

INVENTORY OF EXISTING CONDITIONS

Airport Inventory

This Inventory Chapter documents 2018 conditions at the Phoenix-Mesa Gateway Airport (IWA or the Airport) and provides a foundation for the overall planning analysis in the subsequent chapters of the IWA Master Plan. This chapter includes an overview of environmental conditions and land uses at and surrounding the Airport as a basis for evaluating planned improvements.

Introduction to the Inventory

This section summarizes the purpose and organization of this chapter and defines the key elements of the inventory.

Chapter Purpose and Organization

The Inventory Chapter looks at the physical layout of the Airport and documents 2018 conditions in terms of airfield design standards and aviation activity. The airport activity and design standards, will be used in later plan chapters to address the need for improvements, to identify improvements that may be recommended, and as a basis for design alternatives. The Master Plan does not address management policies and procedures, staffing, or operational rules and regulations, because these topics are addressed in other airport documents.

This chapter begins with an overview of the Airport that covers location, history, role in the local community and aviation networks, and the components of airport operation. The Airport is a complex operation with three major facility areas: airside, landside, and the terminal building. This chapter documents the use, design, and condition of each of these three areas.

- ✓ Airside facilities are restricted from public access – sometimes called “inside the fence.” This includes runways and taxiways, facilities for general aviation (GA) parking and maintenance, air cargo, support and other private business facilities with direct access to the runway, airport safety and maintenance facilities.
- ✓ Landside facilities support airport activities without direct access to the airfield. They include internal roadways, parking areas, and non-aeronautical development areas.
- ✓ The terminal building provides a transition between the airside and landside areas for commercial airline passengers and provides spaces for the traveling public, airline and airport administration, and the Transportation Security Administration (TSA).

The chapter looks beyond the boundaries of the Airport to consider surrounding land uses that are subject to aircraft overflight, and the catchment area from where the Airport draws its passengers and users.

The Airport serves businesses and residents of the:

- ✓ City of Mesa
- ✓ Town of Gilbert
- ✓ Town of Queen Creek
- ✓ Gila River Indian Community
- ✓ City of Apache Junction
- ✓ City of Phoenix
- ✓ Maricopa and Pinal counties

The community around the Airport drives the demand for commercial air service, GA, and air cargo. Other airports serving the region are documented as they impact demand at the Airport.

The consultant team inventories environmental factors because they influence aircraft flight. Weather factors, such as temperature and wind direction, impact aircraft performance and drive facility design considerations. The consultant team documents environmental conditions such as air quality and aircraft noise to provide a basis for evaluating future development in terms of potential environmental impacts.

Information was collected by the consultant in several ways, including a site visit to the Airport in April 2018; review of documents and records provided by the Airport, the City of Mesa, Town of Gilbert, Town of Queen Creek, the Federal Aviation Administration's (FAA), and other public agencies; and reference to the FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*. Results are presented in the following sections:

- ✓ Background
- ✓ Airport Facilities
- ✓ Wind Analysis
- ✓ Airport Environs
- ✓ Environmental Review
- ✓ Issues Summary

Background

IWA is in Maricopa County, Mesa Arizona, approximately 30 miles southeast of downtown Phoenix as seen in **Figure 1-1: Location Map**. The City of Mesa's population is predominately located north and east of the Airport. The Airport is bounded by the Town of Queen Creek to the south and the Town of Gilbert to the west (see **Figure 1-2: Vicinity Map**). Pinal County, the state's third most populous County, is east and south of the Airport.

Prior to its inception as IWA, the Airport served as a former United States Air Force (USAF) base known as Williams Air Force Base (AFB). Construction of the base began July 16, 1941, by the U.S. Army Air Corps for its Advanced Flight School. The US Army Air Corps trained fighter and bomber pilots at the facility for World War II combat. Initially the base was coined Williams Field in 1942, after an Arizona-native pilot Charles Linton Williams, later becoming Williams AFB in January of 1948.

The Base Realignment and Closure Commission (BRAC) recommended the base for closure in 1991, and the base closed in September 1993. Over 26,000 men and women became pilots while training at the Williams AFB. The closure¹ caused the loss of 3,800 jobs and \$300 million in economic activity. To remedy the issue, the governor created an Economic Reuse Advisory Board that developed a plan to reuse the base. The board decided the best use for the closed base would be to repurpose it as a civilian airport to serve the public and serve as a reliever airport for Phoenix Sky Harbor Airport. In 1992, an intergovernmental agreement (IGA) entered by the following entities also established a plan dedicated to the many reuses of the Williams AFB:

- ✓ Maricopa County
- ✓ City of Apache Junction
- ✓ City of Chandler
- ✓ Town of Gilbert
- ✓ City of Mesa
- ✓ Town of Queen Creek

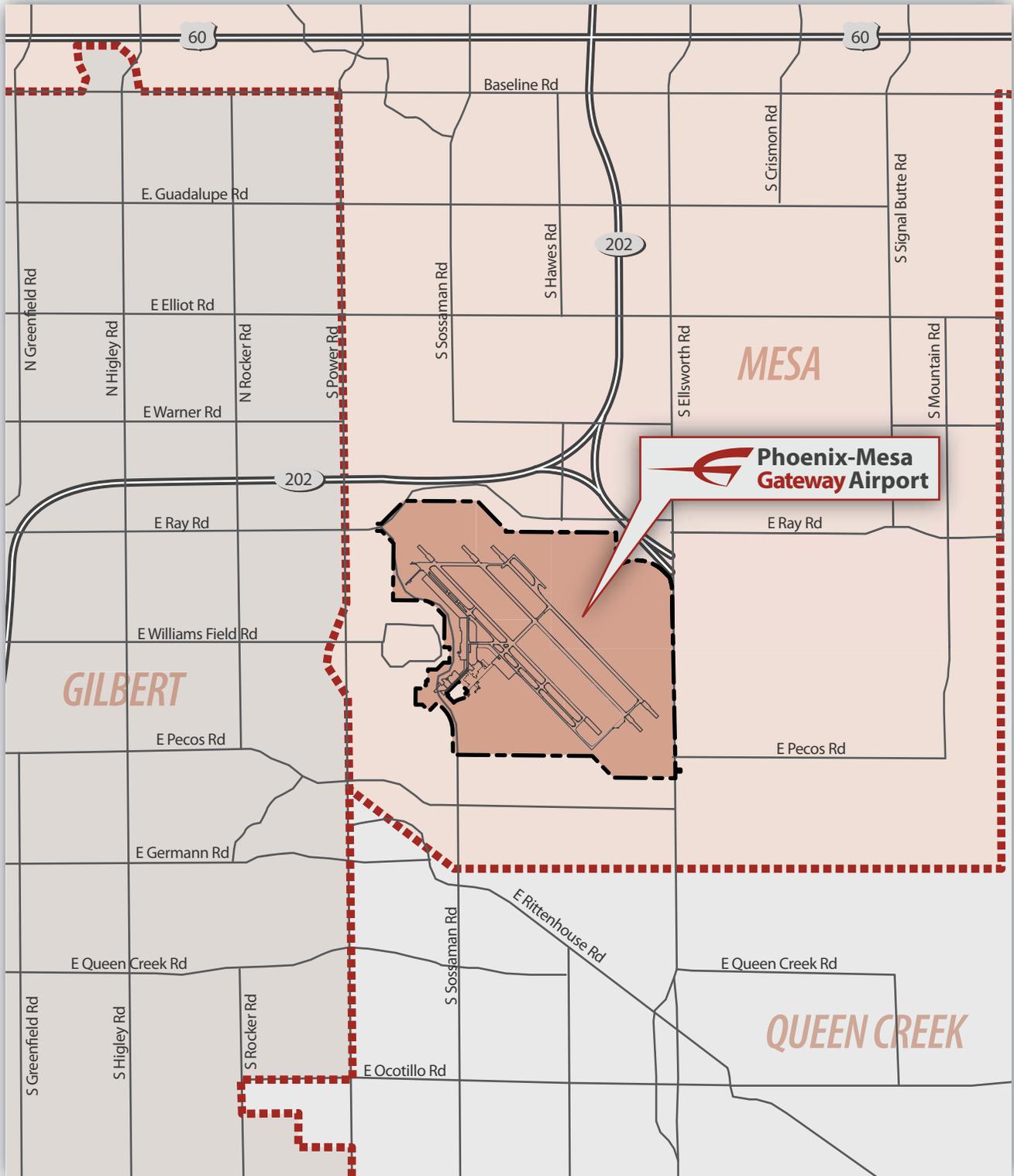
Additionally, this plan provided land for educational and flight training facilities. Williams AFB was converted to civilian use in March 1994 and was named Williams Gateway Airport. Of the former base, 734 acres is now the Williams Educational Research and Training Campus. The Williams campus houses Arizona State University Polytechnic Campus, Chandler Gilbert Community College Williams Campus, and Embry-Riddle Phoenix-Mesa Campus.

¹ U.S. Air Force Civil Engineer Center. "Williams Today." *U.S. Air Force Civil Engineer Center*, www.afcec.af.mil/Home/BRAC/Williams/Williams-Today/.



Source: Google Maps, 2018

Figure 1-1: Location Map



Source: Google Maps, 2018

Figure 1-2: Vicinity Map

The Williams Gateway Airport Authority (WGAA) was created in May of 1994 with the responsibility to manage the Airport and did so under a lease agreement until April 14, 1998 when the United States of America, acting by and through its Secretary of the Air Force, transferred to WGAA the deed to airport property. The WGAA, now known as the Phoenix-Mesa Gateway Airport Authority (PMGAA), comprises mayors from the cities and towns of Mesa, Gilbert, Apache Junction, Queen Creek, vice mayor of Phoenix, and the lieutenant governor of the Gila River Indian Community. The PMGAA continues to own and operate the Airport.

In 2008, the Airport was renamed Phoenix-Mesa Gateway Airport. Consisting of 3,020 acres and located at an elevation of 1,384 feet above mean sea level, IWA offers facilities that accommodate local and transient aircraft of all sizes including Airbus aircraft flown by Allegiant Air, the Airport's primary commercial service provider. Several aviation related businesses including Cessna, Embraer, and Able Aerospace are located at the Airport.

Airport Role

The FAA and state agencies have developed categories that designate an airport's role. The role of an airport translates to the services it provides and how an airport performs within a national and state airport system. The FAA's National Plan of Integrated Airport Systems (NPIAS) consists of 3,400 airports considered significant to national air transportation. As part of the NPIAS, IWA is classified as a primary small-hub commercial service airport. The Arizona Department of Transportation (ADOT) airport system consists of 83 airports. ADOT categorizes airports as primary or secondary and has sub-classification categories that mirror the NPIAS. Within the ADOT system, IWA is considered a primary commercial service airport based on size and activities.

Military, GA, and commercial service operations are conducted at IWA year-round. Both Allegiant Air and WestJet Airlines currently provide the Airport with commercial service. Allegiant Air offers nonstop service to 23 states while WestJet Airlines offers seasonal flights to multiple destinations in Canada. Flight training is offered by multiple businesses at the Airport and accounts for a high percentage of operations conducted at IWA.

The Airport is within a Military Reuse Zone (MRZ) which was created by the Arizona State Legislature in 1992 to lessen the negative economic impact of military base closures. The program offers tax incentives to businesses providing aviation or aerospace services or engaged in manufacturing, assembling or fabricating aviation or aerospace products. There are three primary benefits to developing businesses within the MRZ²:

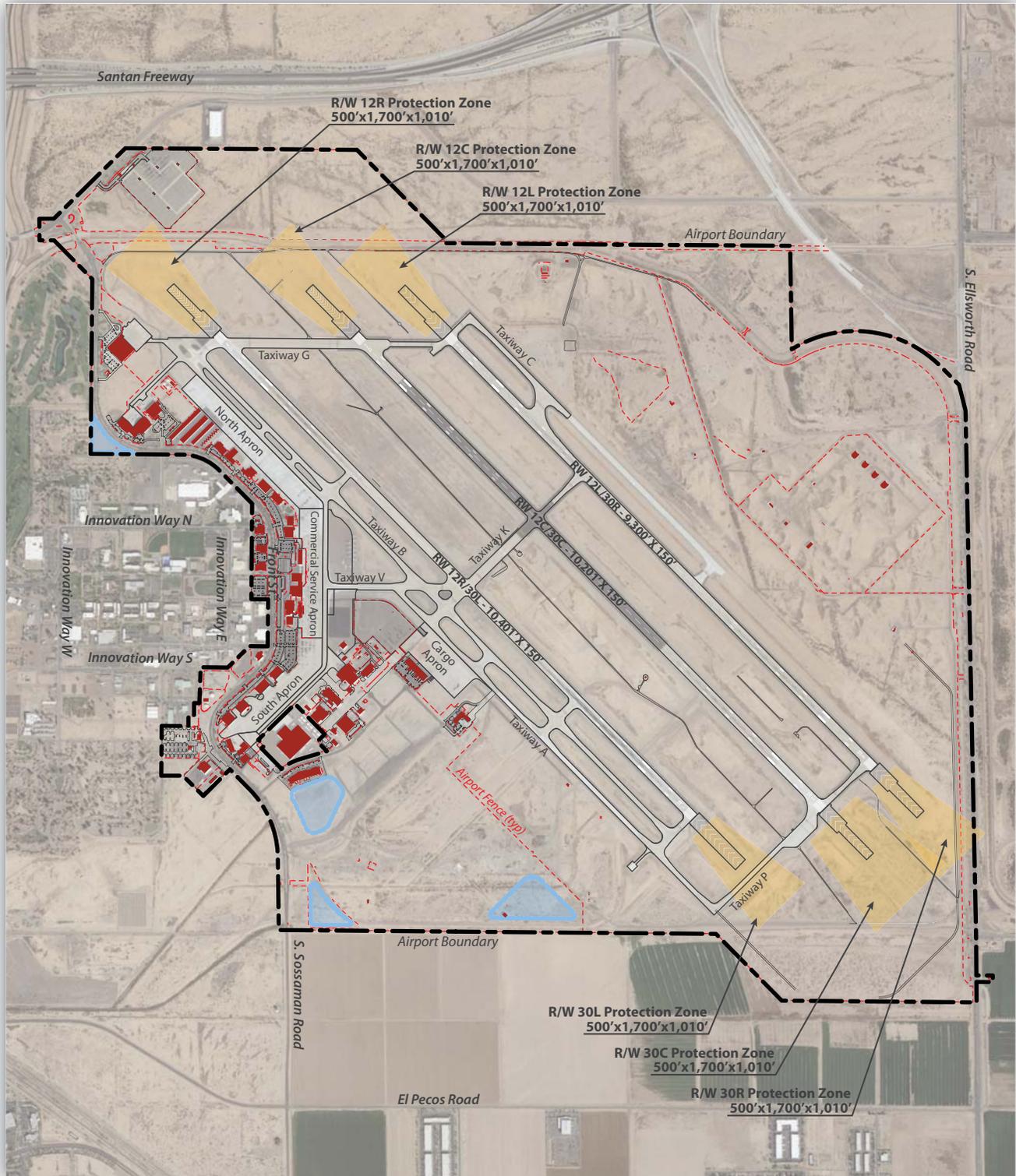
- ✓ Transaction Privilege Tax Exemptions: Exemption from transaction privilege tax on contracts for certain types of construction;
- ✓ Tax Credits: Arizona income/premium tax credits for up to five years for each net new job created, totaling up to \$7,500 per non-dislocated employee and up to \$10,000 per dislocated employee; and
- ✓ Property Reclassifications: Both real and personal property can be reclassified from class one (25 percent assessment ratio) to class six (5 percent assessment ratio), which may result in property tax savings of up to 80 percent for a period of five years.

The Airport is also within the City of Mesa's Foreign Trade Zone (FTZ) Number 221, meaning merchandise may be brought into the United States and onto the Airport duty-free for purposes of storage, repacking, display, assembly or manufacturing. FTZs are designated areas intended to promote international trade and offer companies and importers a way to gain a financial edge in the global marketplace through reduction, deferral, or elimination of U.S. Customs duties.

Airport Facilities Inventory

An airport facilities inventory details the airside and landside facilities present at an airport. Airside facilities directly relate to aircraft movement and parking while landside facilities provide aircraft and airport support services. **Figure 1-3: Airport Facilities** illustrates the airport facilities at IWA.

² Jacobs, *Final Technical Report Northeast Area Development Plan Phoenix-Mesa Gateway Airport*, June 2012.



Source: Phoenix-Mesa Gateway Existing Airport Layout Plan, 2015

Figure 1-3: Airport Facilities

Airside Facilities

Runway System

Phoenix-Mesa Gateway Airport has three northwest-southeast oriented parallel runways:

- ✓ Runway 12R/30L
- ✓ Runway 12C/30C
- ✓ Runway 12L/30R

According to a recent pavement condition inspection, all runways are in fair, or better, condition based on the rating classification system established in AC 150/5380-7B, *Airport Pavement Management Program*. Runway signs designating taxiway exit locations and distance remaining for aircraft takeoffs and landings are present on all runways.

Runway 12R/30L. Runway 12R/30L, the longest runway at IWA, is 10,401 feet long and 150 feet wide. It is intended primarily for GA training and has a right-hand traffic pattern for Runway 12R and a left-hand traffic pattern for Runway 30L. Runway 12R/30L is constructed of concrete, paved with precision instrument markings, and has a pavement strength of: 55,000 pounds single-wheel, 95,000 pounds dual-wheel, 185,000 pounds dual-tandem-wheel, and 550,000 pounds double-dual-tandem-wheel main landing gear configuration.

The runway has Medium Intensity Runway Lights (MIRLs) to identify runway edges at night or during adverse weather conditions. Additionally, the runway has 35-foot-wide paved shoulders. Four-light precision approach path indicators (PAPIs), color coded lights providing visual indication of an aircraft's approach relative to the designated glideslope, are on the left side of each runway end. Both runway ends have 1,000-foot overruns.

Runway 12C/30C. Runway 12C/30C is 10,201 feet long and 150 feet wide. Located between Runway 12R/30L and Runway 12L/30R, Runway 12C/30C is primarily intended for instrument procedure operations. Runway 12C/30C has left-hand traffic patterns designated for both runway ends. Precision instrument runway markings and 1,000-foot overruns are provided at each runway end.

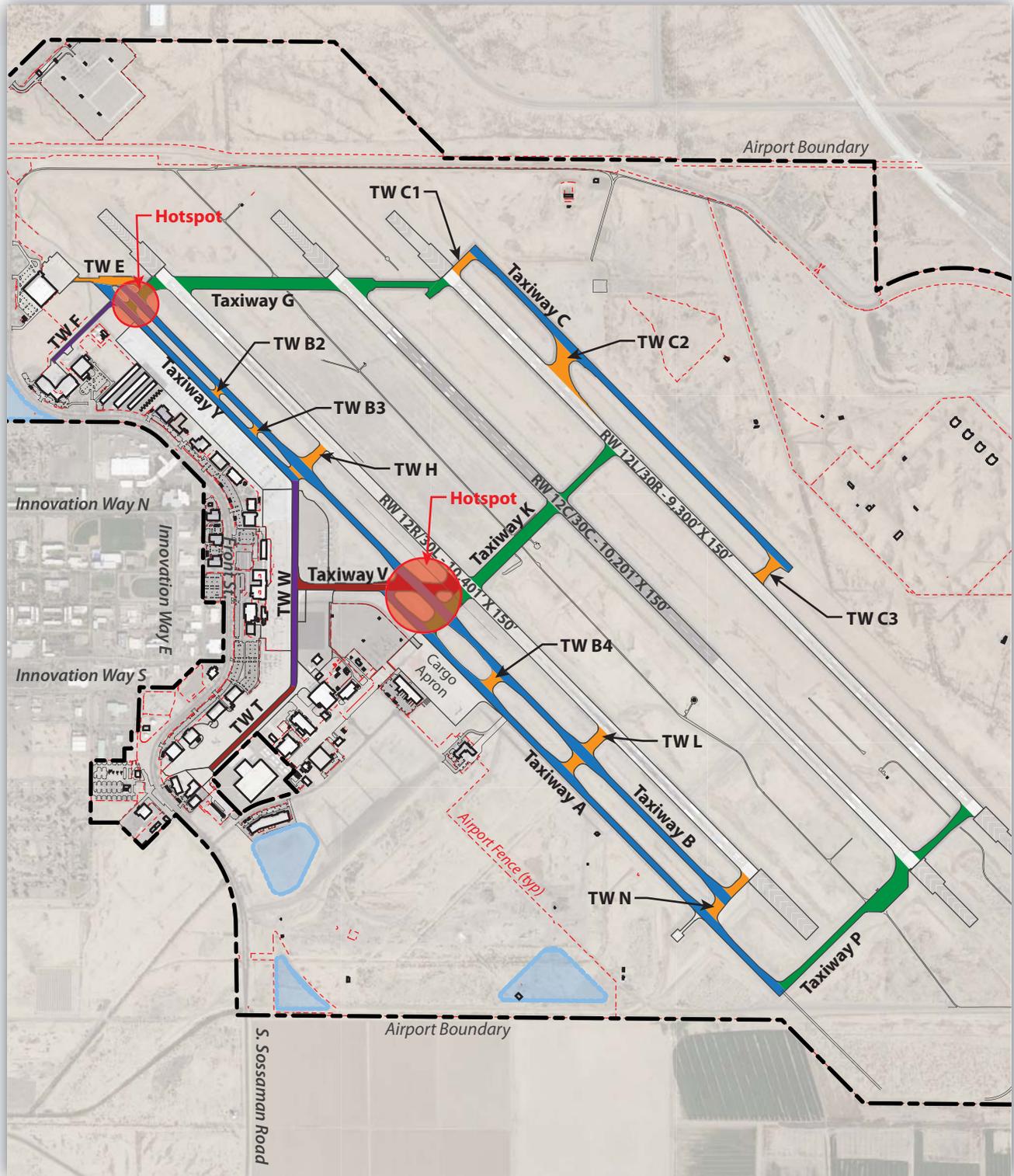
The center portion of the runway, approximately 5,700 feet, is asphalt with the remainder constructed of concrete. Pavement strength for this runway is identical to that of Runway 12R/30L: 50,000 pounds single-wheel, 95,000 pounds dual-wheel, 185,000 pounds dual-tandem-wheel, and 550,000 pounds double-dual-tandem-wheel main landing gear configuration. There are 35-foot paved shoulders at the runway edges.

