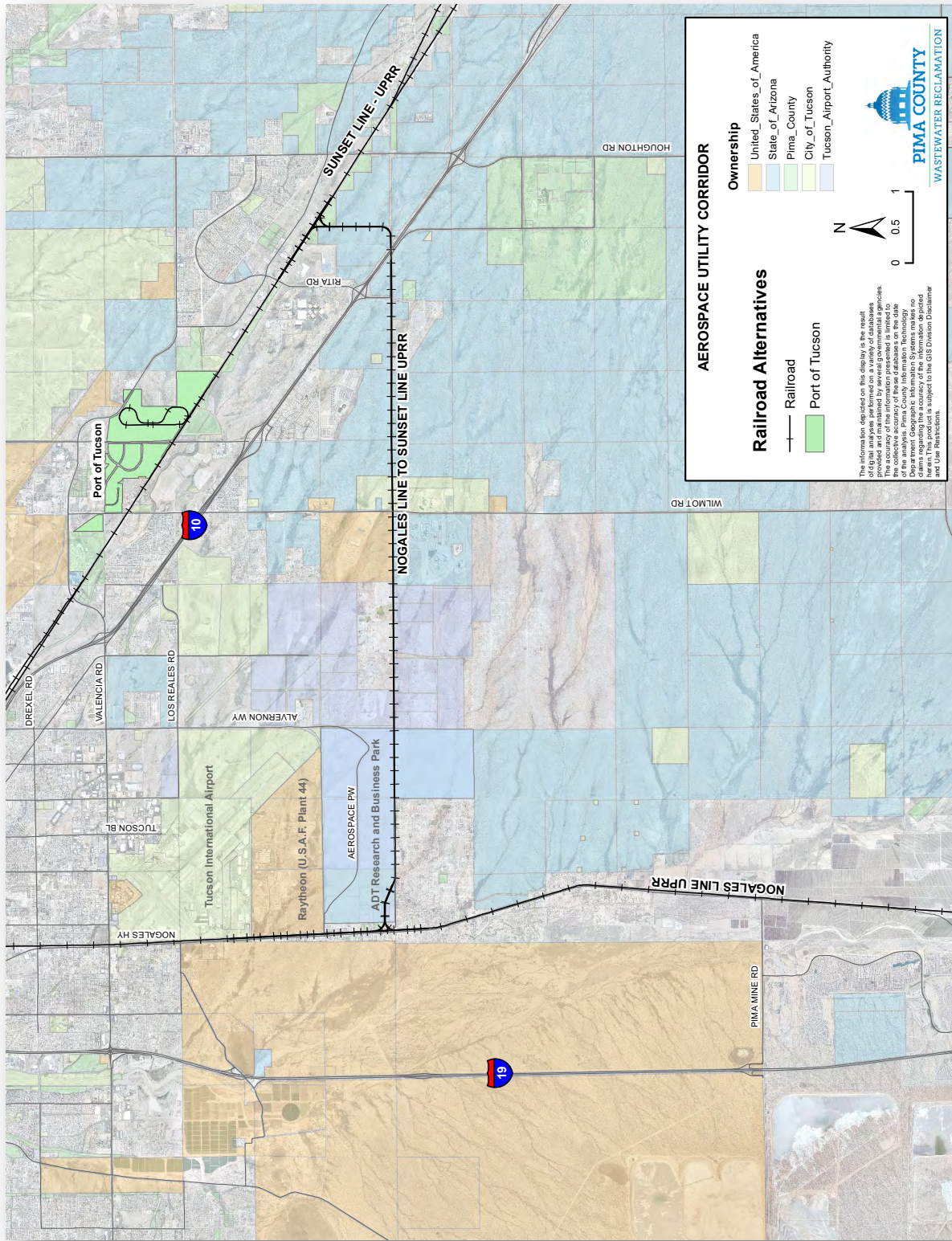


Figure 9: Possible East – West Rail Line

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5) TAA and the community should dedicate resources to improve the aesthetic appeal of roadways leading to and from the airport.

TUS is in an area surrounded largely by commercial development and reached by city streets. Although the main entrance to the commercial airline terminal is lined by airport hotels, some of the other entrances to the airport reflect an industrial character.

Recently, TAA posted welcome signage and landscaped areas near the airport entrance along Country Club Road as part of a larger project that is intended to show a unified and welcoming approach to the airport. In an era where real “curb appeal” plays an important role in real estate transactions, there needs to be a much larger, more deliberate approach.

If Country Club Road is to be the entrance boulevard for the new passenger terminal, a proactive stance should start now to produce a grander entryway to the airport, not only TUS property but possibly extending as far north as I-10 or a connector State Route 210. Business construction projects that occur along this road should be executed in a fashion consistent with this long-term purpose.