Runway 12C/30C has High Intensity Runway Lights (HIRLS), and four-light PAPIs are on the left of each runway end.

Runway 12L/30R. Runway 12L/30R is 9,300 feet long and 150 feet wide. Though Runway 12L/30R is the shortest runway in length at the Airport, it has a strength capacity of: 75,000 pounds single-wheel, 210,000 pounds dual-wheel, 590,000 pounds dual-tandem-wheel, and 850,000 pounds double-dual-tandem-wheel main landing gear configuration. As a result, Runway 12L/30R is intended to serve as the heavy aircraft runway. Runway 12L has a left-hand traffic pattern; Runway 30R has a right-hand traffic pattern. Precision instrument runway markings and 400-foot overruns are at each runway end. Runway 12L/30R is constructed completely of concrete and equipped with 35-foot-wide paved runway shoulders.

Runway 12L/30R has HIRLS, and four-light PAPIs are on the left side of each runway end. Runway end identifier lights (REILs) and threshold lights are also positioned at each runway end. REILs aid aircraft in distinguishing runway ends during reduced visibility or when a runway is close to an array of airfield lighting not relative to the active runway. Threshold lights denote the beginning of the portion of runway available for landing.

Taxiway System. The IWA taxiway system provides adequate access between the runways and landside facilities. **Figure 1-4: Existing Taxiway System** outlines the taxiway system at IWA for better clarity. Runway 12R/30L is served by one full parallel taxiway, Taxiway B, and two partial parallel taxiways, Taxiway Y and A. Taxiway B serves Runway 12R/30L while partial parallel Taxiway Y dually serves Runway 12R and Taxiway A dually serves Runway 30L. Taxiway B has three taxiway connectors (B2, B3, B4). From Taxiway B, B2 and B3 provide access to partial parallel Taxiway Y and B4 provides access to partial parallel Taxiway A.



Source: Phoenix-Mesa Gateway Existing Airport Layout Plan, 2015

Figure 1-4: Existing Taxiway System

Taxiways Y and B extend from Taxiway G. Taxiway G extends to and intersects Runway 12R/30L. It then extends from Runway 12R/30L to Runway 12C/30C. Taxiway G intersects Runway 12C/30C and extends to the hold-short position at Runway 12L/30R where Taxiway G ends. Taxiway G provides aircraft access from Runways 12L, 12C, and 12R to the rest of the airfield via Taxiways Y, and B and Taxilanes E and F. Taxilane E leads to the Cessna Citation Service Center while Taxilane F leads to the Southwest Jet Center and Embraer Executive Jet services.

Taxiway Y provides access from Taxiway G to the intersection with Taxiway H. From Runway 12R/30L, Taxiway H provides access to the GA apron via Taxiway Y and the commercial service apron via Taxiway W. Access to Taxiway W, located at the edge of the commercial service apron, is provided by Taxiways Y, H, V, and T. Taxiway T is located south of Taxiway W. Aircraft with wingspans exceeding 135 feet are not permitted to operate on the Taxiway W portion between Taxiways H and V.

As seen in **Figure 1-4: Existing Taxiway System**, Taxiways V, B, K, and A form a complex intersection. Taxiway V extends from Runway 12R/30L at an acute angle, intersecting Taxiway B, to the commercial service apron. Taxiway V, between Taxiways A and B, is closed to aircraft exceeding 300,000 pounds. Taxiway K extends from Taxiway A, intersects Taxiway B, and provides access to Runway 12R/30L, Runway 12C/30C, and Runway 12L/30R, allowing aircraft the ability to taxi from the approximate midpoint of all three runways. Aircraft exceeding 41,000 pounds may not operate on the Taxiway K portion between Taxiway A and Taxiway B. As mentioned previously, Taxiway A is a partial parallel taxiway that serves Runway 30L. It begins as an extension from Taxiway V to a length beyond Runway 30L where it becomes Taxiway P, which serves Runways 30C and 30R. Taxiway A offers direct access to the cargo apron and can be immediately accessed from Runway 12R/30L via Taxiways L and N, southeast of the Taxiways V, B, K, and A intersection. Taxiway Connector B4 provides access to Taxiway A and the cargo apron from Taxiway B.

Runway 12L/30R is served by a partial parallel taxiway, Taxiway C, that has three taxiway connectors (C1, C2, and C3). Taxiway connector C2 is considered a high-speed exit taxiway. This type of taxiway does not require pilots to execute a 90-degree turn to exit the runway and increases airport capacity by affording aircraft the ability to exit the runway at faster speeds. Taxiway connector C1 serves Runway 12L from which Taxiway G can be accessed. During the planning period, Taxiway C will undergo construction to become a full parallel taxiway with additional taxiway connectors.

All taxiways are constructed of concrete and are equipped with medium intensity taxiway lights (MITLs). Taxiway location and directional signage is in place for all taxiways and taxiway connectors. **Table 1-1: IWA Taxiway System** provides additional taxiway system information.

Table 1-1: IWA Taxiway System

Taxiway	Type	Width	Condition
Taxiway B	Full parallel	75 feet	Good
Taxiway B2	Connector/Exit	96 feet	Good
Taxiway B3	Connector/Exit	95 feet	Good
Taxiway B4	Connector/Exit	130 feet	Good
Taxiway Y	Partial Parallel	76 feet	Good
Taxiway A	Partial Parallel	75 feet	Good ³
Taxiway G (between Runways 12R and 12C)	Connector/Exit	150 feet	The pavement is in fair condition.
Taxiway G (between Runways 12C and 12L)	Connector/Exit	75 feet	The pavement is primarily in good condition. Small portions are in fair condition.
Taxiway E	Connector	50 feet	The pavement is primarily in fair to good condition. However, a small portion is considered poor.
Taxiway F	Connector	50 feet	Good
Taxiway H	Connector/Exit	108 feet	The pavement condition is primarily considered poor. However, a portion of the pavement is considered good.
Taxiway W	Connector	75 feet	The pavement condition ranges from fair to poor.
Taxiway V	Connector	100 feet	Pavement condition is primarily good, but has poor pavement ratings in small portions.
Taxiway T	Connector	60 feet	Good
Taxiway K (between Runway 12L/30R and Runway 12C/30C)	Connector	75 feet	Good
Taxiway K (between Runway 12C/30C and Runway 12R/30L)	Connector	150 feet	The pavement ranges from poor to good condition.
Taxiway K (between Runway 12R/30L and Cargo Apron)	Connector	150 feet	The pavement is primarily in good condition. A portion of the taxiway is in poor condition.
Taxiway L	Connector	130 feet	Good
Taxiway N	Connector	100 feet	Excellent
Taxiway P	Connector/Exit	75 feet	Excellent
Taxiway C	Partial Parallel	75 feet	Excellent
Taxiway C1	Connector/Exit	103 feet	Excellent

³ Pavement was replaced in 2017.

Taxiway C2	Connector/Exit	325 feet	Excellent
Taxiway C3	Connector/Exit	90 feet	Excellent

Hot Spots. A hot spot, as defined by the FAA, is “a location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.”⁴ The typical causes of hot spot-related runway incursions or incidents can be attributed to airfield layout, traffic flow, airport marking/signage/lighting, situational awareness, and training. Due to the complexity of the Taxiway V, Taxiway B, and Taxiway K intersection, the FAA has designated this intersection as complex and as Hot Spot-1.⁵ The FAA has also designated the intersection of Taxiways B, G, and Y as Hot Spot-2 due to pilots becoming confused at the intersection.⁶ The Airport recently addressed Hot Spot-2 by re-engineering taxiway intersections B, G, and Y to eliminate pilot confusion. FAA continues to declare the area as a hot spot.

Aprons. The five primary aprons located on the airfield fit into four categories:

- ✓ Commercial service apron
- ✓ GA aprons
- ✓ Cargo apron
- ✓ Holding apron

The apron system at IWA supports landside facilities and activities including:

- ✓ Fueling
- ✓ Loading and unloading of passengers
- ✓ Loading and unloading of freight, mail, and baggage
- ✓ Minor maintenance

All aprons are constructed of concrete and are detailed in the following text.

⁴ FAA. (2016, May). Runway Safety Hot Spots List. Retrieved June, 2018, from https://www.faa.gov/airports/runway_safety/hotspots/hotspots_list/

⁵ Ibid.

⁶ FAA. (2018, May). Hot Spots. Retrieved June, 2018, from http://aeronav.faa.gov/afd/24May2018/SW_hotspot.pdf

Commercial Service Apron. Located west of Taxiway V, the commercial service apron is approximately 626,949 square feet and restricted to air carrier operations. There are 10 aircraft parking positions on the apron for air carriers of varying lengths and widths. Due to the absence of terminal loading bridges, passengers board and deplane aircraft using mobile stairs and ramps onto the apron. Mobile stairs and ramps are owned, maintained, and provided by the Airport.

Southeast of the commercial service apron are four air carrier parking positions for air carriers to store aircraft not in use until needed for operations. This area is known as the remain over-night (RON) area or remote parking and comprises approximately 148,207 square feet.

GA Aprons. GA can be loosely defined as all civil flight operations excluding scheduled air service and military operations. Using this definition, two GA aprons have been designated at IWA. The primary GA apron, referred to as the north apron, is located northwest of the commercial service apron and primarily accommodates transient and based aircraft not stored in hangars. Over 130 aircraft parking positions are available on this apron. The north apron is 881,086 square feet.

The second GA apron, referred to as the south apron, is located south of the commercial service apron and provides parking positions for all aircraft types. The south apron primarily serves the corporate and business community at the Airport. The south apron is 490,819 square feet.

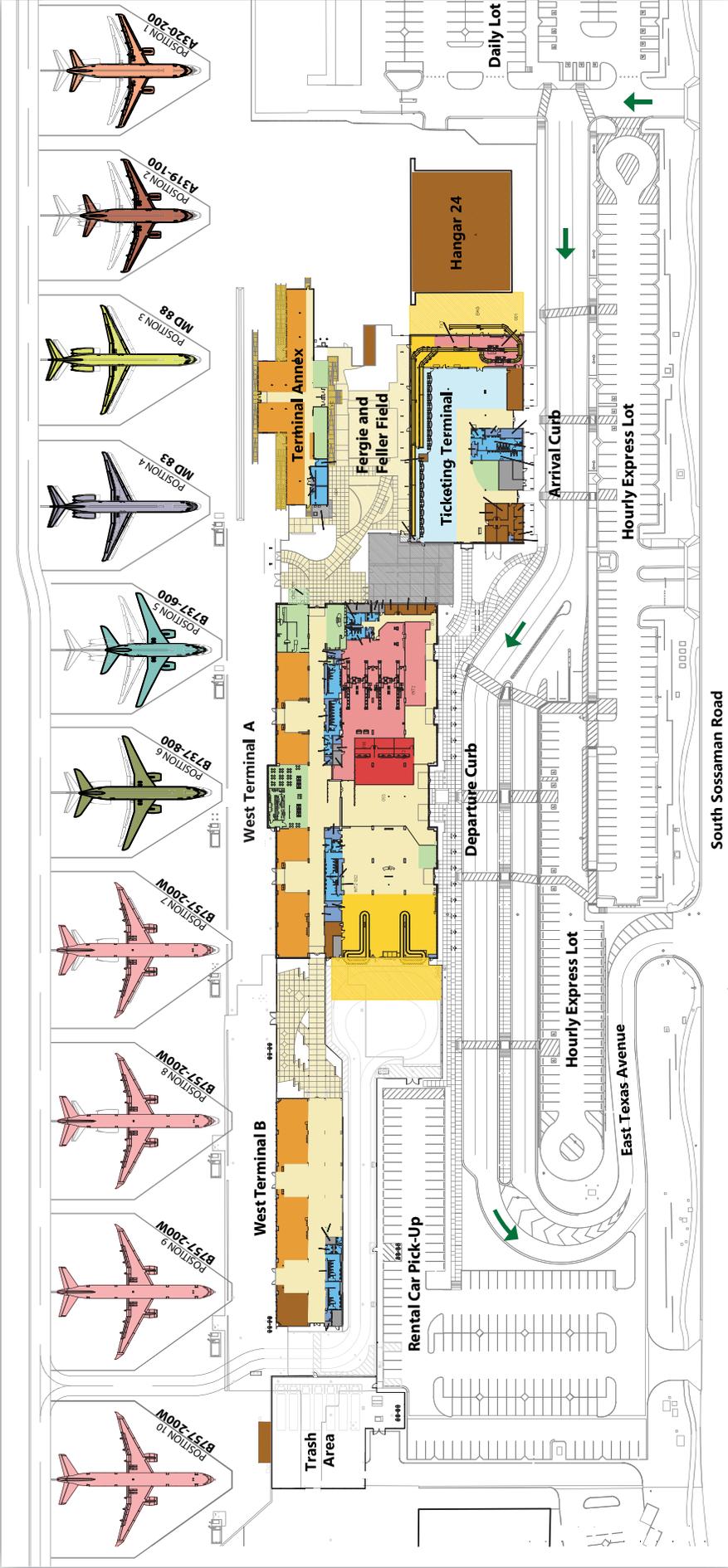
Cargo Apron. The cargo apron is adjacent to Taxiway A and provides aircraft parking and movement space primarily for aerial firefighting and charter operators. Swift Air uses the apron for a wet lease with Classic Air Charter for U.S. Government flights. The U.S. Forest Service leases the remainder of space for aerial firefighting staff and equipment. The cargo apron is 578,716 square feet.

Holding Apron. Often referred to as run-up and warm-up areas, holding aprons are typically located near runway ends. They allow for pilots to conduct final flight checks, wait for takeoff clearance, and use the provided area as a bypass space. Aircraft may experience mechanical issues or delay in departure due to weather or other unforeseen circumstances. A holding apron provides space for aircraft experiencing these issues to wait and allow for aircraft not experiencing issues to bypass them. A holding apron is available at runway end 30C on Taxiway P. Runway end 12R is also served by a holding apron formed by Taxiway E.

Landside Facilities

Terminal Facilities. A building constructed in 1968 for Williams AFB was renovated and repurposed as a terminal in 1998. Since then, the terminal facility has undergone renovation, remodeling, and additions. Open every day for 24 hours, the Charles L Williams Terminal is centrally located on airport property adjacent to the commercial service apron. As illustrated in **Figure 1-5: Existing Terminal Complex**, the terminal comprises four separate single-story buildings and two outdoor courtyard areas. Ten gate positions serve air carrier passengers boarding and deplaning. The terminal buildings are as follows:

- ✓ Ticketing terminal
- ✓ West Terminal A
- ✓ West Terminal B
- ✓ Terminal annex



- Baggage
- Hold Room
- Concessions
- Restrooms
- Vertical Circulation
- Airline Operations
- Utilities/MEP
- Circulation
- Security Screening Checkpoint/TSA
- Ticketing
- Rental Car
- Miscellaneous
- Private Circulation
- Traffic Flow

Figure 1-5: Existing Terminal Complex

Ticketing Terminal. The original 1968 single building is now the ticketing terminal of the Charles L Williams Terminal. The ticketing terminal is a pre-secure area that comprises 23,258 square feet primarily dedicated to check-in services and passenger circulation. Located inside are 32 ticket counters currently utilized by Allegiant Air and WestJet. Allegiant Air tickets can be purchased at ticket counters from 12:00 p.m. – 2:00 p.m. on Sundays and Mondays. A baggage belt is behind the air carrier ticket counters to transport passenger baggage and belongings through a security screening checkpoint and finally to a baggage handler area.

Air carrier offices are located opposite of the ticketing counters. Adjacent to the air carrier offices is a parking pay station.

West Terminals (A and B). Located north of the ticketing terminal is West Terminal A that consists of secure and non-secure areas. West Terminal A is 54,716 square feet. On the non-secure side, located on the northern portion of the building, is a baggage claim area consisting of two baggage carousels and an additional parking pay station. Both carousels are supported by an external baggage drop off area where bags are transported to from air carriers. Three rental car service counters occupied by Hertz, Enterprise, and Alamo/National are across from the baggage claim carousels. Circulation space provides a place for both passengers waiting to claim their baggage and rental car customers. TSA screens passengers at the security checkpoint located on the southern non-secure portion of West Terminal A. During peak hours, TSA Pre(check) is offered allowing for expedited screening of pre(check) approved passengers. Within this area are four linear screening stations.

West Terminal A secure area is located on the eastern portion of the facility. Within this area are four gates (Gate 5, 6, 7, 8) and four air carrier service counters. Holding areas with seating for departing passengers are provided for each gate.

West Terminal B is approximately 15,000 square feet and can be accessed via an outside courtyard leading from the secure area of West Terminal A. Two gates (Gates 9 and 10) and two air carrier service counters are located within the terminal. Holding areas with seating for departing passengers are provided for each gate.

Terminal Annex and South Courtyard. Constructed in 2008 to alleviate West Terminal congestion, the terminal annex is a 9,557 square foot separate building located south of the West Terminals and east of the ticketing terminal. The terminal annex and South Courtyard are secure areas that can only be accessed by exiting the secure area of West Terminal A. The terminal annex consists of four gates (Gates 1, 2, 3, 4) and four air carrier service counters. Two holding areas with seating for departing passengers predominantly comprise the facility. Minimal circulation space is available.

The South Courtyard is located outside between the ticketing terminal and terminal annex. The courtyard is considered a transitional space decorated with landscaped garden areas for passengers awaiting their flights.

Concessions. Concessions include vending machines, restaurants, and gift shops available throughout the terminal facilities. Vending machines are provided in the ticketing terminal. Located in the non-secure area of West Terminal A is Paradise Bakery and Café. The Phoenix store, Copper Plate Bar and Grill, and an additional Paradise Bakery and Café are in the secure areas of West Terminal A. An AZ Highways Kiosk is in West Terminal B, and an AZ Highways Gift Shop is in the terminal annex.

Terminal Amenities. Restrooms are in every terminal facility in both the secure and non-secure areas. Mother rooms, provided by MomDoc Charities, offer privacy for maternal activities amongst mothers and their children. Two mother rooms are provided in the secure area of West Terminal A. For pet assisted travelers, a service animal/pet relief area, in compliance with Americans with Disabilities Act (ADA), is located in the South Courtyard.

GA Facilities/Fixed Base Operator (FBO) Facilities. GA facilities are primarily west and south of the runway system as shown in *Figure 1-6: Terminal Facilities Map*. The GA facilities are represented by a combination of commercial and corporate hangars and facilities. The following businesses and their corresponding facilities described herein are impactful to services and operations.

The primary GA facility, General Aviation Center, is 22,700 square feet located north of the terminal and adjacent to the north apron. Within the Gateway Aviation Center are several businesses including Gateway Aviation Services, the sole FBO at IWA operational 24 hours a day, seven days a week. Services and amenities provided by the FBO to transient and local military, commercial, and GA aircraft include:

- ✓ Fueling
- ✓ Aircraft parking
- ✓ Overnight and long-term hangar rental
- ✓ Courtesy cars
- ✓ Ground power units
- ✓ Flight planning rooms and pilot lounge

Rental car service offered by Pegasus Car Rental and Enterprise is available in the Gateway Aviation Center. A restaurant and award-winning brewery, Barrio Brewing Company, and the U.S. Customs and Border Protection are also located within the center. Other businesses within include: Phoenix Mesa Gateway Traffic Survival School, Denise Riden Family Law, and Factory Direct Models.

Hangar 24. Located immediately south of the ticketing terminal, Hangar 24 is 12,256 square feet and was constructed as part of the Williams AFB. Hangar 24 serves as the air carrier operations, maintenance, and provisions storage area.

T-Hangars. Three T-Hangar buildings are located west of Taxiway Y. Individual T-Hangar space are leased by tenants. Approximately 48 aircraft are based in the T-Hangar facilities.

Cessna Citation Service Center. The Cessna Citation Service Center is west of Runway 12R. The center is equipped with 65,000 square feet of open hangar space and 29,000 square feet for office space, warehousing, and maintenance activities. The apron area that services the hangar is 127,980 square feet.

Southwest Jet Center. The Southwest Jet Center is northwest of the T-Hangars. The facility comprises office space and two bay hangars. N1, LLC. uses the west hangar and office facilities comprised of approximately 32,820 square feet while Constant Aviation uses the east hangar and office facilities comprised of approximately 41,666 square feet. The apron area that services both hangars is 52,669 square feet.

Embraer Executive Jet Services. Adjacent to the Southwest Jet Center, the Embraer Executive Jet Services facility has office and hangar space equivalent to 50,027 square feet, of which 28,000 square feet is used for hangar space. The apron area that services the hangar is approximately 36,000 square feet.

Embraer also uses infield space between Taxiway W and Taxiway B. This infield area is currently used for aircraft storage for periodically based aircraft. The additional Embraer lease area is 362,019 square feet.

Air Methods. As identified on **Figure 1-6: Terminal Facilities Map**, the company offers aerial ambulance service to the state of Arizona and its IWA location is a primary maintenance base for air ambulance rotorcraft. Air Methods bases a Pilatus PC-12 within a 27,158 square foot hangar, Hangar 31, served by the south apron.

The following establishments offer aviation education and flight training at IWA.

Arizona State University Polytechnic Campus (ASU)/Airline Transport Professionals (ATP) Flight School. The ASU and ATP facility is south of the T-hangars and comprises 19,000 square feet of which 10,000 square feet is dedicated to maintenance. ASU offers Bachelor of Science Degrees in aviation management with focus in air traffic management, air transportation management, and unmanned aerial systems. ASU also offers a Bachelor of Science degree with a focus of professional flight in partnership with ATP. ASU students receive their flight training from ATP, who also offers transitional flight training to students of their own around the U.S. (not enrolled at ASU). Students studying with ATP may pursue an airline or corporate pilot career track. They may also receive specific aircraft type training and ratings. Twenty-one Cessna 172s and seven Piper PA-44-180 Seminoles are based on the north apron immediately east of the facility.

Chandler-Gilbert Community College (CGCC)/University of North Dakota Aerospace (UND). The CGCC/ UND hangar located north of the terminal, as identified on **Figure 1-6: Terminal Facilities Map**, is 23,472 square feet. CGCC, in partnership with UND, offers flight training at IWA. Students may receive a two-year degree from CGCC using UND aircraft based at the Airport, and once complete, they can continue their flight training with UND and obtain a four-year degree. Based at the Airport are twenty Cessna 172s and four Piper PA-44-180 Seminoles.

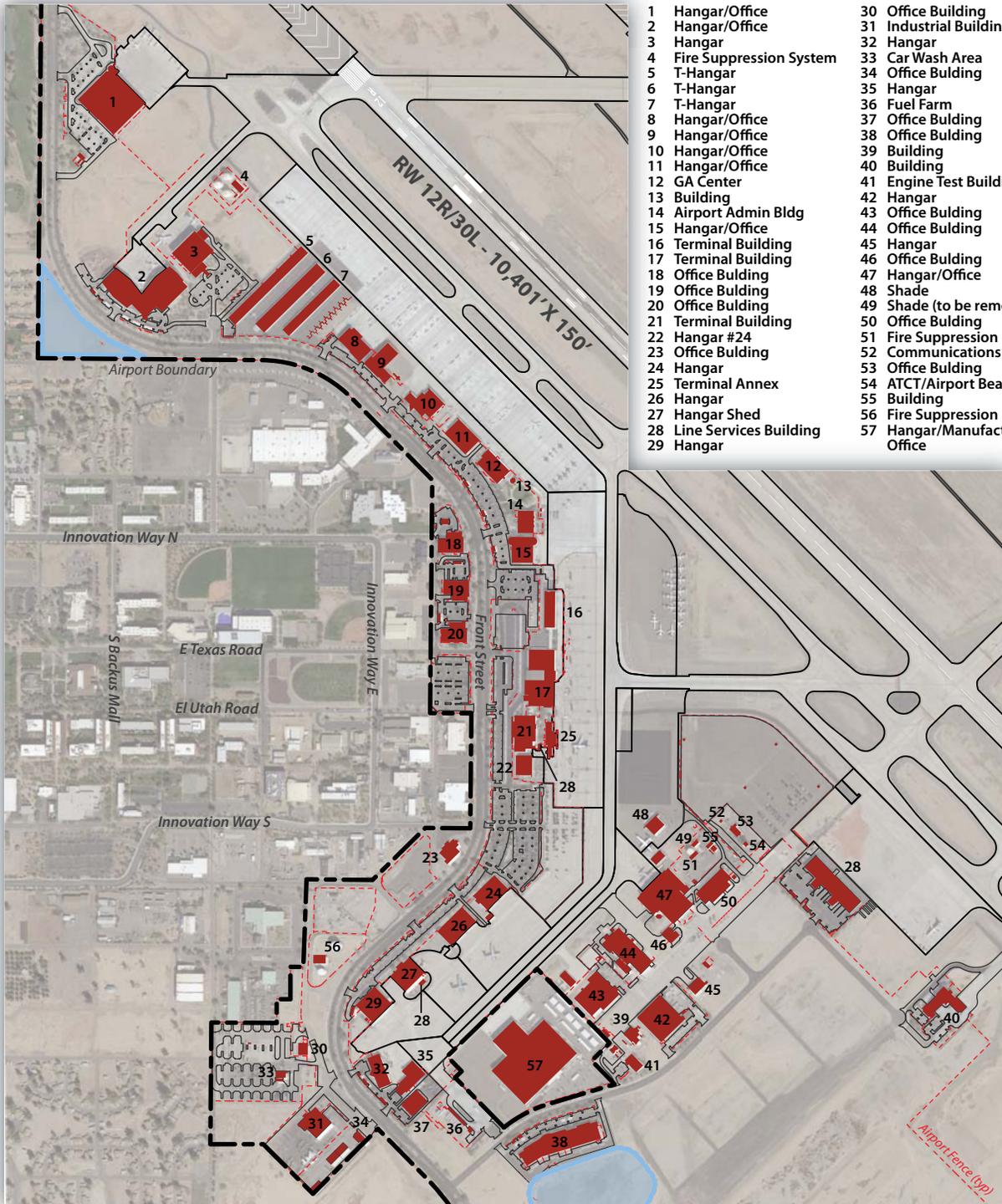
Aviation Performance Solutions (APS). APS shares hangar space with CGCC/UND. APS provides upset training courses that enhance pilot recognition, avoidance, and recovery capabilities during flight. The APS located at IWA is the company's corporate facility and largest training facility in their network. Based at the Airport are six Extra 300s and two Aermacchis.

Top Aces. Top Aces provides Canadian Armed Forces with combat airborne training services. Top Aces uses the hangar facility identified in **Figure 1-6: Terminal Facilities Map** which is approximately 16,500 square feet. Based in their hangar are two TA-4Js.

Cargo Facility. Adjacent to the cargo apron, currently, the cargo facility is used by Immigration and Customs Enforcement (ICE). The facility is 44,396 square feet.

BUILDING LEGEND

1 Hangar/Office	30 Office Building
2 Hangar/Office	31 Industrial Building
3 Hangar	32 Hangar
4 Fire Suppression System	33 Car Wash Area
5 T-Hangar	34 Office Building
6 T-Hangar	35 Hangar
7 T-Hangar	36 Fuel Farm
8 Hangar/Office	37 Office Building
9 Hangar/Office	38 Office Building
10 Hangar/Office	39 Building
11 Hangar/Office	40 Building
12 GA Center	41 Engine Test Building
13 Building	42 Hangar
14 Airport Admin Bldg	43 Office Building
15 Hangar/Office	44 Office Building
16 Terminal Building	45 Hangar
17 Terminal Building	46 Office Building
18 Office Building	47 Hangar/Office
19 Office Building	48 Shade
20 Office Building	49 Shade (to be removed)
21 Terminal Building	50 Office Building
22 Hangar #24	51 Fire Suppression System
23 Office Building	52 Communications Vault
24 Hangar	53 Office Building
25 Terminal Annex	54 ATCT/Airport Beacon
26 Hangar	55 Building
27 Hangar Shed	56 Fire Suppression System
28 Line Services Building	57 Hangar/Manufacturing/Office
29 Hangar	



Source: Phoenix-Mesa Gateway Existing Airport Layout Plan, 2015

Figure 1-6: Terminal Facilities

Federal Inspection Services. U.S. Customs and Border Protection (USCBP) controls the entry and clearance of international aircraft arriving into the United States. Federal Inspection Services (FIS), provided by USCBP, is required at all airports receiving international passengers and or cargo and include:

- ✓ Crew, passport, baggage, and cargo inspection
- ✓ Passenger processing and inspection
- ✓ Collection of duties for certain items

USCBP is available weekdays from 11:00 a.m. – 7:00 p.m. in the Gateway Aviation Center and can accommodate 20 international passengers per aircraft. After hour FIS are available upon appointment.

Airport Support Facilities

Fuel Storage Facilities. Located south of the South Apron, the IWA fuel farm is encompassed by a seven foot tall wall. It does not allow pilots to self-serve their aircraft and can only be accessed by FBO and authorized airport personnel. The fuel farm comprises two aboveground 50,000-gallon jet A fuel tanks, six aboveground 25,000-gallon jet A fuel tanks, and one aboveground 12,000-gallon AvGas fuel tank.

The Airport owns eight fuel trucks operated by FBO staff for fueling operations. Of the eight, there is one 1,500-gallon and one 2,200-gallon AvGas fuel truck. The remaining six are jet A fuel trucks. One has a 5,000-gallon capacity, two have a 7,000-gallon capacity, and three have a 10,000-gallon capacity.

Aircraft Rescue and Firefighting (ARFF). Part 139 certificated airports are required to provide aircraft rescue and firefighting services according to the ARFF index achieved by the Airport. An ARFF index is determined by two components: 1) the length of the air carrier aircraft and 2) average daily departures of air carrier aircraft. IWA maintains ARFF Index C, which is required at airports with five or more daily departures by air carrier aircraft at least 126 feet long but less than 159 feet. Adjacent to the cargo ramp, Mesa Fire Station 215 provides ARFF personnel and equipment to the Airport through an IGA. In accordance with Part 139, IWA owns the following ARFF equipment necessary for the existing type and number of air carrier aircraft:

- ✓ **“Foam 21”:** 2018 Oshkosh Striker with a capacity to carry 1,500 gallons of water, 400 gallons of aqueous foam forming film (AFFF), and 450 pounds of potassium based dry chemical. (expected delivery Oct. 2018)
- ✓ **“Foam 22”:** 2009 Oshkosh Striker 3000 with a capacity to carry 3,000 gallons of water, 400 gallons of AFFF, and 500 pounds of potassium-based dry chemical.
- ✓ **On Reserve:** 2000 Oshkosh T-1500 4x4 with a capacity to carry 1,500 gallons of water, 200 gallons of aqueous foam forming film (AFFF), and 450 pounds of potassium based dry chemical.

Airport Security. IWA has established an airport security program with the goal to offer and maintain a safe environment for all who use the Airport. IWA maintains an Airport Security Plan (ASP), approved by TSA to comply with 49 CFR 1542, *Airport Security*. The ASP includes a security inventory, applicable procedures, and contingency plans. The City of Mesa Police Department (MPD) provides an officer for 24-hour coverage and response, per an IGA, to support airport operations. The City of Mesa also maintains an on-site Police sub-station for additional airport and community protection. Police personnel responsible for airport duties complete specified training. The Airport works closely with FAA, TSA, MPD, and additional agencies, such as MPD explosive and canine units, Phoenix Sky Harbor assigned police, and the local FBI, in support for the ASP.

Airport property is encompassed by an eight foot tall fence mounted with 45-degree-outward-angled barbed wire. All perimeter fences, gates, and doors are secured by locks and or access control devices. Daily inspections of the airport fence are performed by airport operations personnel.

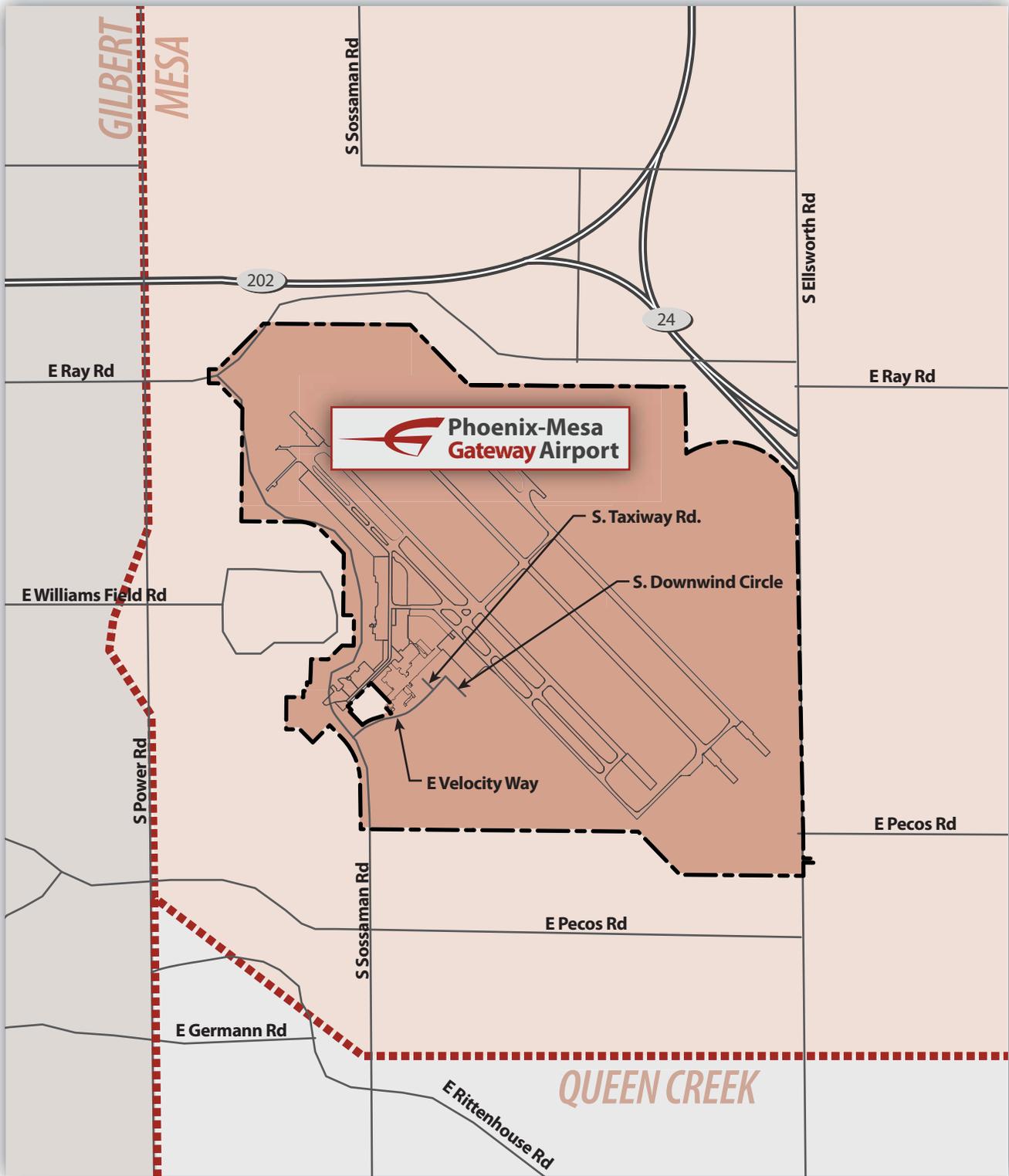
Airfield Perimeter Roads. Along the perimeter fencing are service roads located on airport property. Airport vehicles use these roads to access the airfield and airport facilities or equipment. The perimeter roads' location along the perimeter fence allows for security monitoring and monitoring of wildlife. Maintenance staff also use the roads to access the fence should any structural problems arise. These service roads create a transportation system for airport vehicles that reduces their use of taxiways and runways unless for daily inspections. There is also a mid-field road and several crossover points. Vehicle access routes are designated on the aprons at IWA for transportation of airport and fuel vehicles within the non-movement area.

Airport Maintenance Facilities. Maintenance vehicles and equipment are stored in several buildings throughout the Airport. The PMGAA Maintenance and Operations building is 23,500 square feet and consists of offices, a repair shop, and storage space. It is located at 6263 South Taxiway Circle.

Transportation Facilities

Ease of vehicular accessibility is vital for all who use an airport and its many facilities. The surrounding ground transportation system should accommodate a combination of daily local and airport traffic as congestion can cause missed flights and other unforeseen circumstances. Parking availability is not only crucial for passengers, but for airport employees, rental car services, and revenue generation. The existing system of ground transportation and ground facilities supporting the Airport are described in the following paragraphs.

Vehicle Access. IWA is bordered by East Ray Road to the north, South Ellsworth Road to the east, East Pecos Road to the south, and South Sossaman Road to the west as illustrated in **Figure 1-7: Local Area Roadway Network**. Airport and Arizona locals use South Sossaman Road, an arterial road with two lanes in each direction, connecting East Ray Road, where long-term airport parking is located, to East Pecos Road. Adjacent to East Ray Road is Santan Freeway 202, which has ramp intersections providing access to South Ellsworth Road, South Hawes Road, and South Power Road. South Power Road is close to the Airport and provides access to East Pecos Road in addition to other arterial roads from which the Airport can be accessed. The newly constructed State Route 24 provides access to the Airport's east side east side along Ellsworth Road with plans to extend the freeway further east of IWA.



Source: Google Maps, 2018

Figure 1-7: **Local Road Network**

The Commercial Service Terminal, GA facilities located on the western and southwestern portion of the airfield, and parking west and south of the terminal are provided access by South Sossaman Road. Access is provided to the Commercial Service Terminal, hourly parking, and daily parking via a left-turning lane. During peak hours the left-turning lane, due to the configuration and length, becomes congested and vehicles desiring to use the left-turning lane are forced into lanes for through traffic. As a result, traffic congestion extends from the airport entrance. Improvements to the road system are currently underway that will result in four lanes serving as South Sossaman Road.

Currently, three lanes are situated in front of the terminal area. They provide access to the departure curb located outside of the ticketing terminal, arrival curb located outside of West Terminal A, commercial curb, and the hourly parking express lot. The three lanes providing access to the arrival and departure curbs extend to a length of the adjacent median, located west of the lanes, and later merge into one lane that loops around the hourly parking express lot to permit access back to South Sossaman Road.

The commercial curb is served by two lanes and consists of a waiting area that also serves as the median separating the commercial area from the arrival and departure area. The two lanes serving the commercial curb extend to a length of the median. Once the median ends, both lanes merge into one and loop around the hourly parking express lot located adjacent to the commercial curb lane(s). The single lane then becomes collocated with the single lane serving those leaving the arrival and departure area and provides access to South Sossaman Road. The commercial curb provides an area for third party commercial transportation services, which does not include ride sharing companies/transportation network companies. To conduct transportation operations at IWA, ride sharing companies/transportation network companies must enter into an agreement with the Airport. At this time, Lyft is the only ride share operator at the Airport.

The hourly parking express lot is adjacent to the two lanes serving the commercial curb and can be accessed by a one lane entrance. During peak hours, cars entering the hourly parking express lot generate a queue that blocks the free flow of traffic.

Businesses and other facilities located on the southern portion of the airfield can be accessed by East Velocity Way, which extends east from South Sossaman Road. South Taxiway Circle and South Downwind Circle also provide access to southern facilities. Both roads extend from East Velocity Way.

Automobile Parking. Airport parking is in various locations in the immediate vicinity. **Figure 1-8: Passenger Parking Facilities** illustrates parking availability for IWA passengers. The Hourly Express Lot, Daily Lot, and the Ray Road Economy Airport Parking facility are owned and operated by the Airport. Within these areas, those who choose to park here must pay. Also available for airport parking is a cell phone lot located south of the

terminal. The no-charge cell phone lot also allows space for ride sharing companies to wait and taxicab staging areas. From Ray Road Economy Airport Parking located 1.8 miles north, shuttle service to and from the terminal is provided by the Airport. Space availability for all lots including space for rental car services are listed in **Table 1-2: IWA Passenger and Rental Car Service Parking Availability**.

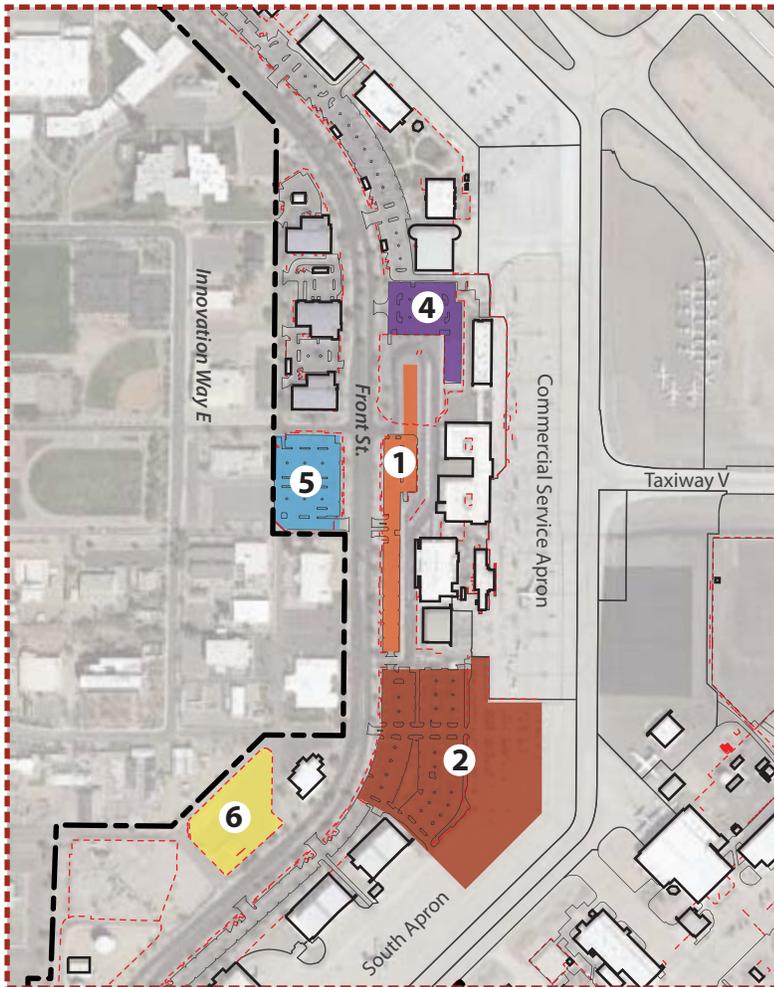
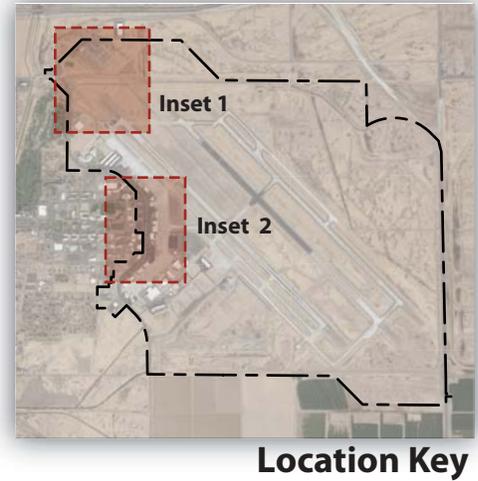
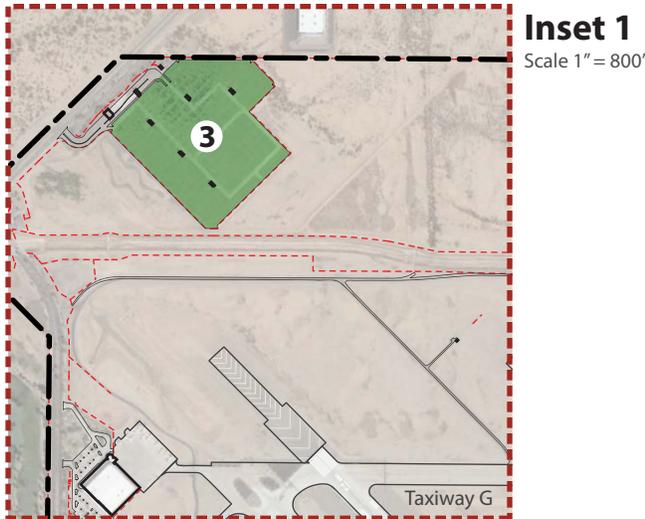
Table 1-2: IWA Passenger and Rental Car Service Parking Availability

Parking Lot	Space Count
Hourly Express Lot	186
Daily Lot	840
Rental Car Pick-Up ⁷	159
Rental Return ⁸	250
Cell Phone Lot ⁹	180
Ray Road Economy Airport Parking	2,809

⁷ A selection of rental cars for Pegasus are readily available for airport users. They are located off airport property. When a reservation has been made, or when contacted, a car is delivered to the Airport. Rental cars may be dropped off at the Airport in the parking lot adjacent to the General Aviation Center.