TAA is encouraged to continue the process it has started to make the airport and its environs more aesthetically pleasing. The City of Tucson and Pima County should work with TAA to develop a plan to create a “beautification plan” for the airport and surrounding environment.

“The City of Tucson stands ready to partner with TAA and our community leaders in the shaping of our future economy through investment in our regional infrastructure. The TUS Blueprint’s design incorporates the flexibility necessary to respond to future economic swings and the agility to quickly adapt to the needs of the private sector.”

Michael Ortega, P.E.
City Manager, City of Tucson



Tucson International Airport 2019 Economic Blueprint

Land Use/Infrastructure: A Path for Economic Growth

Summary of Recommendations

- 1) *The community must devise a strategy to develop TAA's available land to a shovel ready status.*
- 2) *The community, led by TAA, must determine a sustainable way to commit the resources necessary to expand airside land availability, either locally or through a P3 partnership.*
- 3) *The community should establish a unified vision for road improvements in the region, including a new southern entry to TUS.*
- 4) *The community should evaluate the efficacy of an east-west rail line to connect the open land south of the airport to the Port of Tucson.*
- 5) *TAA and the community should dedicate resources to improve the aesthetic appeal of roadways leading to and from the airport.*

"Harsch appreciates the proximity to the airport and all the commercial opportunities that proximity offers. Its critical to continue developer input into land use and infrastructure decisions so that the private sector needs are squarely on the table."

**Bill Rodewald, Senior VP and Regional Manager
Harsch Investment Properties**



Tucson International Airport 2019 Economic Blueprint

Stakeholder Engagement: TUS as the Community's Airport

Focus Area Goal

To identify current status of stakeholder engagement of influencers and partners for TUS commercial development; develop new structures to enhance stakeholder involvement, support targeted industry success and transform land use plans.

Committee Members	Organization
Bruce Dusenberry	Tucson Airport Authority
Steve Eggen, Chair	Raytheon Missile Systems (ret) Aerospace Consultant
Lisa Lovallo	Tucson Airport Authority, Chair Cox Communications
Omar Mireles	HSL Properties
Judy Rich	TMC HealthCare
Robert C. Robbins	University of Arizona
Dave Smallhouse	Miramar Ventures
Joe Snell	Sun Corridor Inc.

“We want the Tucson International Airport to be a thriving heartbeat of the community, and we feel these new approaches to commercial development will ensure their success.”

Steve Eggen
Raytheon Missile Systems (ret)
Aerospace Consultant



Background

Tucson is a popular tourist destination and TAA has historically focused on tourism and passenger traffic to serve the needs of tourists. A heightened focus and prioritization of economic development is a critical next step for the Tucson International Airport. Leveraging commercial opportunities to generate non-aeronautical revenue in the face of airline consolidation and declining passenger revenue trends must be addressed. This is the next horizon at Tucson International Airport. Bringing in new airport-area businesses brings new jobs and capital investment which, in turn,

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benefits existing businesses here, by providing them with new customer prospects, new suppliers and new potential partners for their own growth plans.

Shareholder engagement is the engine to tie together the work of the Targeted Industries/Opportunities and Land Use/Infrastructure committees. The integration of the three committees is the key to successful TUS Blueprint implementation.

In order to support the recommendations of the Targeted Industries/Opportunities and Land Use/Infrastructure recommendations, the Stakeholder Involvement group analyzed the following:

- Who are the stakeholders at the Tucson airport, and how are they engaged right now?
- What are the gaps in commercial development and what structures are needed to overcome these gaps?
- What recommendations could we make to achieve success?

WHO ARE THE ECONOMIC STAKEHOLDERS?

Direct Customers Air Operations

- Airlines
- Passengers
- FAA

Influencers / Partners For Commercial / Economic Development

- City of Tucson
- Pima County
- State
- PAG
- Utilities
- Brokers
- Land Owners
- Tenants
- Governments across Southern Arizona
- Businesses
- Higher Education
- Developers
- FAA

SUN CORRIDOR INC

The committee performed an assessment of stakeholder engagement of the influencers and partners for commercial development. This assessment included one-on-one meetings with airport tenants, businesses, government officials and others. Additionally, an online survey was conducted of top leadership and employers across Southern Arizona.