⁸ Spaces for rental car return are in a linear fashion. Approximate space availability is subject to car size. An estimation of 250 spaces has been made.

⁹ Parking spaces have not been paved within the cell phone lot. An estimation of 180 spots has been made.



Inset 2
Scale 1" = 400'

Legend

- 1. Hourly Express Lot
- 2. Daily Lot
- 3. Ray Road Economy Airport Parking
- 4. Rental Car Pick-Up
- 5. Rental Car Return
- 6. Cellphone Parking Lot

Source: Phoenix-Mesa Gateway Existing Airport Layout Plan, 2015

Figure 1-8: Passenger Parking Facilities

Airspace System and Navigational Aids

There are two primary classifications of airspace within the National Airspace System (NAS): controlled and uncontrolled airspace. Controlled airspace is where air traffic control service is provided for aircraft operating under visual or instrument flight rules. It consists of Class A, B, C, D, and E airspace. Uncontrolled airspace consists of Class G airspace. The airspace system comprises navigational aids (NAVAIDs) and is of great importance. IWA, as with all airports, functions within the national system of airspace. The following narrative briefly details the role of IWA within the airspace system and the NAVAIDs that service the Airport.

Air Traffic Service Areas and Aviation Communications

Air Route Traffic Control Centers (ARTCC) are responsible for providing navigational assistance to en route aircraft along airways and other portions of airspace. ARTCCs cover a specific geographic area and primarily assist aircraft operating under instrument flight rules (IFR). Of the 22 ARTCCs, IWA is within the Albuquerque coverage area. Airports in parts of Arizona, New Mexico, Texas, Oklahoma, and Colorado are also under the Albuquerque ARTCC jurisdiction.

Aviation communications facilities associated with the Airport include the Air Traffic Control Tower (ATCT) with frequencies 120.6 for common traffic advisory, 128.25 for ground control, and 124.9 for approach and departure control. Contact with the FBO can be made on the 129.875 frequency.

Air Traffic Control Tower (ATCT)

Primary responsibilities of air traffic controllers include maintaining separation between arriving and departing aircraft and assuring an orderly flow of traffic. The ATCT at IWA is 127 feet tall and located northwest of the cargo apron. Visibility of all runways and taxiways are clear; however, due to the location of hangar facilities visibility of apron areas are obstructed. An air traffic control tower siting study was completed in 2015 for the potential relocation of the tower. A new site recommendation and height was chosen. The tower is owned by the PMGAA and is contracted for operation by Serco, Inc as part of the FAA Contract Tower Program. Serco operates the tower from 5:00 a.m. – 12:00 a.m. and provides instruction and separation of inbound traffic, approach clearance, departure clearance, and ground control.

Weather Monitoring Equipment

An automated terminal information system (ATIS) broadcasts continuous weather information including:

- ✓ Time of the report issued
- ✓ Wind speed and direction
- ✓ Visibility
- ✓ NOTAM Information
- ✓ Temperature
- ✓ Dew point

Other information includes the ATIS report such as traffic patterns, altimeter setting, runway and/or taxiway closures, NAVAIDs out of service, instrument information, and more. Weather information is retrieved from the automated weather observing system (AWOS). ATIS and weather information are verbally recorded by air traffic controllers and reported on the 133.35 frequency. The transfer of AWOS information to ATIS is not automated at this time. The ATIS is operational during tower hours.

AWOS information can be accessed on the 133.5 frequency after the operational hours of the tower and 24 hours by calling 480-988-9428. The AWOS is located adjacent to the glideslope on the south end between Runways 30R and 30C.

Airspace

IWA is within Class D airspace that extends from the surface elevation of the airfield to 3,900 feet mean sea level. It is five nautical miles wide and prior to entering, aircraft must be equipped with a two-way radio and contact the ATCT. IWA Airspace is illustrated in **Figure 1-9: Sectional Chart**. All airspace overlying airports is individually tailored to the availability of the tower and types of instrument procedures. The Class D airspace overlying IWA is functional while the ATCT for the Airport is operational. During the non-operational hours, the Class D airspace reverts to Class G and extends from the surface elevation of the airfield to 700 feet mean sea level. Class G airspace is uncontrolled and typically does not require any equipment or radio communication. However, due to the overlying airspace above 700 feet mean sea level, both are required.



Source: FAA.gov - Phoenix Sectional Aeronautical Chart

Figure 1-9: Sectional Chart

Phoenix Sky Harbor International Airport (PHX) is one of the nation's busiest airports operation and enplanement wise. Because of this, Class B airspace and a Mode C transponder veil 30 nautical miles (nm) wide is enforced over the PHX and its instrument procedures. This Class B has multiple layers that extend and cover nearly 30 nm in certain areas. Though the base elevations of the Class B layers differ, the ceiling elevation of 9,000 feet mean sea level is constant. Four Class B layers overlay the Class D airspace for IWA. The Class B layer that lies over the majority of IWA is located north with a base elevation of 5,000 feet mean sea level. The 1,100 feet of airspace between the Class D ceiling of 3,900 feet and Class B base elevation of 5,000 feet is Class E transitional airspace. Class E airspace encompasses PHX, IWA, and several other nearby airports. It begins at 700 feet mean sea level and extends to 18,000 feet. Any form of Class E airspace requires two-way radio communication. The Class B layer with the lowest base elevation of 4,000 feet mean sea level is west of the IWA while the remaining two layers are south and southwest with base elevations of 7,000 feet and 6,000 feet respectively. The gap airspace between the three levels and Class D ceiling are also Class E transitional airspace.

Military Operating Areas (MOAs), Restricted Areas, and Alert Areas are considered Special Use Airspace. East of the IWA are three MOAs: Outlaw MOA, Jackal MOA, and Jackal Low MOA. These areas have been established due to extensive military training activity. Southeast of the Airport are Restricted Areas R-2310A, B, and C. Restricted areas contain activities that may be hazardous to aircraft and therefore flight operations are restricted during certain hours. Though not in the immediate airspace, Alert Area A-231 is 39 nm west of the IWA. It has been established due to concentrated jet transition training associated with the Luke Air Force Base. Flight within this area is not prohibited; however, aircraft flying within this airspace should exercise extreme caution.

FAR Part 77 Surfaces

Part 77 imaginary surfaces are established within Federal Aviation Regulations (FAR) Part 77: *Safe, Efficient Use, and Preservation of the Navigable Airspace* for the protection of navigable airspace at and surrounding the Airport.¹⁰ The criteria contained in Part 77 applies to existing and proposed manmade objects and/or objects of natural growth and terrain. These surfaces should be kept free of obstructions. The dimensions of the Part 77 surface depend on various factors such as type of runway, runway surface, and type of instrument approach available to a runway's end. IWA Part 77 surfaces are as follows:¹¹

¹⁰ Federal Aviation Regulations (FAR) Part 77: *Safe, Efficient Use, and Preservation of the Navigable Airspace*

¹¹ Ibid.

Primary Surface

- ✓ The primary surface is centered along the centerline of a runway at an elevation of the highest point on the nearest runway centerline. The primary surface for all runways at IWA extend 200 feet beyond the runway end.
- ✓ Runway 12R/30L: Runway 12R/30L is served by non-precision approaches and is equipped for aircraft weight over 12,500 pounds; therefore the primary surface width is 500 feet.
- ✓ Runway 12C/30C: Though runway end 12C is served by non-precision approaches with visibility minimums of one mile, runway end 30C is served by an instrument approach with a visibility minimum of $\frac{3}{4}$ mile. The more demanding primary surface is considered; therefore the width of the primary surface for Runway 12C/30C is 1,000 feet.
- ✓ Runway 12L/30R: Due to Runway 12L/30R only accommodating visual approaches, the primary surface is 500 feet wide.

Approach Surface

- ✓ An Approach Surface is critical due to its representation and protection of the airspace used for aircraft's approach to land. All approach surfaces are centered along the extended runway centerline and begin at the end of the primary surface. The inner edge of the approach surface is equivalent to the width of the primary surface. It then extends outward and upward.
- ✓ Runway 12R/30L: The approach surface for both runway ends expand 2,000 feet in width and extends 10,000 feet long at a slope of 34:1.
- ✓ Runway 12C/30C: The approach surface for runway end 12C extends 10,000 feet horizontally at a slope of 34:1 and expands uniformly to a width of 3,500 feet. Runway end 30C is serviced by an approach surface that expands 16,000 feet wide to a horizontal length of 10,000 feet at a slope of 50:1. The approach then extends an additional 40,000 feet at a slope of 40:1.
- ✓ Runway 12L/30R: The approach surface for both runway ends extend to a length of 5,000 feet at a 20:1 slope and expand to a width of 1,500 feet.

Transitional Surface

- ✓ The transitional surface extends outward and upward from the sides of the primary surface and approach surfaces at a slope of 7:1 up to the horizontal surface. No objects or buildings on airport property should penetrate this surface.

Horizontal Surface

- ✓ FAR Part 77 defines a horizontal surface as “a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of a specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs.”¹²
- ✓ Runway 12R/30L and 12C/30C have a radius of arc of 10,000 feet. The radius of arc for Runway 12L/30R is 5,000 feet.

Conical Surface

- ✓ The conical surface extends outward and upward for a horizontal distance of 4,000 feet from the outer limits of the horizontal surface at a slope of 20:1.

Navigational Aids (NAVAIDS)

NAVAIDs are essential as they provide aerial navigation assistance to aircraft en route and aircraft on approach to land. Most NAVAIDS are ground-based equipment located both on and off airport property, however, some are satellite based. The following NAVAIDS are available to IWA.

Airport Beacon. The airport beacon is located above the ATCT and operates from sunset to sunrise. It emits a white then green light every 180 degrees to indicate the location of the Airport. The white-green light notifies aircraft that IWA is a civilian land airport.

Wind Cones and Segmented Circles. Normal flight operations require aircraft to take off and land into the wind. Wind cones visually indicate prevailing wind direction and speed, which aids a pilot in choosing what runway to use for takeoff and landing operations. Segmented circles are typically positioned around wind cones and are sometimes assisted by land direction indicators that indicate the traffic pattern for a runway. There are seven wind cones in total of which six are lit. Three are accompanied by segmented circles. Two of the segmented circles provide land direction indicators. All wind cones and segmented circles, except one, are located left of every runway end near the 1,000-foot precision pavement markers. Wind cones with segmented circles are left of Runways 30C, 30R, and 12R. The remaining wind cone is located directly south of Taxiway V.

¹²Ibid.

Compass Rose. Compass roses are painted on the airfield, so aircraft may calibrate the magnetic compass within the cockpit. The compass rose is located west of Taxiway A and Runway 30L. It is approximately 12,500 square feet of concrete.

Very High Frequency Omnidirectional Range (VOR)/Distance Measuring Equipment (DME). VORs are the most common ground-based NAVAID. Aircraft may use VORs for en route aerial navigation and non-precision instrument approaches to land. VORs transmit very high frequency (VHF) signals to aircraft instruments that then determine the location from the station. VORs are often combined with DME enabling the system to provide distance and direction. When VORs are combined with DME and with a Tactical Air Navigation System (TACAN) beacon, it is then considered a VORTAC. TACANs provide the same distance measuring capability as DME and are primarily used by military aircraft. A VOR and TACAN approach is available to Runway 30c with a visibility minimum of 1 mile. The VORTAC is located on the airfield west of Runway 12C/30C and south of Taxiway K.

Instrument Landing System (ILS). An ILS transmits radio signals that establish a straight approach to a runway at a specific angle and comprises two components: localizer and glide slope. The localizer is positioned beyond the runway end and transmits a radio signal that provides an aircraft with lateral guidance. It signals an aircraft if it has deviated to the left or right of the course to the runway. The glide slope transmits a radio signal that guides aircraft vertically at a specified degree angle towards the runway. Runway 30C is equipped with an ILS approach with a visibility minimum of $\frac{3}{4}$ mile. Runway 12C is served by a non-precision approach.

Area Navigation (RNAV)/Global Positioning System (GPS). Rather than using VOR navigation by flying point to point, RNAV permits equipped aircraft the ability to triangulate signals broadcast by the ground-based stations and fly direct to their destination on any desired flight path. GPS are satellite-based navigation systems that transmit location, distance, altitude, direction of travel, and speed to aircraft. GPS affords equipped aircraft the ability to conduct non-precision approaches to runways not equipped with ground-based equipment. RNAV (GPS) instrument approaches are available to Runways 12R/30L and 12C/30C with 1-mile visibility minimums.

Airport Surveillance Radar (ASR). An ASR is designed to provide relatively short-range coverage near an airport to assist in handling terminal area traffic through observations of precise locations on a radarscope. ASR provides azimuth information, with a coverage area of up to 60 miles, but does not provide elevation data. The ASR at IWA is located east of Taxiway C adjacent to the paved access road.

Utilities¹³

Utilities are significant elements in the immediate and long-range planning of the Airport. They provide the necessary foundation for development projects and without widely available and reliable electrical, water, telecommunications/fiber optics, natural gas, wastewater, and drainage, it is extremely hard to expand or develop facilities. Significant planning is required to ensure sufficient capacity and infrastructure is in place to serve existing infrastructure and future development projects. **Figure 1-10: Comprehensive Utilities Map** identifies the various utility locations surrounding the Airport.

Electrical

The Salt River Project (SRP) provides electrical service to the Airport. SRP facilities include generation plants, substations, and transmission and distribution lines. Electrical power is generated at the recently expanded 1,200 megawatt (MW) Santan Generating Station, located south of Warner Road on Val Vista Road in Gilbert. Power is transmitted via the Browning Power Receiving Station north of Elliott and Signal Butte Roads, with scheduled additions of the Dinosaur substation on Germann Road at the Central Arizona Project (CAP) canal and Moody substation south of Pecos and Recker Roads. SRP has the capability of expanding facilities to accommodate future growth in and around the Airport, but will need to understand the location, nature and timing of development so that appropriate facilities can be provided. All electrical utility lines serving the Airport are identified in **Figure 1-11: Electrical Utilities Map**.

The Airport also has back-up diesel and natural gas generators that support critical electrical systems and does not intend on establishing redundant feeds.

Water

The City of Mesa is the designated municipal water service provider for the Airport and within the Falcon Field Pressure Zone. There is an existing 16-inch water line running north-south along Sossaman Road that supplies the airport with two 12-inch lines. Newly installed 20-inch and 24-inch water lines are along the north boundary of the Airport. All water utility lines serving the Airport are identified in **Figure 1-12: Water Utilities Map**.

¹³ Jacobs, *Final Technical Report Northeast Area Development Plan Phoenix-Mesa Gateway Airport*, June 2012.

Telecommunications/Fiber Optics

The Airport and adjacent commercial and light industrial parks are well served through local telecommunications and fiber optic providers Cox Communications, CenturyLink, and Xentras Communications. The City of Mesa has also constructed the E-streets East Mesa Loop, a professionally engineered carrier class conduit and vault system for commercial and government uses. The backbone consists of over 36 miles of 12 two-inch conduits with access points at every major street crossing, and 100 percent of the system is buried. Although no fiber has been placed by the City of Mesa, private companies such as Cox Communications and CenturyLink purchase conduits and deploy fiber optic connectivity for commercial needs. All telecommunications/fiber optic lines serving the Airport are identified in **Figure 1-13: Telecommunications/Fiber Optics Map**.

Natural Gas

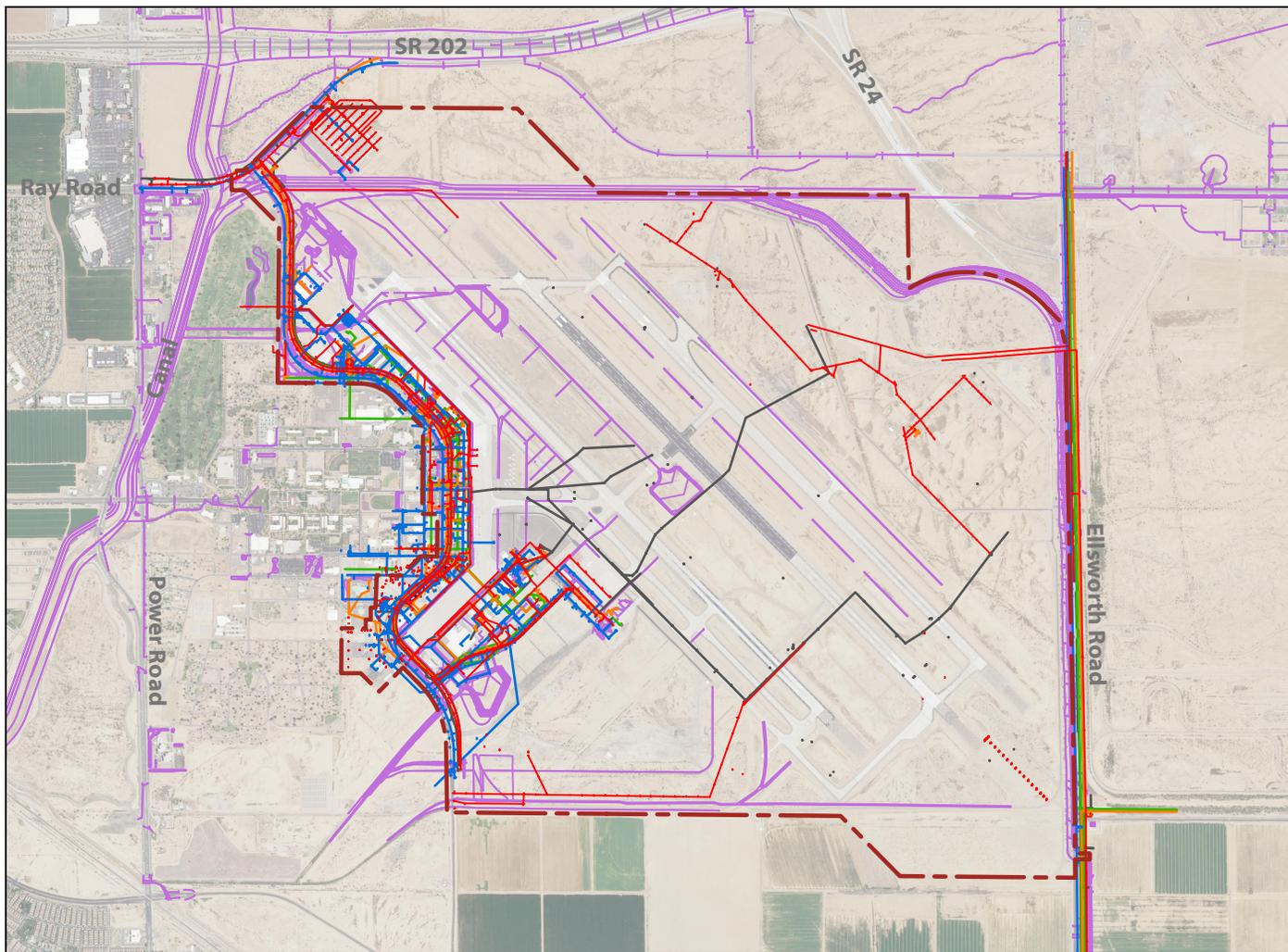
Southwest Gas is the natural gas provider for the Airport. A high-pressure line runs along Signal Butte Road and turns west on Elliot Road. At Ellsworth Road, the line runs from Guadalupe on the east to Germann Road and continues east and west along Germann Road outside of the Airport. An additional high-pressure line also runs along Pecos Road from Ellsworth Road east of Signal Butte Road. Southwest Gas has the capability to accommodate future development needs without any interruptions to service. All natural gas utility lines serving the Airport are identified in **Figure 1-14: Natural Gas Utilities Map**.

Wastewater

The City of Mesa is the provider for wastewater collection and treatment for the incorporated areas of the city, which includes the Airport. The Greenfield Water Reclamation Plant is jointly owned by the City of Mesa and the Towns of Gilbert and Queen Creek and serves the Airport. The Airport is served by a 12-inch line in Sossaman Road that flows north near the new Ray Road Alignment where it connects to the new 30-inch line, then south in a 54-inch line along Power Road and ultimately to the Greenfield Water Reclamation Plant. All wastewater utility lines serving the Airport are identified in **Figure 1-15: Wastewater**.

Airport Drainage

The City of Mesa and the Flood Control District of Maricopa County partner to address drainage and flood control issues at the Airport. Water generally flows from the southeast to northwest and a system of channels and basins are used to capture, store, and convey flows. The Airport has a Master Drainage Plan in addition to a Stormwater Pollution Prevention Plan. Airport drainage is identified in **Figure 1-16: Airport Drainage Map**.



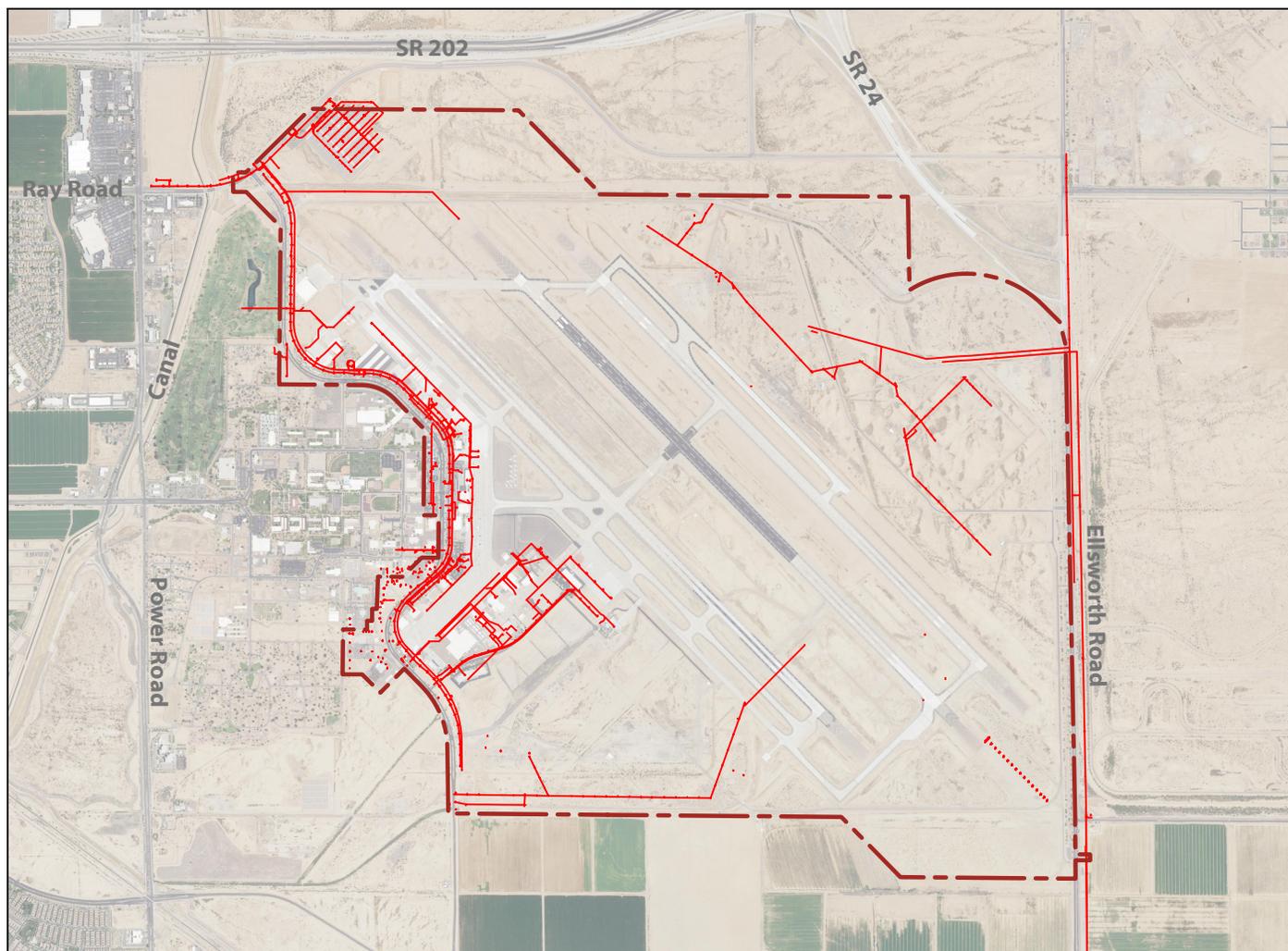
Legend

-  Property Line
-  Electrical
-  Water Utilities
-  Telecommunications/
Fiber Optics Lines
-  Natural Gas
-  Sewer
-  Drainage



SOURCE: City of Mesa.

Figure 1-10: **Comprehensive Airport Utilities Map**

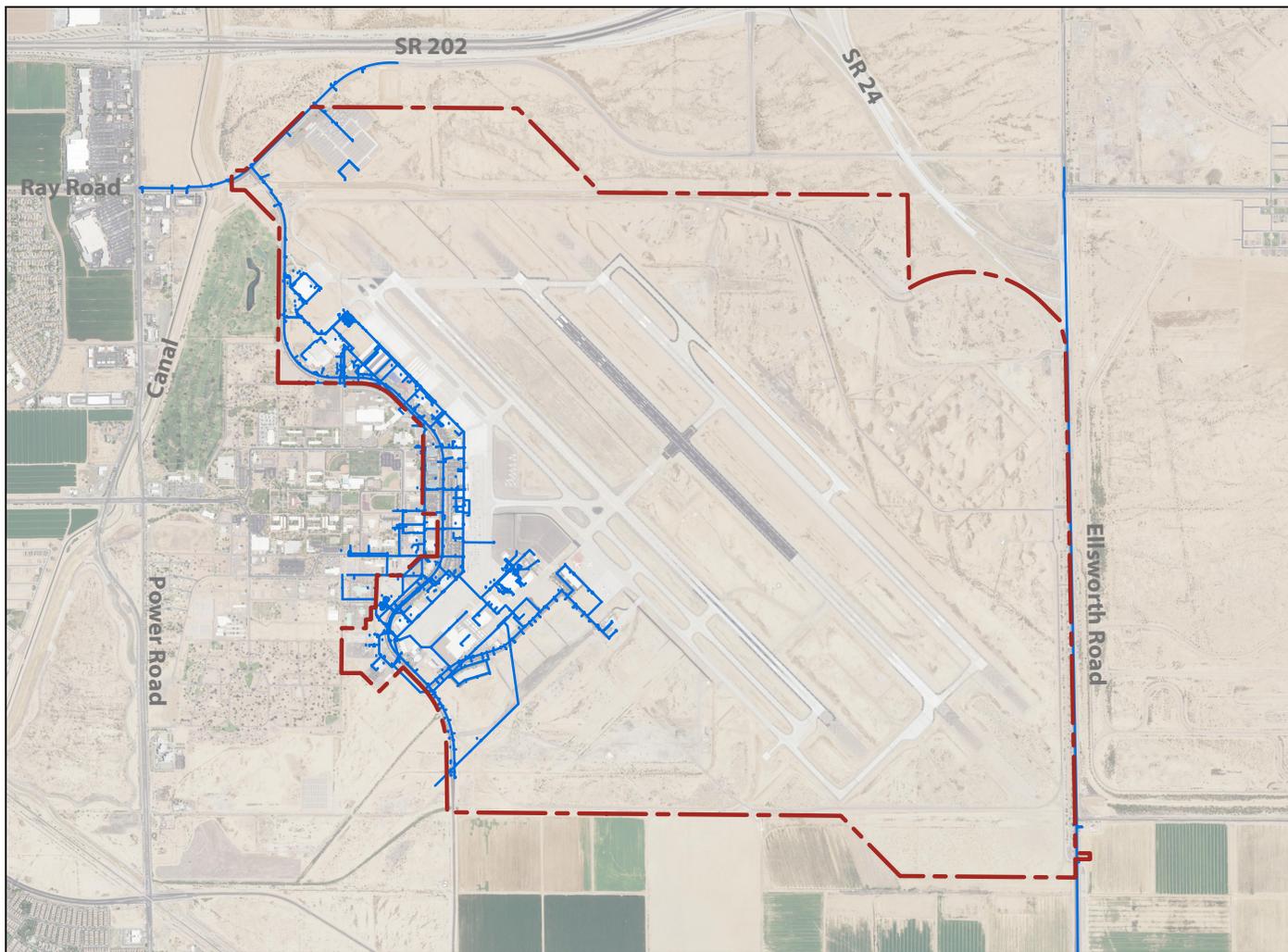


Legend

- Property Line
- Electrical



SOURCE: City of Mesa.



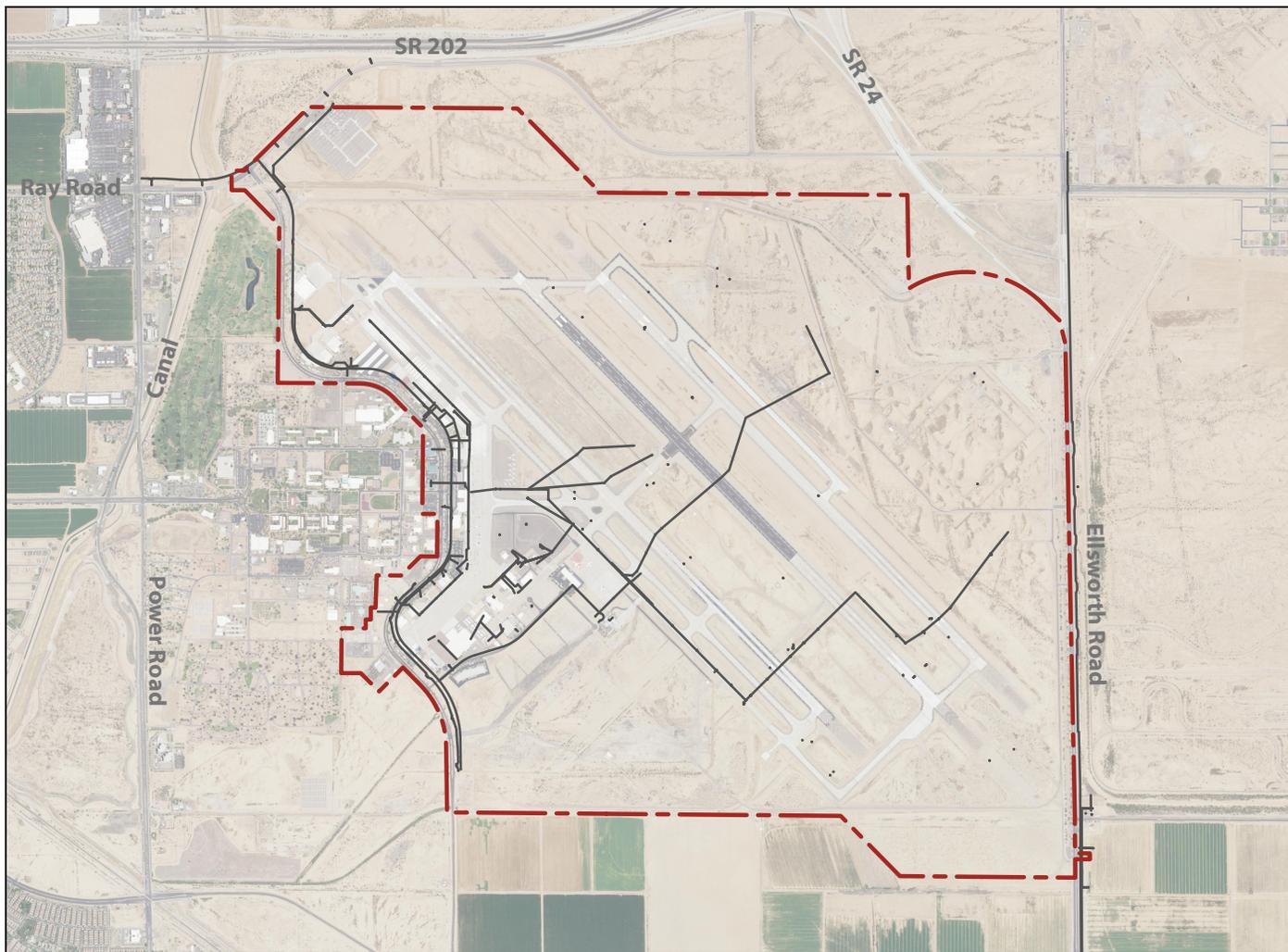
Legend

- Property Line
- Water Utilities



SOURCE: City of Mesa.

Figure 1-12: **Water Utilities Map**



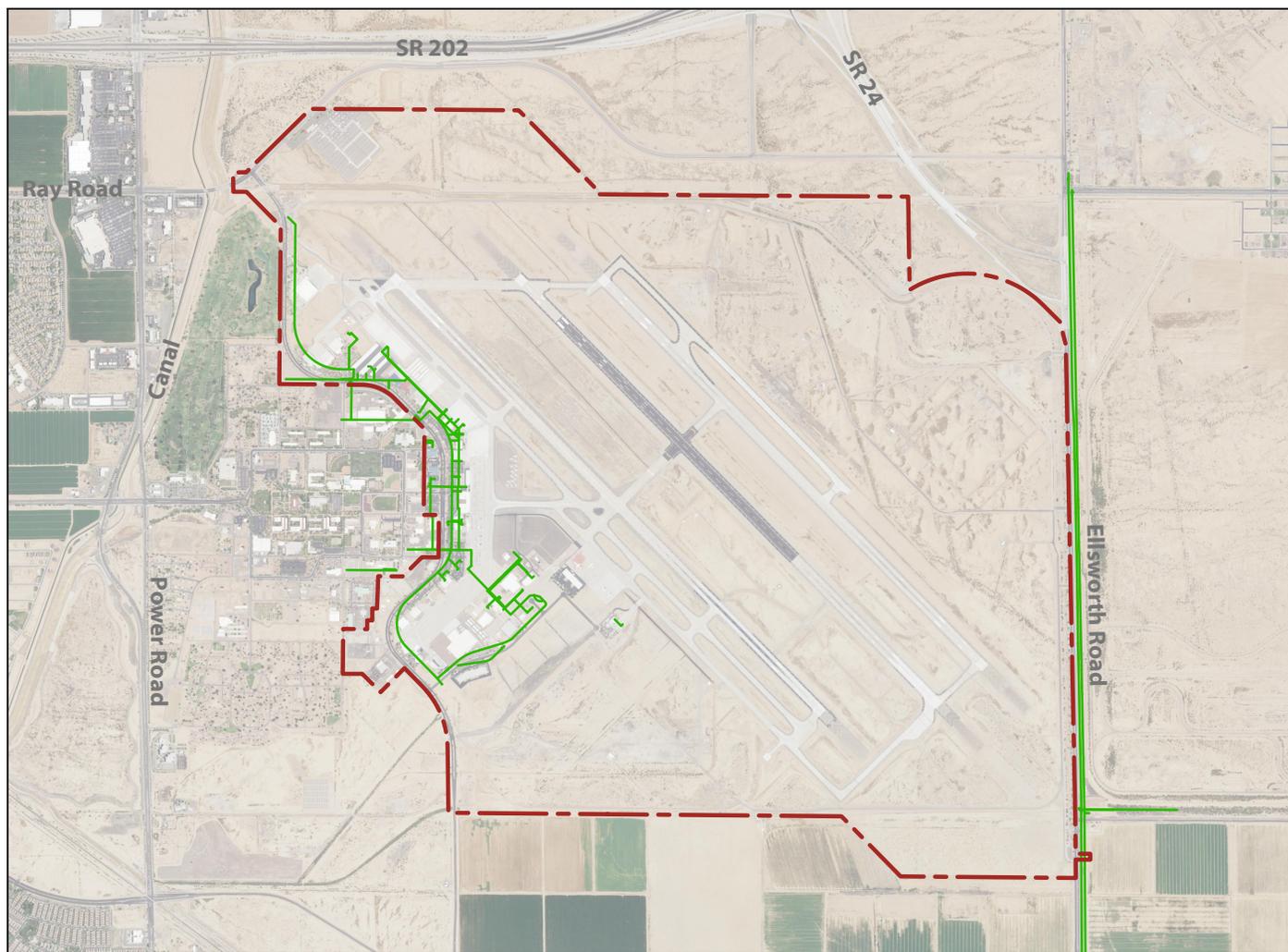
Legend

- Property Line
- Telecommunications/
Fiber Optics Lines



SOURCE: City of Mesa.

Figure 1-13: Telecommunications/Fiber Optics Map

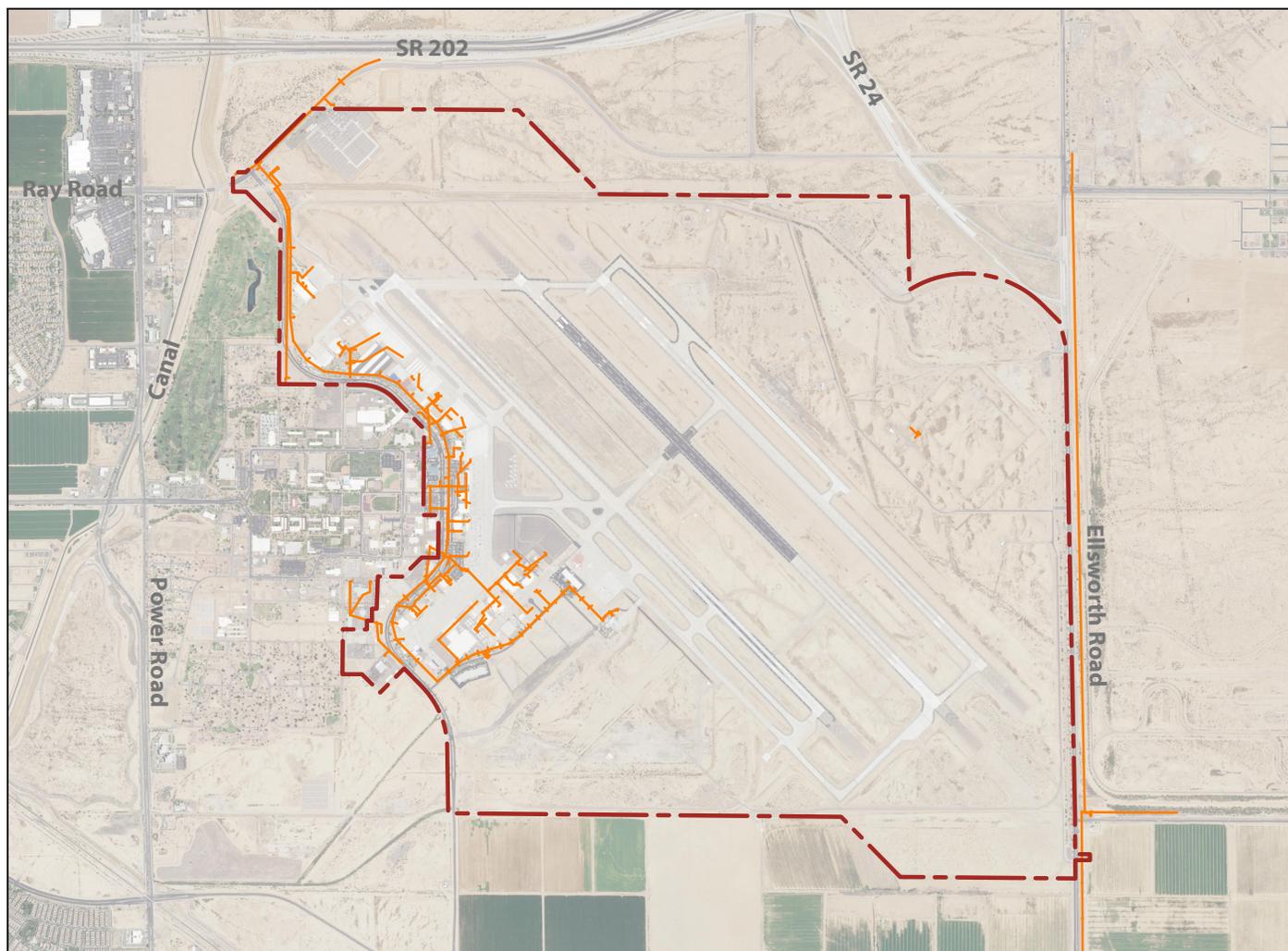


SOURCE: City of Mesa.