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Findings of stakeholder assessment included:

- Key community influencers expressed a desire for a larger voice in shaping the airport's future
- Stakeholders want more focus on commercial/economic development at TUS
- Encouraged by new Sun Corridor Inc. partnership
 - Hopeful that partnership will help create better balance between traditional air operations and commercial development
- Stakeholders want a strategic approach to infrastructure investment and development
- TAA is perceived to be risk intolerant related to investments to advance commercial/economic development opportunities

Recommendations

1) *Expand on Sun Corridor Inc. partnership*

2) *Create an entity whose sole focus is commercial/economic development at the airport. Options are nonprofit corporate entity or an LLC.*

This entity's charter is to define the approach for economic development on and around the Tucson and Ryan Field airports. A formal Board structure would to be established within this entity and membership would include TAA, Community, Business, City, and County. The Economic Development Board will be independent of, but report to, the TAA Board of Directors. This group would be charged with implementing the economic development vision defined by the TUS Blueprint.

3) *Determine best way to disposition available land, either through sale or long-term ground lease, taking into account FAA review and funding.*

Disposition of land can occur either through sale, or long term ground lease, taking into account FAA review and funding.

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TUS Blueprint: Summary of Recommendations

Targeted Industries/Opportunities: Leveraging the Value of an Airport Location

- 1) Aerospace & Defense should be the primary targeted industry at both TUS and RYN. Specific subsectors to target include:
 - a. Maintenance, Repair, and Overhaul Operations (MROs)
 - b. Flight Schools
 - c. Aerospace Manufacturing by Companies Specializing in:
 - i. Propulsion
 - ii. Space
 - iii. Avionics
 - iv. Optics/Photonics
- 2) Transportation and Logistics companies benefitting from access and proximity to TUS should be a secondary targeted industry.
- 3) Establish a Foreign Trade Zone at TUS.
- 4) Leverage and promote Opportunity Zone designation at TUS.

Land Use/Infrastructure: A Path for Economic Growth

- 1) The community must devise a strategy to develop TAA's available land to a shovel ready status.
- 2) The community, led by TAA, must determine a sustainable way to commit the resources necessary to expand airside land availability, either locally or through a P3 partnership.
- 3) The community should establish a unified vision for road improvements in the region, including a new southern entry to TUS.
- 4) The community should evaluate the efficacy of an east-west rail line to connect the open land south of the airport to the Port of Tucson.
- 5) TAA and the community should dedicate resources to improve the aesthetic appeal of roadways leading to and from the airport.

Stakeholder Engagement: TUS as the Community's Airport

- 1) Expand on Sun Corridor Inc. partnership
- 2) Create an entity whose sole focus is commercial/economic development at the airport.
- 3) Determine best way to disposition available land.

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Next Steps / Implementation

The most important part of this new TUS Blueprint is its implementation. Sun Corridor Inc. has a strong track record in ensuring that the community's Blueprints do not sit on a shelf: they are put into action for years to come. This plan will be no different.

Moving forward, Sun Corridor Inc. will take the lead role in advancing the Blueprint's recommendations by:

- Creating new structure/entity whose sole focus is TUS commercial development
- Developing an implementation plan
- Identifying critical partners to be at the table
- Determining the best funding approach
- Identifying resources necessary
- Involving appropriate partners to facilitate key recommendations
- Disseminating the plan to community and business leaders
- Establishing success metrics
- Monitoring and reviewing actions on a regular basis

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Acknowledgements

To lead the TUS Blueprint process, a Steering Committee was established of key community leaders to guide the process, explore issues and review options, formulate strategies and make final recommendations included in the plan.

Subcommittees included Stakeholder Engagement, Land Use/Infrastructure and Targeted Industries/Opportunities. Each subcommittee also included other community groups/individuals to address topics at hand, as appropriate.

TUS Blueprint Steering Committee

Chairman Lisa Lovallo

Market VP, Southern Arizona, Cox Communications
Chair, Tucson Airport Authority

Subcommittees

Stakeholder Engagement

Chair, Steve Eggen

Aerospace Consultant
Former CFO, Raytheon Missile Systems

Land Use/Infrastructure

Chair, John Voorhees

Assistant County Administrator
Director, Aerospace & Defense Initiatives

Targeted Industries/Opportunities

Chair, Denny Minano

Managing Director, CMM
Former VP, Public Policy and Chief Environmental Officer, General Motors

Members

Bonnie Allin

President & CEO, Tucson Airport Authority

Jean Claude Bernard

CFO, Bombardier

Sharon Bronson

Board of Supervisors, District 3, Pima County

Brent DeRaad

President & CEO, Visit Tucson

Bruce Dusenberry

Tucson Airport Authority Board Member

Chuck Huckelberry

Administrator, Pima County

David Hutchens

President & CEO, UNS Energy Corp., Tucson Electric Power, and UniSource Energy Services

Chair, Sun Corridor Inc.