Legend

- Property Line
- Natural Gas



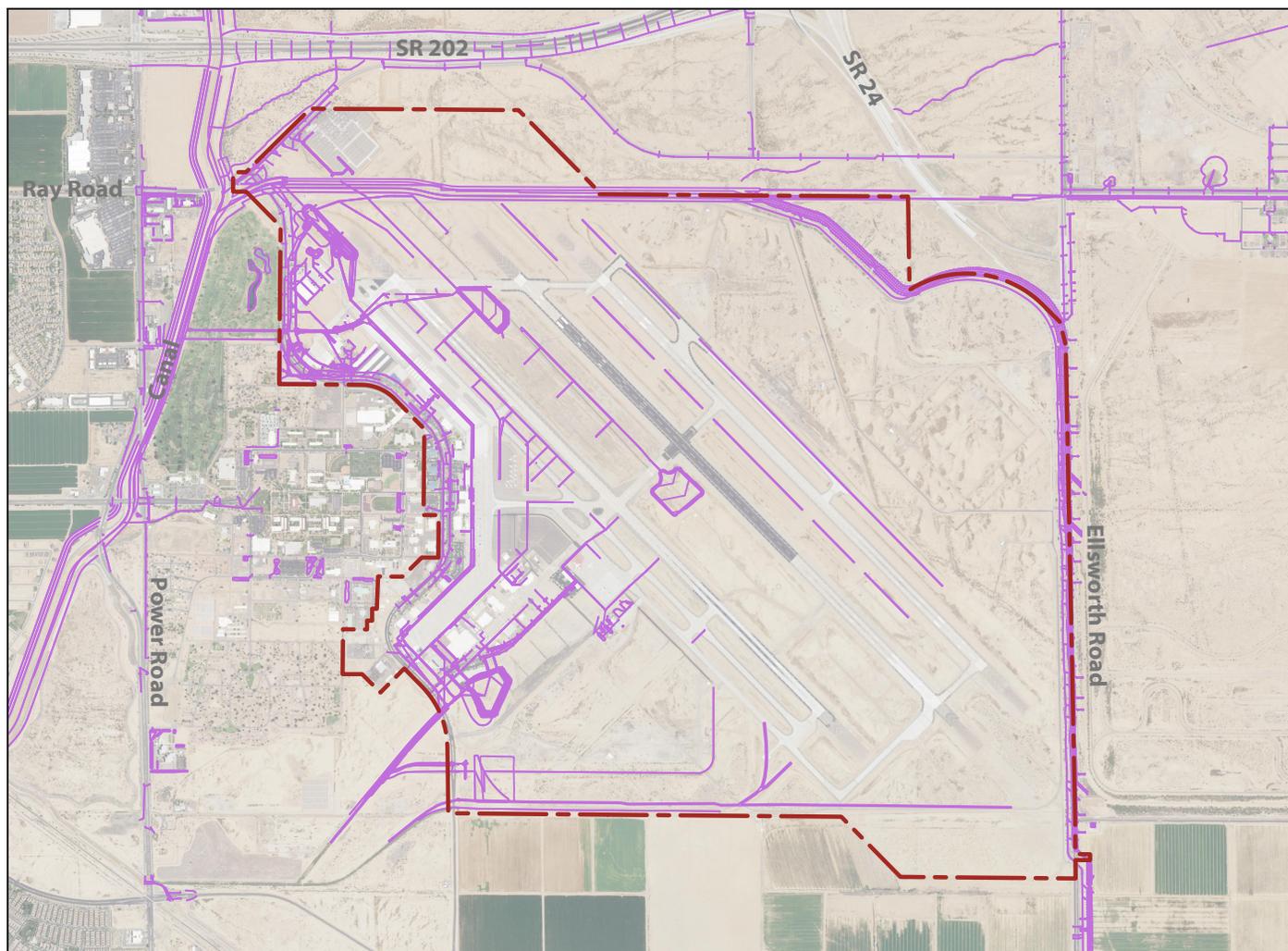


Legend

- Property Line
- Sewer



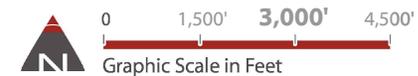
SOURCE: City of Mesa.



SOURCE: City of Mesa.

Legend

- Property Line
- Drainage



Wind Analysis

Wind is a key factor in runway orientation as optimal utility of an airport is provided when runway orientation is relative to prevailing winds in that area. The FAA guidance recommends an airport runway system offer 95 percent wind coverage for the allowable crosswind component, which is dependent on the runway design code (RDC). This means that the runway orientation should be developed so that the maximum crosswind component is not exceeded 5 percent of the time. If the primary runway does not offer 95 percent wind coverage, a crosswind runway should be considered so together they provide 95 percent wind coverage. RDC is assigned to each individual runway. In the event of multiple runways, the RDC depends on the aircraft that will primarily use that runway. The RDC for all runways at IWA is D-V, which allows for a crosswind component of 20 knots. The runways at IWA are not only used by D-V aircraft, but by aircraft of smaller and larger RDC with lower allowable crosswind components. Crosswind components for all RDCs are listed in *Table 1-3*.

Table 1-3: Allowable Crosswind Component per RDC

RDC	Crosswind Component
A-I and B-I	10.5 Knots
A-II and B-II	13 Knots
A-III, B-III, C-I through C-III, D-I through D-III	16 knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI, E-I through E-VI	20 Knots

Source: FAA AC 150/5300 13A, Airport Design, Change 1. Table 3-1

A wind analysis is conducted for two primary reasons: 1) To determine the best runway orientation for an airport and 2) to analyze how the current runway orientation accommodates wind conditions. A wind analysis considers both wind direction and speed in visual flight rules (VFR), IFR, and all-weather conditions. The wind analysis conducted for IWA used data from a ten-year period, 2008-2017. There were approximately 141,148 observations during this time. Due to the identical runway orientations at IWA, wind analysis data is sufficient for all three runways.

Table 1-4: All-Weather quantifies the wind coverage provided by the existing runway system including the coverage provided by each runway end. Based on the all-weather wind analysis for IWA, using the Wind Rose File Generator and Wind Analysis Tool on the FAA Airports GIS Program website, the existing runway configuration provides the following all-weather wind coverage. **Figure 1-17: All Weather Wind Rose** depicts the all-weather wind rose for the runway system at IWA.

Table 1-4: All-Weather

Runway	10.5 Knot	13 Knots	16 Knots	20 Knots
Runways 12	89.74%	90.33%	90.98%	91.22%
Runways 30	73.66%	74.46%	75.24%	75.52%
Runways 12/30	97.66%	98.6%	99.51%	99.84%

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center, Station 722786, Williams Gateway Airport, Mesa, AZ.
 Period of Reporting 2008-2017; 141,148 Total Observations, and tailwind component of five knots for unidirectional runways and sixty knots for bidirectional runways.

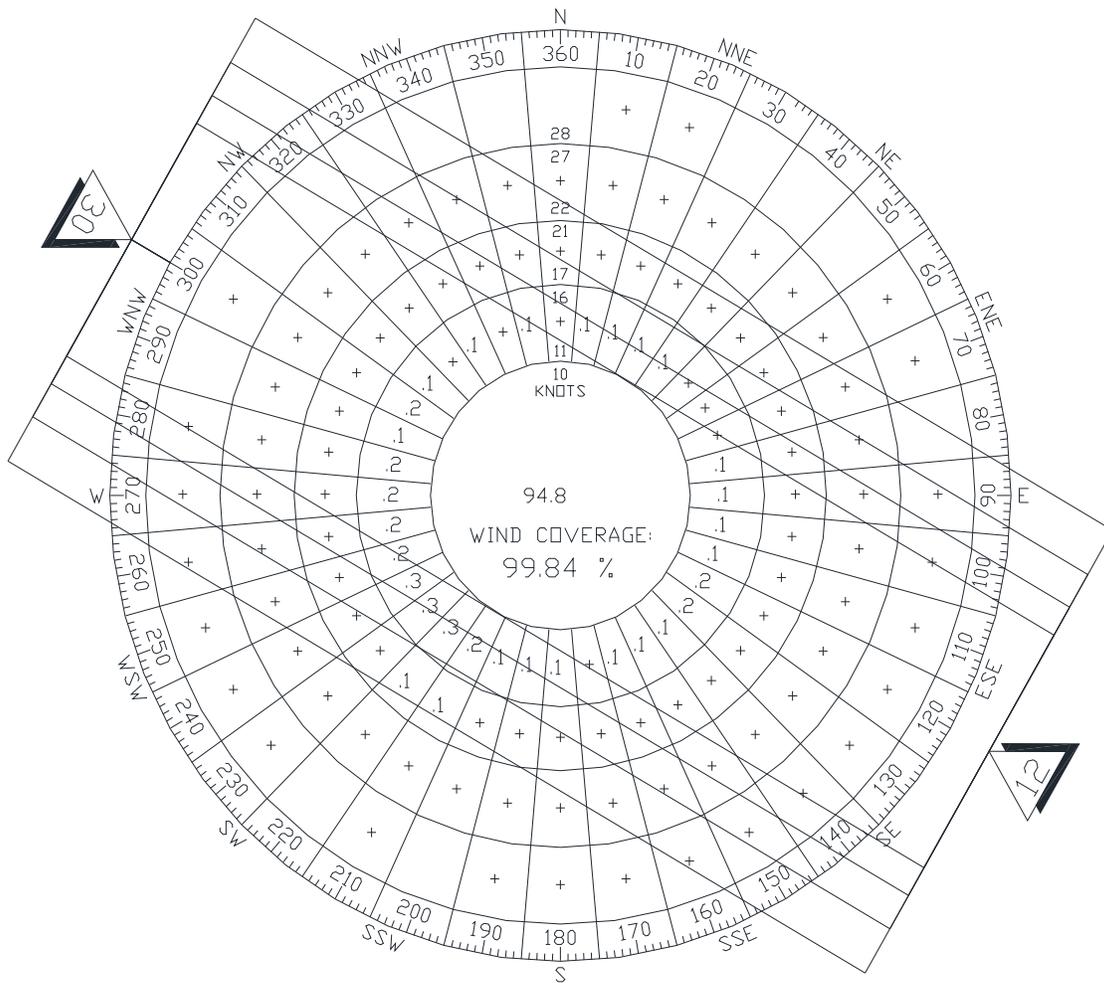


Figure 1-17: All Weather Wind Rose

Tables 1-5 and 1-6 present the wind coverage offered by the current runway system during VFR and IFR conditions. VFR conditions exist when the cloud ceiling is at least 1,000 feet above the ground level and the visibility is a minimum of 3 statute miles. IFR conditions exist when the reported cloud ceiling is less than 1,000 feet and visibility is less than 3 miles. **Figure 1-18: IFR Wind Rose** presents the IFR wind rose for the runway system at IWA. As seen in the tables, wind conditions favor Runways 12R, 12C, and 12L. The existing runway configuration meets and exceeds the standard 95 percent wind coverage.

Table 1-5: VFR Weather

Runway	10.5 Knot	13 Knots	16 Knots	20 Knots
Runways 12	89.84%	90.41%	91.04%	91.27%
Runways 30	73.71%	74.5%	75.28%	75.55%
Runways 12/30	97.75%	98.68%	99.56%	98.86%

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center, Station 722786, Williams Gateway Airport, Mesa, AZ. Period of Reporting 2008-2017; 139,974 Total Observations, and tailwind component of five knots for unidirectional runways and sixty knots for bidirectional runways.

Table 1-6: IFR Weather

Runway	10.5 Knot	13 Knots	16 Knots	20 Knots
Runways 12	56.03%	62.23%	68.96%	74.86%
Runways 30	46.74%	49.97%	53.83%	57.37%
Runways 12/30	69.26%	76.74%	84.66%	91.56%

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center, Station 722786, Williams Gateway Airport, Mesa, AZ. Period of Reporting 2008-2017; 429 Total Observations, and tailwind component of five knots for unidirectional runways and sixty knots for bidirectional runways.

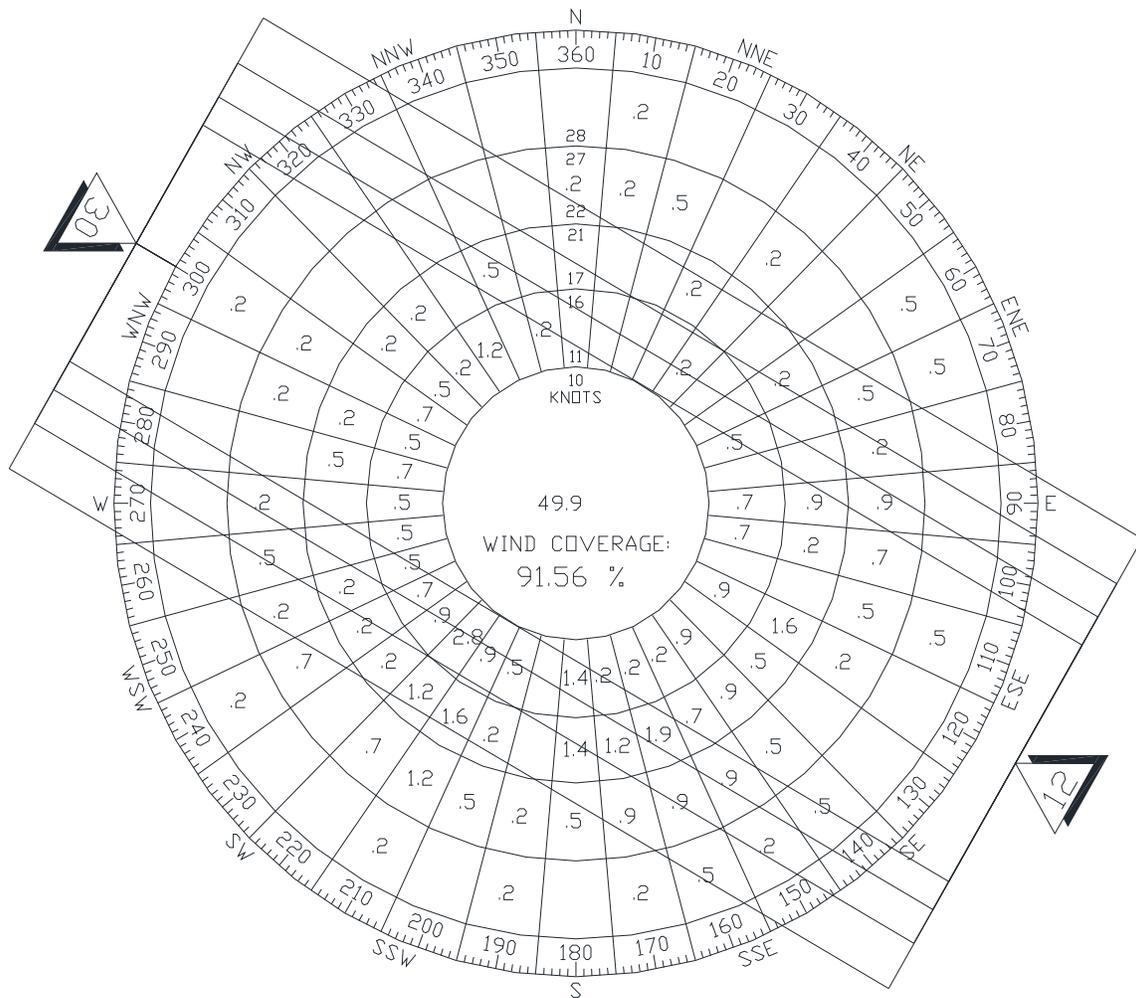


Figure 1-18: IFR Wind Rose

Airport Environs

Surrounding zoning and land use must be considered to combat incompatible land uses and activities within aircraft operating areas. Understanding an airport's location within the immediate community also determines how future airport development or the public may be adversely affected.

Zoning is law and is enforced within every municipality. Zoning ordinances appoint permitted uses of land and establish standards for such. Arizona State Statute and Requirement 9-461.05 requires each planning agency to prepare a long term general plan that must be adopted by the governing body. General plans have been created and adopted by the city of Mesa, town of Gilbert, and the town of Queen Creek that document current land use. General plans also serve as a platform for future land use designation. Airport environs surrounding IWA are discussed in the following paragraphs.

Airport Overlay Zoning

An Airfield Overlay District comprised of Runway Protection Zones (RPZs) and three Airport Overflight Areas (AOAs), (AOA 1, AOA 2, and AOA 3), have been created within the Mesa Zoning Ordinance. Similar overlays have also been adopted in Gilbert and Queen Creek. Unincorporated areas of Maricopa County in the vicinity of the Airport also include Airport Overlay zoning protections. This district was created to “promote the public health and safety in the vicinity of aircraft operation areas.¹⁴” Land use regulations within the RPZs and AOAs are established to minimize the potential of aircraft accidents or incidents and risk to the public. No buildings may be located in the RPZs at each runway end. The zoning ordinance permits vehicle parking, landscaping, stormwater retention, and yard setbacks within the RPZs given they do not penetrate the slope of an RPZ or another airport surface. Interference with aircraft operations or movement or creation of wild life hazard is prohibited. No uses within the district may interfere, obstruct, or impair:

- ✓ Navigable airspace or signals
- ✓ Radio communications
- ✓ Visibility in the vicinity of the Airport

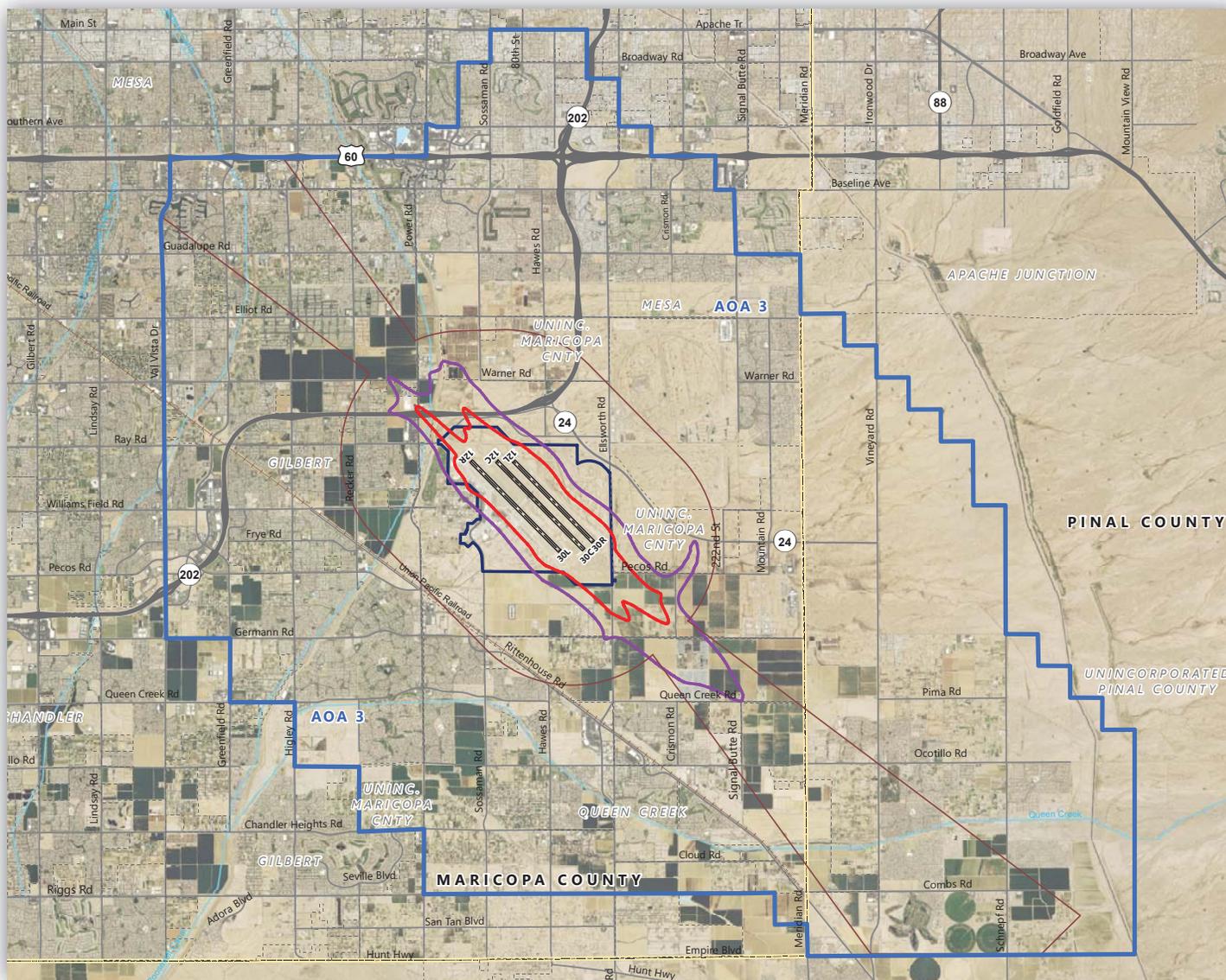
¹⁴ Mesa Zoning Ordinance, Chapter 19 (2018)

AOA dimensions were updated in the Airport Land Use Compatibility Plan (ALUCP) that was approved in February 2017 by the Airport Authority and adopted by the City of Mesa. AOAs 1 and 2 indicate areas with high levels of noise exposure due to aircraft operations at IWA. Noise is measured using day-night sound level (DNL) methodology, which is a 24-hour time-weighted average noise level based on the “A” weighted decibel (“A” weighted refers to the sound scale pertaining to the human ear). The DNL is a measure of the overall noise experienced during an entire day with the noise occurring between the hours 10:00 p.m. to 7:00 a.m. being penalized or weighted by ten decibels. This attempts to account for the higher sensitivity to noise during nighttime hours and the expected decrease in background noise levels. DNL noise levels are depicted as noise contours drawn to connect all points of similar level. The AOAs as defined in the ALUCP, and mirrored in the Airfield Overlay District, are as follows:

- ✓ AOA 1 – Area exposed to long-term future noise of DNL 65 and higher. (65 DNL)
- ✓ AOA 2 – Area exposed to long-term future noise of DNL 60 to DNL 65. (60 DNL)
- ✓ AOA 3 – Generally corresponding to the area covered by dense, low-altitude flight tracks, the outer edges of the traffic pattern area, a majority of noise complaint locations, and the FAA-defined wildlife attractant separation area. (The boundaries are squared off to follow established geographic boundaries.) This area is located outside of the 60 DNL contour and represents the balance of the Airport Overflight Area.¹⁵
 - The AOA 3 boundary is also the airport influence area according to Arizona Revised Statutes §28-8485, Airport influence area.

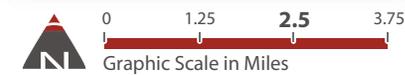
AOA 1 and 2 represent the 65 and 60 DNL contours for IWA. Permitted and non-permitted land use regulations within these AOAs are established for every Mesa zoning district. Noise is further discussed later in the chapter. The complete ALUCP, is located in the Appendix of this master plan. Zoning code adoption of the updated AOA’s and ALUCP recommendations are pending in Gilbert and Queen Creek. The Mesa Zoning Ordinance can be referenced online via the city’s website. The Airfield Overlay District and noise contours are illustrated in **Figure 1-19: Airport Overlay District & Airport Noise Contours**.

¹⁵ Ricondo and Associates. (2017). *Airport Land Use Compatibility Plan Update*(Rep.).



LEGEND

- Existing Airport Boundary
- Municipal Boundary
- County Boundary
- Updated AOA 1
- Updated AOA 2
- Updated AOA 3
- 14 CFR Part 77 Horizontal & Outer Approach Surfaces
- Highway
- Arterial Street
- Railroad
- Waterways



Source: Phoenix-Mesa Gateway Airport Land Use Compatibility Plan Update, January 2017.

Figure 1-19: **Airport Overlay District & Noise Contours**

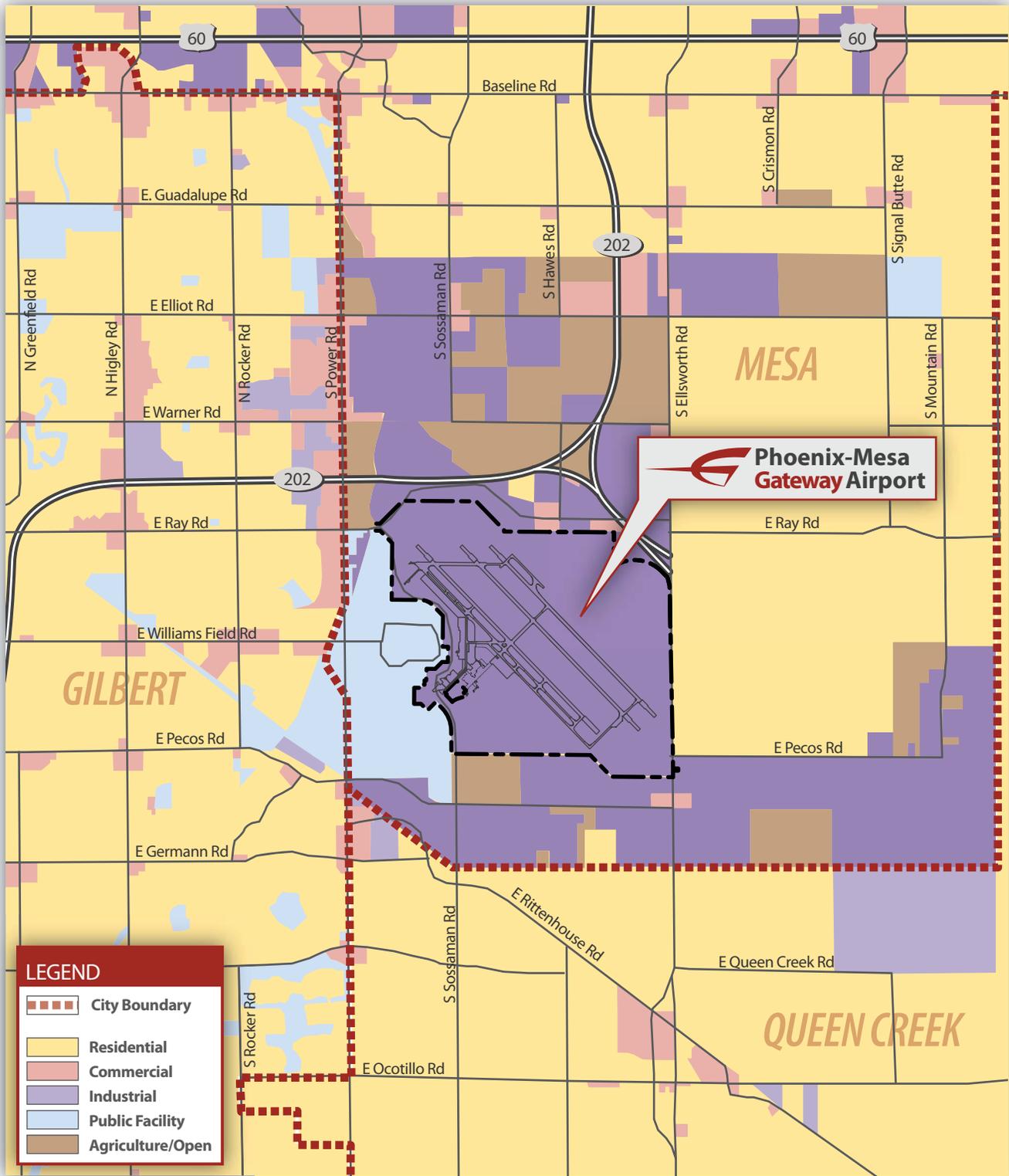
Existing Zoning

A review of the City of Mesa Interactive Planning and Zoning Map revealed that airport property is solely zoned as Light Industrial, which is an Employment District. Land within the Employment District is zoned to permit industrial land use and promote employee-oriented environments to create employment opportunities. The Mesa Zoning Ordinance passed August 28, 2017, by the City of Mesa details the light industrial subdistrict as providing areas for:

- ✓ Limited manufacturing and processing
- ✓ Wholesaling
- ✓ Researching
- ✓ Warehousing
- ✓ Distribution activities that take place within enclosed buildings with restricted accessory outdoor storage as needed to support the primary uses
- ✓ Full range of commercial activities.¹⁶

Figure 1-20: Generalized Existing Zoning illustrates the Generalized Existing Zoning of the Airport and surrounding area.

¹⁶ Mesa Zoning Ordinance, Chapter 7 (2018)



LEGEND

- City Boundary
- Residential
- Commercial
- Industrial
- Public Facility
- Agriculture/Open



Source: Google Maps, 2018
Zoning Maps from the cities of
Mesa, Gilbert & Queen Creek

Figure 1-20 Generalized Existing Zoning

Land uses permitted within the light industrial zoning subdistrict encompass a range of industrial and employment activities. Airport land uses such as aircraft refueling stations, aircraft light maintenance, and airport related long-term parking lots are permitted within the light industrial subdistrict. Heliports are allowed on a Special Use Permit basis. Light Industrial is also located north, northwest, and south of IWA.

Land west of the Airport is zoned as Public and Semi-Public. This zoning district accommodates and provides land for public utility, government, education, and recreational facilities and activities.¹⁷ Land uses that generate congregations of people, including hospitals, schools, universities, and research facilities, are permitted given they are not within the RPZs or Airport Overflight Areas 1 or 2. Embry-Riddle Aeronautical University Phoenix-Mesa Campus, ASU, and CGCC are located immediately west of IWA and were established prior to the initiation of the Airfield Overlay District.

Located north of the Airport is a mixture of Agricultural, Limited Commercial, and Planned Employment Park Districts. A combination of Agricultural, General Industrial, Office Commercial, Neighborhood Commercial, and Residential Dwelling (43) Districts are located South of the Airport. East of the Airport, land is zoned as Planned Community. **Table 1-7: Zoning in Mesa, Arizona** details the surrounding districts. Many land uses within these areas are allowed given they are not located within RPZs or AOAs 1 or 2. Permitted uses of land within each district are listed in their respective chapter of the Mesa Zoning Ordinance. Certain uses are permitted regardless of their location and are mentioned within **Table 1-7**.

¹⁷ Mesa Zoning Ordinance, Chapter 10 (2018)

Table 1-7: Zoning in Mesa, Arizona

District	Purpose	Permitted Uses Despite Being in AOA 1 or AOA 2
Agricultural (AG)	To protect agricultural land and activities for local food sourcing and from urban encroachment/development.	Public parks and recreation facilities Minor utilities Community gardens Animal keeping
Limited Commercial (LC)	The Limited Commercial district is a Commercial and Mixed-Use district with a purpose to provide for indoor retail, entertainment, and service-oriented businesses. Limited Commercial districts, according to the zoning ordinance are designed to serve residential neighborhoods within a 10-mile radius.	Transportation passenger terminals Minor utilities Clubs and lodges Community centers Government and business offices Public parks and recreation facilities Financial institutions Restaurants with no outside eating areas General market Hotel and motels
Planned Employment Park (PEP)	As an Employment District, the purpose of the Planned Employment Park District is to provide areas for professional, research, light manufacturing, and data processing shared areas accompanied by restaurants, retail, and other supportive establishments.	Government and business offices Public safety and maintenance facilities Financial Institutions Restaurants with no outside eating areas Labs Hotels and motels General retail stores Indoor warehousing and storage Transportation Passenger Terminals Prohibited: Aircraft refueling stations, aircraft light maintenance, airport transit station, and airport related long-term parking lots
General Industrial (GI)	The General Industrial district is an Employment District with a purpose to provide space from residential areas for industrial businesses and activities including processing, assembly, research, storage.	Government offices Public safety and maintenance facilities Animal Sales and Services Labs Handicraft/Custom Manufacturing Small indoor collection facilities Warehousing and storage Research and development Outdoor storage

		<p>Freight/truck terminals and warehouses</p> <p>Prohibited: Aircraft refueling stations, aircraft light maintenance, airport transit station, and airport related long-term parking lots</p>
Office Commercial (OC)	As a Commercial and Mixed Use District, the Office Commercial District is designed to accommodate small professional and medical offices that service the community.	<p>Community gardens</p> <p>Government, medical, and dental offices</p> <p>Parks and recreation facilities</p> <p>Public safety facilities</p> <p>Financial Institutions</p> <p>Banquet and conference centers</p> <p>Business services</p> <p>Transportation passenger terminals</p> <p>Minor utilities</p>
Neighborhood Commercial (NC)	As a Commercial and Mixed Use district, the Neighborhood Commercial district is designed to provide areas for local retail and service use the surrounding residential area.	<p>Community center</p> <p>Community gardens</p> <p>Public parks and recreation facilities</p> <p>Public safety facilities</p> <p>Banquet and conference center</p> <p>Business services and offices</p> <p>Restaurant with no designated outside eating area</p> <p>Transportation passenger terminals</p>
Residential Dwelling 43 (RS-43)	RS-43 is a single residence residential district. According to the zoning ordinance, the purpose of the single residence zoning is to “provide areas for detached single residence housing at densities up to 7 units per net acre.” ¹⁸ The 43 represents minimum lot size in thousands square feet. Areas within this district are not solely for residential living.	<p>Manufactures home subdivisions</p> <p>Community gardens</p> <p>Public parks and recreation facilities</p> <p>Minor utilities</p> <p>Accessory Uses and dwelling units</p>
Planned Community (PC)	Property within the Planned Community district is zoned based on the Community Plan for that particular area while considering the purposes of the Planned Community District. The general purpose of the district is to provide for innovative and sustainable planned development.	

Source: Mesa Zoning Ordinance (2018)

¹⁸ Mesa Zoning Ordinance, Chapter 5 (2018)

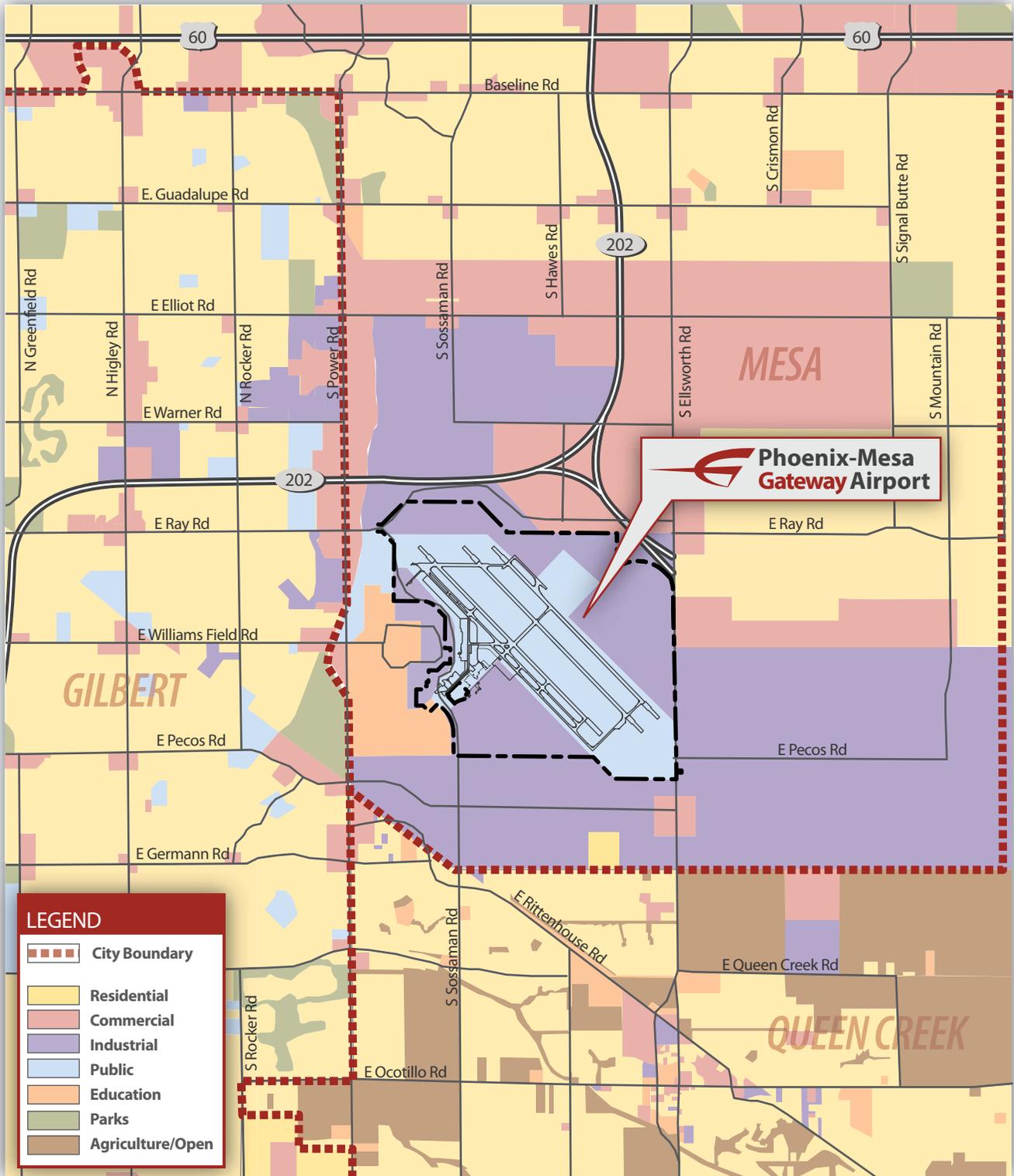
Land west of the Airport in the Town of Gilbert adjacent to the city limits is primarily zoned as Commercial and Public/Quasi-Public. The Commercial district of Gilbert permits development of medium to large scale retail, commercial, recreation and entertainment use. The purpose of the Public Facility/Institutional district (a Public/Quasi-Public District) is to provide areas for utilities and public uses including libraries, golf courses, parks, hospitals, and schools. The Gateway District, an overlay district, is imposed over land adjacent to Mesa city limits. Within this overlay district, land is intended for high density residential, governmental, institutional, employment, and mass transit use. Land south of the Airport within the Town of Queen Creek is predominately zoned as residential districts of varying densities. Queen Creek also enforces a Phoenix-Mesa Gateway Airport Overlay District that establishes land use regulations within the AOAs. No portion of Queen Creek is within AOA 1 (65 DNL), however the town does experience a considerable amount of overflight.

Existing Land Use and Future Land Use

Figure 1-21: Generalized Existing Land Use illustrates the generalized land use of airport property and the surrounding area. Land use and appertaining classifications are detailed in the following paragraphs.

City of Mesa. Residential and vacant land use account for the highest percentage of land in Mesa. The Airport is predominantly classified as transportation land use. Small sections of land located on the north and southeast portion of airport property are classified as vacant. The Airport is surrounded by vacant land use north, northwest, and northeast. A review of Google Maps revealed land six miles northeast of the Airport is characterized by a small cluster of residences surrounded by unoccupied land. Dairy farms, warehouses, airport parking, and a shopping plaza characterize the designated vacant land use area northwest of the Airport. South of the Airport is land designated as open space. West of the Airport is land classified as employment and open space. This area is primarily populated by college campuses. At this time, the City of Mesa and PMGAA are working together on a sub-area plan that will guide future land use in the surrounding area up to approximately six square miles.

Moving forward, rather than designating specific land uses per parcel, the Mesa 2040 General Plan strives to develop a sense of place easily recognized by citizens because of the activity, infrastructure, and character of and within an area. Nine character types have been established, including the Specialty District character type. The Airport is designated as a Specialty District, a classification for large areas with single use. Airports are a subtype of the Specialty District character type. Character types surrounding the Airport are Mixed Use Community to the east, Mixed Use Activity/Employment to the north, a sliver of Mixed Use Activity to the west, and Employment east and south.



Source: Google Maps, 2018
Land Use Maps from the cities of
Mesa, Gilbert & Queen Creek

Figure 1-21: Generalized Existing Land Use

Towns of Gilbert and Queen Creek. Land use in the towns of Gilbert and Queen Creek primarily follow the zoning in place. Land west of the Airport within the town of Gilbert is classified as:

- ✓ Business park
- ✓ Residential (with high density)
- ✓ Shopping center
- ✓ Parks and recreation
- ✓ Village center

Located within these areas are residences, storage facilities, shopping centers, a hospital, an elementary and high school, and open areas. Similar to Mesa, Gilbert has established Character Areas that denote areas with unique characteristics or areas with the potential to evolve into such.

Current land use south of the Airport in Queen Creek is primarily Agriculture and Open Space and Residential. Throughout these areas are few scattered businesses, restaurants, and churches on land classified as Employment and Industrial Commercial. Future land use aims to use the open space and populate the area with increased residential use and industrial use.

Environmental Review

Environmental considerations and factors are important to review during the airport planning process when analyzing development alternatives and identifying preferred alternatives. It is necessary to provide the airport sponsor with the information needed to expedite environmental processing that may be required in support of future airport development projects. The following sections briefly describe the environmental impact categories pertinent to IWA.

Noise

Noise is generally defined as unwanted sound. In 2000, IWA conducted a CFR Part 150 Study to determine land use compatibility and noise exposure around the Airport. CFR Part 150 specifies that the 65 DNL noise contour is the threshold contour for land use compatibility purposes. Schools, residences, churches, public health facilities, and concert facilities are sensitive to high levels of noise and are considered incompatible land uses within any area of a 65 or greater DNL contours. As part of the ALUCP, Ricondo and Associates¹⁹ conducted a noise exposure analysis in July 2016 using the Aviation Environmental Design Tool, Version 2c, an FAA-approved noise model to update the planning scenario noise contours. As presented in **Figure 1-19**, the noise contours are based on an annual service volume of 498,000 annual operations and were used for noise analysis in the master plan.

The 65 DNL contour is predominantly on airport property, partially expanding northwest and southeast of the Airport. There are no noise sensitive land uses located within the 65 DNL contour. The ALUCP categorizes land use in the AOAs as compatible, conditionally compatible, marginally compatible, and incompatible. For example, a residence, restaurant, and university can be classified as incompatible, conditionally compatible,²⁰ and marginally compatible²¹ within the AOA. This ALUCP classification system applies only to new land uses or existing land uses undergoing maintenance, reconstruction or discontinuance. Noise attenuation requirements by the Mesa Zoning Ordinance are more restrictive, as follows²²:

¹⁹ In association with PM2

²⁰ The ALUCP defines a conditionally compatible land use as one that should be allowed subject to stated conditions.

²¹ The ALUCP defines a marginally compatible land use as one that should be allowed subject to the stated outdoor-to-indoor noise level reduction and other conditions.

²² Mesa Zoning Ordinance, Chapter 19 (2018)

A building permit shall not be issued for any structure requiring a Certificate of Occupancy or designed for habitation, within the Airfield Overlay District, until the plans and specifications accompanying the application for the building permit have been certified by a registered Professional Engineer or registered Professional Architect in the State of Arizona as demonstrating that indoor noise levels attributable to airport operations shall not exceed 45db for all portions of a structure where the public is received, office areas, public assembly rooms, sleeping areas, noise-sensitive areas and other areas where the ambient noise level is expected to be low. Plazas, courtyards, outside displays, covered/partially enclosed work areas, storage areas, loading bays, and similar areas are excluded.

The ALUCP, through the communities, can also require fair disclosure agreements to home buyers or renters and avigation agreements, which have also been established in the Airfield Overlay District. The ALUCP can be referenced in the Appendix. A Public Airport Disclosure Map and Avigation Notice of airport activity have been recorded in Maricopa and Pinal Counties and are published on the Arizona Department of Real Estate's website in accordance with Arizona Revised Statutes.²³

Air Quality

As required by the Clean Air Act, the Environmental Protection Agency (EPA) has set National Ambient Air Quality Standards (NAAQS) for six pollutants considered harmful to public health and the environment: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), Particulate Pollution (PM; both 10 micron and 2.5 micron), and Sulfur Dioxide (SO₂). An attainment area is one in which air pollutants do not exceed the NAAQS. Nonattainment areas are those in which a pollutant exceeds the NAAQS. A maintenance area is defined as an area where prior exceedance occurred, but that now achieves the standards. Maricopa County has an Air Monitoring Division that operates air quality monitoring sites and a mobile air monitoring program to measure all criteria pollutants. The county is designated as a non-attainment area for PM₁₀ and 8-hour O₃, and as a maintenance area for CO.