Lee Lambert

Chancellor & CEO, Pima Community College

Brigadier General Andy MacDonald

Arizona Air National Guard, 162nd Wing Commander

Omar Mireles

President, HSL Properties

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Mayor, Town of Sahuarita

Mike Ortega

Manager, City of Tucson

Judy Rich

President & CEO, TMC Healthcare and TAA Board Member

Dr. Robert C. Robbins

President, University of Arizona

Keri Silvyn

Partner/Owner, Lazarus, Silvyn and Bangs, and TAA Board Member

David Smallhouse

Managing Director, Miramar Ventures

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About Sun Corridor Inc.

Sun Corridor Inc.'s role is to coordinate all economic development activities and programs within the Southern Arizona megaregion under one umbrella. The primary goal of Sun Corridor Inc. is to facilitate primary (non-retail) job and investment growth in the region. Our work also includes creating a competitive environment that allows primary employers to flourish and succeed.

Economies, both nationally and internationally, compete for jobs and capital investment based on regional strengths. The economic benefits of business expansion and attraction, no matter where physically located, transcend jurisdictional lines. Thus, the realities of the marketplace dictate that Sun Corridor Inc. be committed to the economic prosperity of the entire megaregion.

Sun Corridor Inc. brings together the interests of a broad range of private, public, academic and nonprofit groups to promote Southern Arizona as a single economic entity.

Sun Corridor Inc. Chairman's Circle

Danette Bewley	Interim President & CEO, Tucson Airport Authority
Sharon Bronson	Board of Supervisors, District 3, Pima County
Michael Crow	President, Arizona State University
David Hutchens	President & CEO, UNS Energy Corp., Tucson Electric Power, and UniSource Energy Services Chair, Sun Corridor Inc.
Lee Lambert	Chancellor & CEO, Pima Community College
Wes Kremer	President, Raytheon Missile Systems
Lisa Lovallo	Market Vice President, Southern Arizona, Cox Communications
Fletcher McCusker	Chief Executive Officer, UAventure Capital
Ian McDowell	Vice President and Regional Director - Tucson, Sundt Companies, Inc.
Judy Patrick	Board Director, CopperPoint Mutual Insurance Company
Diane Quihuis	Board of Directors, Pima County IDA
Judy Rich	President & CEO, TMC HealthCare
Dr. Robert C. Robbins	President, University of Arizona
Bill Rodewald	Senior VP/Regional Manager, Harsch Investment Properties
Jean Savage	Vice President, Caterpillar Surface Mining & Technology Division
Anthony Smith	Board of Supervisors, District 4, Pinal County
Sandra Watson	President & CEO, Arizona Commerce Authority

Sun Corridor Inc. Board of Directors

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Mary Jacobs	Town Manager, Town of Oro Valley
Nancy Johnson	Chief Executive Officer, El Rio Health
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William Kelley	Chief Financial Director, Diamond Ventures
Adriana Kong Romero	Senior Vice President, Tucson Market President, Bank of America
Clinton Kuntz	Doctor of Behavioral Health, CEO, MHC Healthcare
Steve Lace	Past President, Tucson New Car Dealers Association, VP, Royal Automotive Group & Lexus of Tucson
Robert Lamb	Chief Operations Officer, GLHN Architects & Engineers, Inc.
David Larson	President, BFL Construction Company, Inc.
Clint Mabie	President & CEO, Community Foundation for Southern Arizona
Xavier Manrique	Senior Vice President & Loan Team Leader, Arizona Middle Market Banking, Wells Fargo Bank
Edmund Marquez	Agency Principal, Edmund Marquez Allstate Agencies
Enrique Marroquin	President for Hunt Mexico, Senior Vice President, Hunt Power LP
Kelle Maslyn	Executive Director, Community Relations, Arizona State University – Tucson
Dennis Minano	Managing Director CMM, VP Public Policy, Chief Environmental Officer, General Motors Corporation (retired)
Omar Mireles	President, HSL Properties, Inc.
Mark Mistler	CEO, Tucson & Southern Arizona, BBVA
Farhad Moghimi	Executive Director, Pima Association of Governments/Regional Transportation Authority
Thomas Murphy	Mayor, Town of Sahuarita
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Ricardo Pineda	Consul of Mexico, Consulate of Mexico in Tucson
Jon Post	Vice Mayor, Town of Marana
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Jonathan Rothschild	Mayor, City of Tucson
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Keri Silvyn	Partner/Owner, Lazarus, Silvyn and Bangs PC
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Kevin Stockton	Market CEO, Northwest Healthcare
James Stover	Medicaid President, Arizona Complete Health
Guillermo Valencia	Chairman, Greater Nogales and Santa Cruz County Port Authority
Robert Walkup	Honorary Consul, Republic of Korea in Tucson
Steven Zylstra	President & CEO, Arizona Technology Council

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Resources

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