Future projects at airports in non-attainment areas may need to be accounted for in the State Implementation Plan and/or be shown not to exceed the applicable de minimis levels as defined by General Conformity. Conformity requirements are addressed in Section 176(c)(1) of the Clean Air Act. These requirements are intended to ensure that the federal government does not take, approve, or support actions that are inconsistent with a state's plan to attain and maintain NAAQS. All construction and operational

²³ Territory in the Vicinity of a Public Airport, § 28-8486 (1999).

projects will adhere to state and federal law and all contractors will be required to obtain all required air quality permits to mitigate against any adverse air quality issues from heavy equipment pollutant emissions, fugitive dust resulting from the movement of earth for cut and fill, any open burning that may occur on the Airport, and the operation of concrete batch plants. Contractors would be required to comply with all local, state, and federal air quality regulations, especially the procedures contained in the FAA's AC 150/5370-10A, *Standards for Specifying Construction of Airports*, which contains the FAA's guidance to airport sponsors concerning protection of the environment during construction projects. PMGAA has a Non-Title V Air Quality Permit to Operate and/or Construct (Permit # 020111).

Water Quality

Airport activities such as airport development, aircraft washing, deicing, fueling, and maintenance can affect water quality. During a storm, stormwater can pick up residual materials from these activities from runways, taxiways, aprons, parking lots, fuel storage facilities, and access roads. The residual material can be carried through drainage channels off airport property affecting surface water, ground water, and local lakes, ponds, or streams. As part of the Clean Water Act (CWA), state and federal laws and regulations have been established to prevent extensive stormwater pollution. Water pollution is regulated by the National Pollutant Discharge Elimination System (NPDES) permit program by controlling sources that discharge into waters of the United States.

IWA is located in the Gila/Queen Creek subwatershed of the Middle Gila watershed. The Gila/Queen Creek subwatershed covers 1,307 square miles in Maricopa County, including the Airport, and part of Pinal County. North and northwest of the Airport is the Powerline Floodway and East Maricopa Floodway. Drainage from the detention basins at the Airport is directed to the Powerline Floodway and Rittenhouse Channels. Both are considered receiving waters and drain to the East Maricopa Floodway which then drains to the Gila River. Surface water is primarily collected by underground drainage system. There are no impaired waters within the immediate vicinity of the Airport. A sewer line in Sossaman Road transports the Airport wastewater to a treatment facility at the Southeast Water Reclamation Plant.

The Airport is equipped with a Multi Sector General Permit (MSGP), S-Sector, for Air Transportation Facilities, and a Stormwater Pollution Prevention Plan (SWPPP) that was finalized in May 2011. All tenants are required to adhere to the Stormwater Control Measures within the SWPPP. According to the SWPPP, stormwater at the Airport can accumulate anywhere, but primarily accumulates within the stormwater basins located in the northeastern and southeastern section of airfield property. Stormwater drains from the Airport through several sewers and outfalls to the Powerline and East Maricopa Floodway. The East Maricopa Powerline is typically dry except during periods of stormwater runoff. The Airport is responsible for containing and/or diverting any oil discharge from airport operations into navigable waters, and therefore, performs a visual

inspection to monitor conditions. All water that flows into the areas surrounding the fuel farm drain to a 4,000-gallon oil/water separator.

Historical, Architectural, and Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the impacts of their undertakings on historic property, which include archeological sites, buildings, structures, objects, and districts. The NHPA also requires federal agencies to allow the Advisory Council of Historic Preservation the opportunity to comment on the undertaking. The National Park Service (NPS) maintains the National Register of Historic Places (NRHP), which lists all historic sites that meet identified criteria.

The NRHP lists one historic property, Demountable Hangar (S-46), on airport property located on the northern side of the airfield. The hangar was constructed at Williams Air Force Base in 1942 by the Del E. Webb Construction Company and designed by the Army Corps of Engineers. The Demountable Hangar (S-46) was added to the NRHP in June of 1995 and is adjacent to the Gateway Aviation Center. Four additional hangars on airport property (Hangars S-24, S-31, S-32, and T-37) were determined eligible for the NRHP but are not listed. Hangars S-24 and T-37 were approved for demolition by the State Historic Preservation Office (SHPO), but have not been demolished and are intact. The SHPO is responsible for the Arizona database of historic places and cultural resources.

Two archaeological sites are identified on property: Midvale Archeology Site and Archeological Site No. AZ U:10:25 (ASU). Two areas of the Midvale Archeology Site that have been heavily disturbed extend onto airport property. Testing of the sites proved no archaeological features were present below the surface. Upon testing in 1994 of the Archeological Site No. AZ U:10:25 (ASU), three set of human remains and a cremation pit were found. According to the Nineteenth Annual Report of Historic Properties at the Phoenix-Mesa Gateway Airport, “all disturbed human remains were return to the cremation pit” inside a trench the pit was found in and was backfilled. Later, according to the Nineteenth Annual Report of Historic Properties at the Phoenix-Mesa Gateway Airport, “two inhumation burials were discovered, excavated, and repatriated to the Gila River Indian Community.”

Seven NRHP listed historic structures are located southwest of the Airport, within approximately three miles west of the Airport. All are of local significance and were constructed by Del E Webb Construction Company in the year span of 1941-1942. The seven historic structures identified as historic resources of former Williams Air Force Base are listed below:

- ✓ Flagpole (S-100) 1.3 miles west
- ✓ Water Pump Station and Water Tower (S-715; Two structures) 1.0 mile west

- ✓ Housing Storage Supply Warehouse (S-726) 1.2 miles west
- ✓ Civil Engineering Maintenance Shop (S-735) 1.0 mile west
- ✓ Ammo Bunker (S-1007) 1.7 miles west
- ✓ Ammo Bunker (S-1008) 1.7 miles west

As part of NEPA-level assessments for individual projects, further consultation with the SHPO and Tribal Historic Preservation Office (THPO) will be required to identify potential impacts to these resources, if any, that could result from each proposed project.

Section 4(f) Property

According to Section 4(f) of the Department of Transportation Act (re-codified as 49 USC, Subtitle I, Section 303), “no publicly owned park, recreation area, wildlife or waterfowl refuge, or land of historic site that is of national, state or local significance shall be used, acquired, or affected by programs or projects requiring federal assistance for implementation unless there is no feasible or prudent alternative.” The Neely Ranch Riparian Preserve and Riparian Preserve at Water Park are located 11.3 and 7.8 miles, respectively, to the west of the Airport. Neely Ranch Riparian Preserve is 72 acres while the Riparian Preserve at Water Park is 110 acres and consists of riparian, upland, and open water habitats. Three public parks, Monterey Park (5.6 miles north), Eastmark Great Park (6.8 miles northeast), and Augusta Ranch (7.9 miles north), are located near the Airport.

The Gila River Indian Community owns and operates the Toka Sticks Golf Course that is located immediately west of the Airport and south of East Ray Road. As discussed in the previous section, ten NHRP structures/sites are on or near the Airport.

Protected 4(f) properties may also include places of traditional religious and cultural importance to a Native American tribe. There are no known protected Native American tribe sites in the immediate vicinity of the Airport. The Gila River Indian Community is 28 miles southwest of the Airport, and the Salt River Reservation is 28 miles northwest of the Airport.

No Section 4(f) resources are anticipated to be affected by future development projects identified in this Master Plan. For each NEPA-level assessment, consultation with the SHPO and THPO will be conducted and measures will be employed to mitigate for any potential impacts to Section 4(f) resources.

Farmland

The Farmland Protection and Policy Act (FPPA), administered by the US Department of Agriculture (USDA), was enacted to minimize the conversion of prime and unique farmland to non-agriculture by urban development and projects involving federal agencies. Farmland is considered prime or unique farmland and farmland of state or local importance. Prime farmland, as defined by the FPPA, is “farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops.”²⁴ The FPPA defines unique farmland as “farmland other than prime farmland which is used for production of specific high-volume food and fiber crops.”²⁵ Unique farmland, according to the FPPA, “has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.”²⁶ FPPA requires federal programs to comply with state, local, and private programs and policies dedicated to the protection of farmlands.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey Data Explorer, IWA property is mostly classified as prime farmland, if irrigated. The FPPA exempts farmlands “already in or committed to urban development... [including] lands identified as ‘urbanized area’ on the Census Bureau Map.” According to the 2010 Census Urbanized Area Reference Map, the airport is included in the urbanized area associated with Phoenix-Mesa, Arizona; therefore, the farmland at the Airport is exempt from the FPPA.

²⁴ USDA. (2012, August). *Part 523 – Farmland Protection Policy Act Manual*[PDF]. Retrieved from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1049284.pdf

²⁵ Ibid.

²⁶ Ibid.

Threatened and Endangered Species

The Endangered Species Act (ESA), as amended, requires each “Federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species.”²⁷ Threatened species are species likely to become endangered. Endangered species are species in danger of extinction. The U.S. Fish and Wildlife Service (USFWS) is responsible for listing threatened and endangered species and has listed the Yellow-billed Cuckoo (*Coccyzus americanus*) and Mexican spotted owl (*Strix occidentalis lucida*) as threatened for Maricopa County²⁸. The following species have been listed as endangered²⁹:

- ✓ Yuma clapper rail (*Rallus longirostris yumanensis*)
- ✓ California least tern (*Sterna antillarum browni*)
- ✓ Southwestern willow flycatcher (*Empidonax traillii extimus*)
- ✓ Colorado pike minnow (*Ptychocheilus lucius*)
 - Formerly squawfish
- ✓ Gila topminnow (*Poeciliopsis occidentalis*)
 - Including Yaqui
- ✓ Desert pupfish (*Cyprinodon macularius*)
- ✓ Razorback sucker (*Xyrauchen texanus*)
- ✓ Spikedace (*Meda fulgida*)
- ✓ Acuna Cactus (*Echinomastus erectocentrus* var. *acunesis*)
- ✓ Nichol’s Turk’s head cactus (*Echinocactus horizonthalonius* var. *nicholii*)
- ✓ Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*)
- ✓ Arizona Cliffrose (*Purshia subintegra*)
- ✓ Sonoran pronghorn (*Antilocapra americana sonoriensis*)
- ✓ Ocelot (*Leopardus paradisi*)

²⁷ U.S. Fish and Wildlife Service. (2003, November 24). *Endangered Species Act of 1973*[PDF]. Department of the Interior. Retrieved from <https://www.fws.gov/endangered/esa-library/pdf/ESAall.pdf>

²⁸ Environmental Conservation Online System [Advertisement]. (n.d.). Retrieved June 2018, from <https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=04013>

²⁹ Ibid

Though the bald eagle was removed from the federal list of threatened and endangered species in August of 2007, the species is still protected under the Bald and Golden Eagle Protection Act. The USFWS has issued a recovery status for bald eagles in Maricopa County. Other recovery status species for Maricopa County include the: American peregrine falcon (*Falco peregrinus anatum*), Brown pelican (*pelecanus occidentalis*), California least tern (*Sterna antillarum browni*), and the Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*).³⁰

A fourth status is identified for Maricopa County species: Experimental Population, Non-Essential. Section 10 of the Endangered Species Act, titled Exceptions, defines Experimental Population as “any population (including offspring arising solely therefrom) authorized by the Secretary for release under paragraph (2), but only when and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species.”³¹ Paragraph two of section 10(j) states, “The secretary may authorize the release (and the related transportation) of any population (including eggs, propagules, or individuals) of an endangered species or a threatened species outside the current range of such species.”³² The nonessential designation pertain to species that are not essential to the continued existence. The Woundfin (*Plagopterus argentissimus*) is solely listed as Experimental population, non-essential for Maricopa County³³. The Colorado pikeminnow (*Ptychocheilus Lucius*) and Sonoran pronghorn (*Antilocapra americana sonoriensis*) are listed as endangered and experimental population, non-essential.³⁴

USFWS identified the previously listed species. The Information for Planning and Consultation (IPAC) tool lists USFWS endangered and threatened species that may be impacted by activities at a specific site location. IPAC lists the California Least Tern (*Sterna antillarum browni*) and Yellow-billed Cuckoo (*Coccyzus americanus*) as endangered species identified in the immediate airport vicinity.³⁵ Migratory birds that warrant special concern/attention or are on the USFWS Birds of Conservation Concern for the immediate vicinity of the Airport are as follows³⁶:

- ✓ Bald eagle (*Haliaeetus leucocephalus*)
- ✓ Bendire’s Thrasher (*Toxostoma bendirel*)
- ✓ Burrowing Owl (*Athene cunicularia*)
- ✓ Gila Woodpecker (*Melanerpes uropygialis*)
- ✓ Lawrence’s Goldfinch (*Carduelis lawrenci*)
- ✓ Rufous Hummingbird (*Selasphorus rufus*)

³⁰ Ibid.

³¹ ENDANGERED SPECIES ACT OF 1973, § 10 (1973).

³² Ibid.

³³ Environmental Conservation Online System [Advertisement]. (n.d.). Retrieved June 2018, from <https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=04013>

³⁴ Ibid.

³⁵ U.S. Fish & Wildlife Service. (n.d.). *Endangered Species and Migratory Birds*. Retrieved June, 2018, from <https://ecos.fws.gov/ipac/location/OWUQZCX6NZAHFHYEBLX6OFY56E/resources>.

³⁶ Ibid.

Floodplains

Executive Order 11988, Floodplain Management, requires federal agencies to avoid, to the extent possible, indirect and direct short and long-term impacts to floodplains. As part of the National Flood Insurance Program, the Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRM), which depict Special Flood Hazard Areas (SFHA). FEMA distinguishes SFHAs as those that will be inundated by the base flood, or the flood event having a 1-percent chance of being equaled or exceeded in any given year.

Airport property is located in a floodplain classified as Zone D, which is an area where flood hazards are undetermined, but possible. Land located north, northwest, south, and southeast of the airfield is designated as having a 0.2 percent annual chance of flooding (Shaded Zone X). A retention canal located approximately one mile west of the airfield is designated as Zone A. SFHA Zone A has no based flood elevation but has a 1-percent annual chance of flooding.

Hazardous Material, Pollution Prevention, and Solid Waste

The handling and disposal of hazardous materials, chemicals, substances, and wastes are primarily governed by the following laws:

- ✓ Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (as amended by the Superfund Amendments and Reauthorization Act of 1986 and the Community Environmental Response Facilitation Act of 1992)
- ✓ Pollution Prevention Act of 1990
- ✓ Toxic Substances Control Act of 1976 (TSCA), as amended
- ✓ the Resource Conservation and Recovery Act of 1976 (RCRA) (as amended by the Solid Waste Disposal Act of 1980 [SWDA]), the Hazardous and Solid Waste Amendment of 1984, and the Federal Facility Compliance Act of 1992 (FFCA).

The first and last statutes are of most importance to the FAA in proposing actions that could affect or be affected by hazardous materials, pollution, and solid waste.

RCRAInfo is a comprehensive information system that provides an inventory of waste handlers and their activities. RCRA requires those generating, storing, disposing, and transporting hazardous waste to disclose information regarding their activities to state environmental agencies. The Airport and several businesses operating on airport property have been identified as hazard waste generators with the following handler types:

- ✓ Large quantity generator
- ✓ Conditionally exempt small quantity generator
- ✓ Small quantity generator
- ✓ Not in a universe (not currently classified in any hazardous waste universe)
- ✓ Superfund

While operating as the Williams Air Force Base, 12 million gallons of jet fuel reportedly contaminated an aquifer that was considered a protected drinking water source. Due to the discharge and disposal activities during the time, the soil and groundwater also became contaminated. As a result, portions of the former base were labeled a Superfund site, which is a contaminated site due to the neglect and or mishandling of hazardous waste. For Superfund sites on the National Priorities List (NPL), “long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening are approved.”³⁷ Extensive cleanup and maintenance operations began in 1988 by the United States Air Force via a Federal Facilities Agreement with the EPA, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources to remedy the issues and are currently ongoing. These efforts mean that, as of 2018, over 3,800 acres has been designated for reuse.

Construction activities can generate hazardous wastes and some construction materials constitute hazardous substances. These include fuel, oil, lubricants, paints, solvents, concrete-curing compounds, fertilizers, herbicides, and pesticides. Proper practices should be implemented to prevent or minimize the potential for these hazardous substances to be released into the environment. Chemicals, petroleum-based products, and waste materials, including solid and liquid waste, should be stored in areas specifically designed to prevent discharge into stormwater runoff. Areas used for storage of toxic materials should be designed with full enclosure in mind, such as the establishment of a dike around the perimeter of the storage area. Construction equipment maintenance should be performed in a designated area and control measures, such as drip pans to contain petroleum products, should be implemented. Spills should be cleaned up immediately and disposed of properly.

³⁷ EPA. (n.d.). Superfund: CERCLA Overview. Retrieved June, 2018, from <https://www.epa.gov/superfund/superfund-cercla-overview>

As part of this Master Plan, IWA will undergo a waste study conducted by Mead & Hunt. During this study, Mead & Hunt will review and inventory:

- ✓ Airport Recycling, Reuse, and Waste Reduction Plan (if available)
- ✓ Airport waste
- ✓ Waste management agreements
- ✓ Infrastructure available for waste collection in the community.

Based on the findings of this study, Mead & Hunt will present recommendations that could potentially aid in landfill diversion.

Socioeconomic, Environmental Justice, Children’s Health and Safety Risks

Environmental justice is a public policy with the goal of promoting the fair treatment and meaningful involvement of all people in the decision-making process. To satisfy this goal means, minority and low-income communities must receive an equitable distribution of the benefits of a project without suffering disproportionate adverse impacts. The environmental justice evaluation helps to determine whether the proposed action would result in an inequitable distribution of negative effects to minority, special ethnicity or low-income population groups. Environmental justice is examined during evaluation of other impact categories, such as noise, air quality, water, hazardous materials and cultural resources. This analysis complies with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and the Department of Transportation (DOT) Order 5610.2, *Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. According to DOT Order 5610.2, a disproportionately adverse impact is defined as one that is:

- ✓ Predominantly borne by a minority population and/or low-income population; or
- ✓ Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population.

DOT Order 5610.2 also states that any disproportionate impacts on these populations should be avoided, if practicable, unless the avoidance of these impacts would result in other significant impacts to social, economic or environmental resources.

According to the American Community Survey (2012-2016), Mesa has a population of approximately 470,456, Queen Creek has a population of 30,849, and Gilbert has a population of 226,832. Population, racial, and housing statistics are shown in the **Table 1-8: Statistics of Mesa and Surrounding Communities**.

Table 1-8: Statistics of Mesa and Surrounding Communities

	Mesa	Queen Creek	Gilbert
Population	470,456	30,849	226,832
Male	231,917	15,679	110,907
Female	238,539	15,170	115,925
Race			
One Race	456,769	30,191	218,314
White	398,554	27,082	189,933
Black or African American	16,695	799	6,810
American Indian and Alaska Native	10,261	293	2,034
Asian	9,196	777	14,003
Native Hawaiian and Other Pacific Islander	1,643	39	466
Other	20,420	1,201	5,068
Two or more races	13,687	658	8,518
White and Black or African American	3,268	80	2,752
White and American Indian and Alaska Native	3,004	54	1,178
White and Asian	2,691	261	2,109
Black or African American and American Indian and Alaska Native	272	0	144
Hispanic or Latino	127,274	5,059	36,320
Mexican	110,838	3,376	29,000
Puerto Rican	3,260	490	1,513
Cuban	666	34	392
Other Hispanic or Latino	12,510	1,159	5,415
Total Housing Units	204,833	10,545	77,444
Occupied housing units	172,705	9,146	71,903
Families Below Poverty Total (percentage)	12.2%		
Population for whom poverty status is determined (percentage)		7.85%	6.17%

Source: Census American Community Survey (2012-2016)

Issues Summary

On April 24, 2018, the Master Plan Team conducted a workshop to gather a comprehensive understanding of development issues the Airport is experiencing. This understanding led to the development of a list of improvement goals that will be used in the development and analysis of the Master Plan's improvement alternatives. The developed goals of the Master Plan will include recommendations that:

- ✓ Maximize the safety and efficiency for the use of the aircraft operational areas and achieve compliance with FAA guidance.
- ✓ Consider the significant amount of airport property that can be developed and is marketable and potential demands for that land. The Master Plan will identify a development program that makes efficient use of airport land for aviation, aviation/airport support, and non-aeronautical facilities, which will maximize the potential for revenue generation.
- ✓ Consider the layout of the airfield based upon the demands related to existing and all potential future aircraft types that could regularly operate at the Airport. This includes consideration of all safety and object clearing standards, and current FAA configuration guidance.
- ✓ Consider passenger terminal improvements that are scalable and flexible in their ability to accommodate potential demands. Recommendations will be tied to trigger points that tie improvements to passenger activity levels.
- ✓ Consider comprehensive improvements for landside facilities (e.g. ATCT, ARFF, fuel storage and delivery, storage hangars, maintenance hangars, air cargo facilities, etc.).
- ✓ Continue to work with the surrounding communities to promote land use compatibility initiatives that minimize the potential for negative impacts, while not being restrictive of potential airport improvements and increased activity.
- ✓ Promote a Capital Improvement Plan that provides financial sustainability, anticipates reasonable levels of expense and income, and balances facility improvements and infrastructure recommendations with revenues and funding sources.
- ✓ Consider the additional passenger transportation modes (i.e., Lyft, Rideshare, and other transportation network companies) in the development of the future terminal improvement program.
- ✓ Recognize environmental development constraints and appropriately consider the constraints in improvement recommendations.